



**MANAGEMENT OF INDIGENOUS HUMAN HEALTH
KNOWLEDGE IN TANZANIA**

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DECLARATION

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DEDICATION

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2. To all people who still cannot differentiate traditional healing knowledge from divination, magic, witchcraft and sorcery.

ABSTRACT

This study was undertaken in Tanzania, a country rich in indigenous human health knowledge (IHHK) used for healing certain human physical ailments. However, such knowledge is not purposefully managed. If such a situation persists, such knowledge would likely be lost to future generations with the death of current holders of such knowledge. Therefore this study aimed at exploring the management of IHHK in Tanzania by focusing the available efforts, factors constraining the process, and recommended strategies for expediting the process. To address the research problem related to the management of IHHK, this study was guided by the working knowledge model, developed by Davenport and Prusak in 2000. The main model was supplemented by the five other reviewed models. The pragmatism paradigm was employed in the conducting of the study. Thus, the study adopted mixed methods, whereby a qualitative approach was dominantly used and was supplemented by a quantitative approach.

Data for this study was collected from respondents of both genders selected from four surveyed districts of Tanzania namely, Njombe urban, Magu, Masasi and Singida urban, and from three institutions: the University of Dar es Salaam-School of Law, the Institute of Traditional Medicine (ITM) of the Muhimbili University of Health and Allied Sciences, and the Traditional and Alternative Health Practices Council located in Dar es Salaam. The methods used for data collection were the face-to-face interview, focus group discussion, observation and documentary review. The study involved 18 traditional healers, 45 prospective users of IHHK, and nine Heads of Department from the surveyed institutions. The findings showed that IHHK is accessed and used by almost all people of all ages and economic groups. However, much of it was still stored in the minds of people. Prospective users accessed information on the knowledge and services of traditional healers through posters, radio, newspapers and, peers and friends who had used it. Therefore, respondents perceived the necessity and need for documenting and preserving the metadata of such knowledge in a repository. Although traditional healers were ready to document and preserve their healing knowledge in a repositories, many factors constrained the process.

It was further found that the country had no proper management efforts to purposefully collect, document and preserve IHHK metadata, although some attempt was made by the ITM. There were no established public domains, policies and standards to help in managing IHHK. Thus, no political and administrative support, and technological application skills were involved in the process. Since the traditional healers were ready, and the community members highly recommended the documentation and preservation of IHHK in repositories, various strategies have been proposed including provision of training for traditional healers and interested people on how information technology could be used in managing IHHK. The national bureau for indigenous knowledge should be established as the means to officiating management efforts for the available IHHK. Hence, a new model for prosperity of IHHK has been proposed as well as some areas for further research have been recommended.

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LIST OF ABBREVIATIONS

AMREF	– African Medical and Research Foundation
ANC	– African National Congress
CTM	– Chinese Traditional Medicine
DCo	– District Co-ordinator
HIV/AIDS	– Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HoD	– Head of Department
ICTs	– Information and Communication Technologies
IHHK	– Indigenous Human Health Knowledge
IK	– Indigenous Knowledge
IP/IPRs	– Intellectual Property/Intellectual Property Rights Systems
I-Space	– Information Space
ITM	– Institute of Traditional Medicine
KM	– Knowledge Management
MKUKUTA	– <i>Mkakati wa kukuza uchumi na kupunguza umaskini</i> Tanzania (the National Strategy for Growth and Poverty Reduction in English)
MUHAS	– Muhimbili University of Health and Allied Sciences
NB	– Nota Bene (Please note or point to note)
n.d.	– No Date
NGOs	– Non-governmental Organisations
para.	– Paragraph
SCECSAL	– Standing Conference of Eastern, Central and Southern Africa Library and Information Associations.
SECI	– Socialisation, Externalisation, Combination and Internalisation
SLC	– Social Learning Cycle
SNL	– Swaziland National Library
SNLS	– Swaziland National Library Service
SPSS	– Statistical Package for Social Sciences
TAHPC	– Traditional and Alternative Health Practices Council
TK	– Traditional Knowledge
TRIPS	– Trade-Related Aspects of Intellectual Property Rights System.
UDSM-SoL	– University of Dar es Salaam School of Law
UKZN	– University of KwaZulu-Natal
UNESCO	– The United Nations Educational, Scientific and Cultural Organisation
UNISWA	– University of Swaziland
URT	– United Republic of Tanzania
WHO	– World Health Organisation
WIPO	– World Intellectual Property Organisation
WTO	– World Trade Organisation

CHAPTER ONE

SETTING THE SCENE

1.1 Introduction

Indigenous knowledge (IK) is very important source for modern developments. It is mainly used as the basis for local-level decision-making in a various aspects of lives. However knowledge management approaches seem to marginalise, neglect and suppress IK. As a type of knowledge (tacit knowledge), IK covers a wide range of aspects including human healthcare, education, natural-resource management, agriculture and other activities. Therefore, this study focuses on the management of IK used for the maintenance of human health.

This chapter provides the context under which the study was studied. It gives an insight on the knowledge management (KM) essentially on the management of indigenous human health knowledge (IHHK). The contemplation behind researching the management of IHHK is disfavoured by the existing KM systems which in contrast favour foreign knowledge. This means irrespective of acquiring commodity value in the market still the IHHK is disfavoured by the existing KM systems and initiatives as compared to foreign knowledge. As the IHHK like any other knowledge is exchanged, bought and bartered (just like goods and services in the markets) the IHHK market has buyers and sellers who negotiate to reach a mutually satisfactory price for the goods exchanged. There are also brokers who bring the buyers and sellers together (Davenport, and Prusak, 2000). Therefore, with the current increased use and its contribution to human healthcare, IHHK need to be documented and preserved for research and development. According to Davenport and Prusak (2000:68):

“The aims of codification is to put organisational knowledge into a form that makes it accessible to those who need it. It literally turns knowledge into codes to make it as organised, explicit, portable, and as easy to understand as possible”.

Thus, an understanding of how the IHHK is documented and preserved, the knowledge owners or traditional healers’ readiness and the available efforts to the documentation and preservation, as well as the understanding of the factors which affect the documentation and preservation is essential to successfully and properly managing IHHK.

This chapter start with the introduction, followed by the background to the study that explores various aspects necessary to propose and subsequently conducting research. The background to the study provides the context to the study as well as the need for the documentation and preservation of indigenous knowledge (IK) which is used for healing some human physical ailments. After explaining the background to the study, the chapter covers the statement of the research problem, objectives of the study, research questions, significance, assumptions and originality of the study. The chapter also discusses the limitation of the study, definition of key terms, broader issues investigated and the principal theories upon which the research project was constructed. An overview of the research methodology, methods used by the study, ethical considerations and the structure of the thesis is also provided.

1.2 Background to the study

The study was essentially about management of IHHK. As stated earlier in Section 1.1 the study was carried out in order to investigate the ways in which IHHK is managed in Tanzania. It also explored the existing KM efforts relating to the documentation and preservation of such knowledge. Furthermore, the study investigated factors affecting the documentation and preservation of IHHK with the view to proposing a sustainable course of action for the purpose of identifying, collecting, organising, documenting, popularising and preserving such knowledge. Thus, the study is an investigation into existing KM endeavours in Tanzania for the documentation and preservation of IHHK. It involved both governmental and non-governmental organisations (NGOs).

Authors in KM have defined the term KM in various ways, but this study adopted the KM definitions from Eknowledge Centre (2005), as cited by Mchombu (2006) and that provided by Haslinda and Sarinah (2009). As stated in Section 1.10.2 of this study, KM is a disciplined approach to managing all of the knowledge processes found in human collectives (a set of people with common practices, interest and goals). This means that KM helps to accomplish practices, interest and goals faster and more effectively by delivering the right knowledge to the right person at the right time and in the right context. By creating an environment conducive for optimal production, transfer and usage of knowledge, increases the ability to solve problems. For example to ensure that the required resources such as physical, human and financial resources

are in place for accessing and use of knowledge. KM ensures the survival of an organisation by leveraging collective wisdom to increase responsiveness and innovation.

According to Davenport and Prusak (2000:51) “all KM can be fruitfully seen as an effort to increase the efficiency of knowledge markets”. In this context, therefore, knowledge markets are the mechanisms of which a knowledge owner distributes, sells and promotes more effectively his/her expertise to perceived customers. According to Davenport and Prusak (2000), any organisation that wants to excel at managing knowledge will have to perform well on three processes of KM (generation, codification and transfer of knowledge). Davenport and Prusak (2000) are of the view that with codification of knowledge, including IK the knowledge managers and users can categorise knowledge, describe it, map and model it, simulate it, and embed it in rules and recipes. Furthermore, Davenport and Prusak (2000) are of the view that new technologies play an important role in these processes.

On the other hand, authors in KM including Grenier (1998) define IK as a type of knowledge that exists within and is developed around the specific conditions of humans, indigenous to particular geographic areas as stated in Section 1.10.1.4. Such knowledge encompasses various systems such as traditional dances, rituals, language, witchcraft, traditional medicine and healing among others. Covin and Stivers (1997) cited by Msuya (2007:347) provide some categories of IK based on their disciplines such as: environmental conservation, traditional education systems, health practices and prevention, medical technology, sustainable agriculture practices, and local industry and technology. This study focused on IK used for healing certain physical ailments. It is known as IHHK in this study to differentiate it from IK for animal health and other forms. Since human health can be categorised based on aspects as psychological, social, physical, and many other aspects; the study focused on the physical aspect of human well-being. It sought to investigate how IHHK is managed (documented and preserved) in Tanzania.

Msuya (2007:345) is of the view that an “attempt has been made to research and document medicinal plants in Africa”. This view by Msuya stimulates the need to understand whether such research is conducted in Tanzania which is rich in IHHK and used for healing and curing some physical ailments. According to Msuya (2007), the dilemma in the management of traditional

medicine in Tanzania is as a result of formal schooling which has threatened the practices of traditional medicine in some communities. Msuya (2007:345) argues that:

“As children go to school, the potential successor has a choice between abandoning western education and being a traditional medicine man or joining a conventional medical school towards a formal career”.

However, studies including that of Kanwar, Sharma and Rekha (2005) have shown that a majority of people from all age groups prefer herbal medicine as the primary treatment, but the older people have more inclination or access towards herbal treatment than others. Therefore, based on Msuya’s (2007) view, the younger generations are not inclined to become traditional healers or use traditional medicine.

However, studies have shown that the use of IK specifically for the physical aspect of human health as a basis for healing/maintenance of good health has increased all over the world (Kanwar, *et al.* 2005; Ghimire and Bastakoti, 2009; Idu, Erhabor, and Efijuemue, 2010; Dixit and Goyal, 2011). Among other studies, Kanwar *et al.* (2005) and Caldwell (2007) show that the rationale behind this increase includes recognition of natural products as being non-narcotic, with limited side effects; easy availability; cost effectiveness and sometimes the only source of healthcare for the poor. Therefore, in view of its potential value for sustainable development, Dixit and Goyal (2011:429) add that, “it is necessary to preserve IK for the benefit of the future generations”. In the same vein, many of the studies have recommended the documentation and preservation of IK for study, research and development (Grenier, 1998; Kanwar, *et al.* 2005; Caldwell, 2007; Kiplang’at and Rotich, 2012).

According to Kanwar, *et al.* (2005) China and India have made attempts to document the use of some medicinal plants for various diseases/ailments. These two countries are considered to be role models in adhering to the call of the World Health Assembly of 1978 on governments to incorporate traditional healers into national health systems, and traditional medicines into national drug policies and legislation. With the codification of Chinese Traditional Medicine (CTM), China thus, makes considerable savings on the importation of expensive drugs; it creates jobs, conserves wild plants that are in danger of being over-harvested, and promotes and maintains an important aspect of the Chinese cultural heritage. This is in line with Green’s

(2012) views on India's leading role in mobilising global intellectual property law to prevent bio-piracy of traditional medicines. Green (2012) further observes that India has also produced several leading scholars on IHHK.

In some Africa countries such as Tanzania and South Africa, studies conducted on the availability and use of traditional knowledge (TK) have recommended the documentation or recording of this knowledge for both historic and contemporary uses (Gericke, 1996; Kanwar, *et al.* 2005; Msuya, 2007;). The available literature shows that Tanzania has successfully taken cognisance of the recommendations of the World Health Assembly of 1978 (Gericke, 1996; Stangeland, Dhillion, and Reksten, 2008). Tanzania, through the formulation of various institutes and implementation of a number of plans has also made some progressive developments. The country established the Institute of Traditional Medicine (ITM) in 1991 at Muhimbili University of Health and Allied Sciences (MUHAS) with the broad objectives of seeking materials of plant and animal origin that might be of medicinal value, and to establish a record of cultural significance (Stangeland, *et al.* 2008). The United Republic of Tanzania (URT) Cultural Policy (1997:10) states that "traditional knowledge, skills and technology which are environmentally friendly shall be identified and their use encouraged". Therefore, the importance of documenting and preserving IHHK is evident in the role which it plays in development through research and cultural preservation.

To ensure preservation and recognition of traditional healers and their activities in Tanzania, the Traditional and Alternative Health Practice Council (TAHPC) was established. In the *Daily News* of February 3, 2011 Kazoka reports that:

"Tanzania become a third country in Africa to have such a system in place, where traditional healers are required to register themselves before providing services. Other countries are Ghana and Zimbabwe".

The TAHPC has made statistics available concerning traditional healers and their activities. By early April of 2013, the office of the Registrar TAHPC had already registered about 1,160 traditional healers from 10 districts (N. Mpemba, personal communication, April 22, 2013).

Concerning the model for managing IK, Ngulube (2002) is of the view that the dominant model in managing IK in developing countries, including Tanzania, is largely based on organising and preserving records, and the knowledge generated by researchers, laboratories and universities. This means that what is being preserved is research papers or theses on traditional medicine. Msuya (2007:347) asserts that it is understandable that knowledge generated by research institutes and universities is considered a resource just like any other resource that can be used for development. It is well organised, preserved in libraries and information units, and disseminated for wider access to the user community. This is not the case with IK. Msuya (2007) is of the view that IK needs to be well managed to allow easy preservation and sharing by people. In Tanzania, the TAHPC has established statistics on where to locate traditional healers who can assist with particular ailments. However, this is not sufficient for preserving and sharing IHHK. Of paramount interest is the documentation of the medicinal values of specific plants; local names; medicine preparation process and use; dosage forms; parts of plants used for medicine; and the conditions under which such knowledge is accessible. All these depend not only on the owner's readiness and willingness to document know-how but also on the appropriateness of the existing policies and guidelines for the access, documentation and preservation of IK. In other words, integration and use of other systems or technologies in managing IHHK such as the use of computer-based and other systems.

Experience has shown that technology has been used in various aspects of managing knowledge in Tanzania. Since technology is changing on a daily basis, the format and modes of accessing information resources have changed (Maponya, 2005). The changing nature of science and technologies has brought about intensive use of information and communication technologies (ICTs) in various spheres of life, including the management of IHHK in Tanzania. The explosion of knowledge in almost all fields of human endeavour therefore requires new strategies, plans and methods to collect, process, store and disseminate the available information. The ICTs in its various applications and forms such as radio, television, phones, sound and picture recording devices and other electronic instruments provide ways of transmitting and storing knowledge not dreamed of by most people in few decades ago (Ayars, 1983:129).

According to Haralambos and Holbon (2004:974), knowledge and computers can hardly be separated. They argue that most modern scientific and non-scientific developments cannot be converted into a form usable by computers; as such this knowledge can get lost or totally disregarded. Of paramount interest in the light of this statement is the management of IK for physical aspect of human well-being in Tanzania. As such knowledge exist in the minds of traditional healers, and cannot be converted into explicit or any other form easily for management; such knowledge can be lost to future generations. Therefore the ultimate aim of computers and ICTs is to provide timely and useful information to users, needs to be examined and fully utilised with regard to the management of IHHK in Tanzania.

Proper management through documentation of IHHK using any KM system will clear unnecessary doubt and claims in future regarding Tanzania, and in general African science and development. Rodney (1972:42) argued that “African achievements of the pre-European period stand as contributions to man’s heritage of beautiful creation”. Rodney’s argument meant that prior to colonialism, Africans and Tanzanians in particular had their own knowledge known as indigenous, traditional or local knowledge. Since then anything associated with Africa’s knowledge, including those related to human health, was transmitted through word of mouth and preserved in people’s minds and lost when people die; thus the proof for Rodney’s statement remains questionable (with no written evidence/support). Therefore, whether the government is colonial or not, the necessity of having proper management specifically in documenting and preserving IHHK cannot be denied and remains highly important. Otherwise, such knowledge will likely be lost to future generations with the death of current holders (Kanwar, *et al.* 2005; Dixit and Goyal, 2011). Inevitably it will be very difficult to manage and provide concrete answers to questions related to management of such knowledge (Grenier, 1998; Choo, 2003). However, if well documented and preserved, and made accessible in a form which is easily understood such knowledge can promote and maintain an important aspect of Tanzania’s cultural heritage (Gericke, 1996; Idu, *et al.* 2010).

1.3 Statement of the problem

Tanzania is rich in IHHK, the status of which is high since such knowledge is used for healing physical ailments. The available IHHK in Tanzania is scattered within various local

communities; especially in the Sukuma land/lake zone regions in the North-western part of the country near Lake Victoria, Central zone regions, North-eastern, Coastal regions along the Indian Ocean and South-western highland regions. However, without purposeful management (particularly by knowledge managers who would establish not only who knows what in Tanzania, for what ailment, where he/she is located and under what condition is his/her knowledge is accessible), such knowledge will contribute nothing to the development of the nation and therefore be less valued (ignored). In addition, documentation of the medicinal values of some plants, local names, medicine preparation process and use, dosage forms and parts of plants used for medicine is very essential in management of such knowledge. Codifying such information will purposively cultivate a sense of cultural heritage and possible economic development as well as increased research on such knowledge and information. It will further enable easy access, sharing and use by people (Maponya, 2005).

Despite Tanzania's acknowledgement of the recommendation of the World Health Assembly of 1978 (Gericke, 1996; Stangeland, *et al.* 2008) and the application of ICTs in KM, the documentation of IK related to physical aspect of human well-being for easy access, sharing and use by people is still unknown or rather has not been undertaken. In Sukuma land for example, some traditional healers have been healing people with various physical ailments including the curing of a broken arm. The concern is therefore that if not documented such knowledge is likely to be lost to future generations with the death of current holders of such knowledge (Maponya, 2005; Kanwar, *et al.* 2005; Ghimire and Bastakoti, 2009; Dixit and Goyal, 2011). Inevitably it will be very difficult to manage and provide concrete answers to questions related to the management of IHHK (Grenier, 1998; Choo, 2003).

From this scenario, documenting the IHHK metadata at various levels (metadata refers to the set of data that describes and gives full information about a particular item, other data or knowledge) seems to be suggested (Tetik, Civelek, and Cakilcioglu, 2013) in order to categorise, describe, map, simulate and imbed it in rules and recipes. According to Maponya (2005:14) "unless something is made explicit, it frequently does not get properly managed". This view is in line with Ikoja-Odongo (2006:206) on Africa's knowledge when he states that "little is written and a lot of it is discriminated against by the educated as a sector of primitivity". Lwoga (2009:1) is of

the view that “IK is mainly used as the basis for local-level decision-making... development efforts that ignore local knowledge and innovations generally fail to achieve their development goals”. Therefore, a study is required in order to explore the management of IHHK in Tanzania, and assess the community’s need on making a collection of IHHK as complete as possible. Such a collection must ensure that the right knowledge data is entered into the system and also sets the foundation for accessibility, preservation and sharing of knowledge (Xie, Cui, Wu and Zhao, 2010; Yetein, Houessou, Lougbe’gnon, Teka and Tente, 2013). This study would also propose a sustainable course of action for the purpose of identifying, collecting, organising, documenting, popularising and preserving IK.

1.4 Objectives of the study

This study was guided by the following general and specific objectives:

1.4.1 General objective

The general objective of the study was to explore the management of IHHK in Tanzania.

1.4.2 Specific objectives

Therefore, the specific objectives that guided the conduct of the study were to:

- (i) Assess the available KM efforts in relation to documentation and preservation of IHHK in Tanzania.
- (ii) Analyse factors which affected the documentation and preservation of IHHK.
- (iii) Recommend strategies that would assist in the documentation, preservation and sharing of IHHK of Tanzania.

1.5 Research questions

The research questions were as follows:

- (i) How is IHHK managed (accessed, documented and preserved) in Tanzania?
- (ii) How does the management of IHHK feature in existing policies and strategies on Intellectual Property Rights (IPRs)?
- (iii) What are the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK?

- (iv) What factors affect (constrain) documentation and preservation of IHHK?
- (v) What strategies could assist in the documentation and preservation of IHHK in Tanzania?

1.6 Significance of the study

This study was an academic undertaking for the award of a Doctoral degree in Information Studies. However the study is significant in the following ways:

- (i) Revealing the existing relationships between the available IHHK and the documentation efforts.
- (ii) Broadening the literature base on the management of IHHK in Tanzania.
- (iii) Helping policy makers to formulate evidence-based policies and decisions that will influence and expedite the available efforts towards documentation and preservation of IHHK.
- (iv) Influencing the establishment of a large project for documentation and preservation of IHHK throughout the country as the needs have been identified.

1.7 Assumptions of the study

The study sought to investigate the existing KM efforts in Tanzania in relation to the documentation and preservation of IHHK with a view to proposing strategies for the purpose of identifying, collecting, organising, documenting, popularising and preserving IK. Therefore the study was based on the assumptions that:

- (i) Tanzania is a market place of IHHK which greatly contributes to modern developments but is not properly managed for preservation and sharing.
- (ii) Central government and local authorities are potential sites for managing IHHK in Tanzania.
- (iii) Knowledgeable community members are willing to document their IHHK only if security is provided by the existing legal framework.
- (iv) Information technology (IT), administration and legal factors affecting (constraining) documentation and preservation of IHHK.
- (v) Codification, preservation and sharing of IHHK can well be performed only if IT is fairly and properly used.

- (vi) Effective management of IHHK helps government efforts of creating more jobs, conserves wild plants that are in danger of being over-harvested, and promotes and maintains an important aspect of the Tanzania's cultural heritage.
- (vii) Realisation of IHHK's contribution to promoting healthcare is not well established in the country, therefore the knowledge lacks support in terms of management.

1.8 Originality of the study

This study is original both in conceptualisation and design. It is equally novel in that previous studies in Tanzania and other countries on KM are ethnographic, ethno-botanical and biomedical in nature without providing qualitative and quantitative estimation of the community gains as proposed in this study. In addition, no existing study has been able to analyse the value of technologies in the documentation and preservation of IHHK in Tanzania despite its rich IHHK. This study, as proposed, intended to fill this gap. Given the scope and the collected data, the study findings would contribute significantly to the body of the literature available on the subject. A further discussion about the originality of the study is presented in Chapter Seven, Section 7.6.

1.9 Delimitations of the study

Delimitations of this study were:

- (i) The study investigated KM specifically the IK used for healing some human physical ailments. It excluded other aspects of human health such as mental and social well-being, as it also excluded other aspects of Africa's IK including those used for witchcraft as stated in Section 1.10.3 when defining human health. On the other hand, the study concentrated on the legal framework (IPRs, policies and strategies) relating to IK management.
- (ii) The study was conducted in four districts namely Magu, Singida Urban, Njombe and Masasi. In addition, institutional authorities such as TAHPC, ITM and the University of Dar es Salaam School of Law (UDSM-SoL) were also included in the study. All these institutions are located in Dar es Salaam region.
- (iii) In case of traditional healers' participation, the study involved the registered traditional healers only.

1.10 Definition of the key terms in this context

This study is essentially about KM specifically that of IHHK. To ensure clarity, some terms needed to be defined from the outset for better understanding of the discussion, analysis, results and the findings. It is difficult to develop one universal accepted definition of the various terms as defined below because people differ in their understanding of terms depending on the disciplines and philosophy. The following definition of terms and concepts were adopted in the study:

1.10.1 Knowledge

The term ‘knowledge’ is sometimes used interchangeably by some people with data, information and intelligence and has often even been used synonymously or inter-changeably in some literature. Regardless of causality relationships there are distinction between the terms. This section states in summary the distinction between the terms as follows:

Data is sometimes defined as a representation of observations or facts out of context, and therefore, they are not directly meaningful, or are considered unorganised and unprocessed facts (Zack 1999; Awad and Ghaziri 2004). Davenport and Prusak (1998) is of the view that data is the raw material for creating information that by itself carries no judgment or interpretation, and no meaning. Bouthillier and Shearer (2002) affirm that information can be seen as data made meaningful by being put into a context. Based on definitions from dictionaries, they define ‘data’ as factual information (measurements or statistics) used as a basis for reasoning, discussion, or calculation. Thus, this study follows Bouthillier and Shearer’s (2002) definition of data. Unlike data, information has a meaning, purpose and relevance. That means information is an aggregation of data that helps in decision making (Awad and Ghaziri 2004). Therefore information is also the result of placing data within context and attaching some meaning to it in a form of a message having a format and purpose.

Davenport and Prusak (1998:5) describe knowledge as a “fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers”. Knowledge also refers to an understanding gained through experience. It is “know-

how” or familiarity with how to do something that enables a person to perform a specific task (Awad and Ghaziri 2004). Therefore, in this study the term ‘knowledge’ is defined as data made meaningful through a set of beliefs about the causal relationships between actions and their probable consequences, gained through either inference or experience (Bouthillier and Shearer, 2002). Thus, anything that is known to the human mind and is used to guide actions, and is judged through consequences of the action. In contrast to data and information, knowledge enables one to act in a proper and an expected manner. Hence, knowledge is personal and subjective in nature since it is found in one’s mind until made explicit (Nonaka and Takeuchi, 1995).

There are various categories or classes of knowledge depending on the criteria and sometimes field to which a classifier belongs or follows. Alavi (2000) cited in Vlok (2004:12) asserts that there are different kinds of knowledge and each kind requires a different approach when it comes to KM interventions. This statement by Vlok (2004) is in line with Bouthillier and Shearer (2002) who purport that organisational knowledge is frequently categorised into typologies. With these statements, they argue that categorisation of knowledge depends on a set of criteria that a person follows. The criteria may include mode of creation, storage, accessing, originality, representation and purpose of knowledge. For example, the three types of knowledge such as tacit, implicit and explicit may be categorised based on the criteria of the mode of creation, storage and access whereas foreign and IK is the result of using the criteria of originality (source of where the creator of certain knowledge comes from).

1.10.1.1 Tacit knowledge

‘Tacit knowledge’ is defined as an action-based type of knowledge residing in people’s minds and it is often shared via action-based training. It is personal knowledge based on an individual’s experience, insights and intuition, and is observed in practice. It can be shared if the knowledge holder/owner is willing and codified before the individual who holds it walks out of the door (Vlok 2004). Vlok (2004:109) when referring to Stacey (2000) as one of the prominent complexity theorists who argues against mainstream thinking, states that tacit knowledge is stored in the minds of people and it can only become an asset to the organisation once that knowledge is extracted and codified through a process of externalisation.

1.10.1.2 Implicit knowledge

When Firestone and McElroy (2003:22) as cited by Vlok (2004:14) criticised Nonaka's categorisation of knowledge, they introduced another type of knowledge as they asserted that Nonaka has also overlooked yet another category of knowledge, namely 'implicit knowledge'. They then referred to implicit knowledge as cognitions and beliefs that (while not focal or explicit), are expressible, given the environmental conditions effective in eliciting them. Although this type of knowledge is not the focal point in this study, to make Firestone and McElroy (2003) statement more clear, 'implicit knowledge' is the type of knowledge that people carry around in their heads, which has not been written down and is very difficult to codify. Commonly used examples of such knowledge in training classes of KM include recognising persons' faces or knowing how to ride a bike.

1.10.1.3 Explicit knowledge

Unlike tacit and implicit knowledge, 'explicit knowledge' is that type of knowledge which is codifiable (has been articulated in writings, text and drawings). It becomes embedded in a physical object and provides the values that a physical object has. It is easier to communicate and share this type of knowledge because it is/can be stored and managed in a KM databases or in a physical collection of knowledge. It can then be sold or brokered, and can increase or grow (Nonaka and Takeuchi, 1995; Davenport and Prusak, 2000). KM authors including Martensson (2000), Bouthillier and Shearer (2002) view explicit knowledge as structured and conscious and therefore it can be stored in IT.

1.10.1.4 Indigenous knowledge

Basing on the criteria of where the particular knowledge originates (comes from), it is important therefore to differentiate IK from foreign knowledge. The World Bank Group (n.d.) states that "foreign knowledge does not necessarily mean modern technology; it includes also indigenous practices developed and applied under similar conditions elsewhere". Therefore, foreign knowledge may refer to the perceived and learned knowledge that comes from or is introduced from outside the conditions and local environment of a particular community. However, IK is a coherent system of knowledge acquired through life and community cultural experiences. In Africa, the IK is handed down from generation to generation by word of mouth. That may be due

to the fact that the culture of writing is new to most communities. In this study, IK is synonymously used with local knowledge, community knowledge, TK and traditional technical knowledge (Lwoga, 2009).

Thus, when thinking of the scope of knowledge it is important not to undermine the importance of IK, because as with any kind of knowledge, it cannot be separated from development and the centrality of humans in the process. It is unique knowledge that covers a wide range of areas that include natural resource management, agriculture, education, health (human and animal), food preparation, institutional management, communication and conflict resolution i.e. governance (Msuya, 2007; Dixit and Goyal, 2011). Hence, IK enables humans to resolve their social and economic problems; preserves the identity of the indigenous people allowing them to exploit the available opportunities and bring about human development. It is sometimes used as a tool to fight poverty and conserves the environment (Msuya, 2007; Gosh and Sahoo, 2011; Caldwell, 2007). Therefore, in African countries, IK is the knowledge that has been passed on from generation to generation, based on culture, customs and folklore. It could be manifested in beliefs, medicine, dances, farming techniques, record keeping and animal husbandry (Msuya, 2007; Caldwell, 2007).

IK has the historical importance of validating records for future reference and comparative studies about knowledge; cultural importance of preserving identity, and consolidates achievements for future generations. Thus, to make it simple this study adopted Grenier's (1998) definition that IK is a type of knowledge that exists within and is developed around the specific conditions of humans, indigenous to particular geographic areas. Such knowledge encompasses various systems such as traditional dances, rituals, language, witchcraft, traditional medicine and healing, among others.

1.10.2 Knowledge management

There are various definitions of KM by various authors. This study adopts the following KM definitions: The Eknowledge Centre (2005) cited by Mchombu (2006:1) defines KM as a disciplined approach to managing all of the knowledge processes found in human collectives (a set of people with common practices, interest and goals). Haslinda and Sarinah (2009) simplify

the above definition by stating that KM is a set of ‘things’ involving various activities. It encompasses theories, models, processes and technologies that support the protection, development and exploitation of knowledge assets. By managing intellectual capital that exists in both explicit and tacit forms, KM enhances an organisation’s ability to learn from its environment and to incorporate knowledge into business processes. It creates a new value for the organisation by improving its efficiency, effectiveness and competitiveness.

According to Davenport and Prusak (2000), any organisation that wants to excel at managing knowledge will have to perform well on three processes of KM. These are generation, codification and transfer of knowledge. Due to this study’s concentration on documentation of tacit knowledge and its preservation, there is a need to define these two terms (documentation and preservation) as used throughout the study as follows:

1.10.2.1 Documentation (codification) of knowledge

‘Documentation’ (which is interchangeably used with ‘codification’ in this study) refers to the process of classifying and annotating knowledge (which in this case is IK) and codifying such knowledge into writings for current and future use. As stated earlier in Section 1.1, Davenport and Prusak (2000) make it simpler that codification is about turning knowledge into codes to make such knowledge as organised, explicit, portable, and easy to understand as possible. Therefore, codifying knowledge is very important not only for preserving it easily in a collection but also for further research, development and historical use. Hence, in the management of IK, Ngulube (2002) suggest the following three strategies:

- (i) Preparing inventories of traditional knowledge systems;
- (ii) Making IK accessible to the community; and
- (iii) Compiling bibliographies and databases for IK.

This study aimed at inquiring whether all these strategies were in place for proper management of IHKK.

1.10.2.2 Preservation (transfer) of knowledge

‘Preservation’ is used to mean maintaining or restoring access to knowledge through study, sharing and prevention from distortion and loss. Preservation in this context is distinguished

from conservation because conservation is about the treatment and repair of certain knowledge to slow distortion and/or loss of knowledge to a usable state. The success of a KM programme ultimately depends on the sharing of knowledge (Martensson, 2000).

1.10.2.3 Access

Hornby (2010:8) define the term ‘access’ as “a way of entering or reaching a place”. Therefore, for the sake of the context of this study, ‘access’ is used to mean ‘giving a person or a group of persons an opportunity to come into contact with or to reach knowledge from the owners or in a repository’ (shelves/databases).

1.10.3 Human health

‘Human health’ refers to an overall condition of humans especially the soundness of the body or mind; freedom from disease or abnormality. Although ‘human health’ covers the aspects of physical, mental, and social well-being and the absence of disease or other abnormal conditions within the environment in which one is living. This study concentrates on physical aspects of human well-being. It aims at understudying documentation of tacit knowledge, specifically traditional medicine knowledge for healing various physical ailments in Tanzania. The theme of this study should not be confused with witchcraft. Russell (n.d.) defines witchcraft as the exercise or invocation of alleged supernatural powers to control people or events, practices typically involving sorcery or magic. Although witchcraft is one of the aspects of African IK, it is not the focus of this study. In the same vein, the study data was collected from traditional healers (the community members knowledgeable about healing some physical ailments, they are also known as knowledge owners in this study) not witch-doctors or *sangomas* (the diviners).

1.11 Investigated broader issues

The broader issues that the study investigated includes KM specifically, IK on the physical aspect of human well-being, and the legal framework (IPRs, policies and strategies) relating to management of IK. KM as defined in Section 1.10.2 enhances an organisation’s ability to learn from its environment and to incorporate knowledge into business processes. It creates a new value for the organisation by improving its efficiency, effectiveness and competitiveness. It further provides unprecedented understanding of the IHHK management efforts of Tanzania.

The main reason for studying KM, specifically IK on the healing of some human physical ailments, is to broaden the realisation of IHHKs contribution to promoting healthcare. Thus, to influence and advance the government's broad goals as earlier stated in Section 1.2, that the URT (1997:10) affirms that; "traditional knowledge, skills and technology which are environmentally friendly shall be identified and their use be encouraged". On relation to this study, IHHK is not only friendly to the environment but also in improved healthcare, helping government efforts of creating more jobs, and extending the limits of cultural heritage, and possible economic development as well as increased research.

This study also investigated how the efforts/models for documentation and preservation could be assisted by IT to expedite the process. The study critically examined the available efforts in managing IHHK; if there are established databases for IHHK; what and why information has been codified in a particular way; how people get access to it; who and why they are granted rights to access and use such information.

This study thereafter highlighted the legal framework, NGOs and governmental implications of the management of IHHK. Furthermore, the IHHK owners' readiness towards documentation and preservation of their knowledge was measured. The attitudes towards the use of IT among organisations responsible for management of IHHK for economic and sustainable development were also investigated broadly. A key motivation for management of IHHK research is broadly analysed in Section 1.7 on the significance of the study.

1.12 Principal theories of the research project

The theoretical basis of this study is grounded on KM theories. To guide the whole process of accomplishment of the study, the Working Knowledge model by Davenport and Prusak (2000) was adopted.

According to the Working Knowledge model by Davenport and Prusak (2000), knowledge is originated and applied in the minds of the people who possess it. The model sees organisations as knowledge markets. In this study, communities in Tanzania are the knowledge markets

possessing the product (which is IHHK) with buyers (people seeking knowledge to resolve their health problems). In this study, buyers are the prospective users (patients, researchers and development planners), sellers are the people with an internal market reputation for having substantial knowledge about a process or subject (for this study the traditional healers/knowledge owners), and brokers are the people who make connections between people who need knowledge and those who have it (in this study they are the ‘knowledge managers’ in the institutes such as ITM and TAHPC). The theoretical framework is discussed in greater detail in Chapter Two.

1.13 Outline of the research methodology

The research methodology adopted in this study is based on mixed methods with a dominant qualitative approach supplemented by a quantitative approach. The qualitative approach was used to collect data that provided descriptive experience on how IHHK is documented and preserved. The quantitative approach was used through selection of samples and finding relationship/differences among variables as well as analysing data obtained from close-ended questions contained in the instruments. The methodology chapter covered the research design, areas of the study, population of the study, sample and sampling techniques, data collection and analysis methods, and data quality control. The details of all these are discussed in Chapter Four.

1.14 Ethical considerations

During the process of conducting the research and writing the report for this study, the following ethical issues were considered and applied: during the proposal and chapters write-up phases, whenever information from other persons such as data, pictures, graphs or other information were used, these were acknowledged as being sourced from other persons or researchers. When written sources from others were used in terms of paraphrasing, then their words were re-written and the general information attributed to them were referenced; and whenever their exact words/direct quotes were used, they were written inside the double quotations marks after author’s surname with page numbers showing the place where the information was obtained. The original source was indicated after a colon mark and referenced. For a lengthier quotation of 30 or more words, they appeared with quotation marks but indented five spaces to the right and left margins and then referenced.

Moreover, the research supervisor ensured that the informed consent form was correctly prepared with all the necessary information included. The informed consent was reviewed in the School of Social Sciences and approved by the University's Research Ethics Committee. After having received the granting of research ethics clearance from the University of KwaZulu-Natal (UKZN); a Research Ethics Committee's permission to conduct the study was also sought and granted by the responsible authorities in Tanzania, including the TAHPC, UDSM-SoL and MUHAS-ITM as appended in the Appendices 1 to 6.

During data collection, all methods of data collection used for this study including semi-structured face-to-face interview and focus group discussions handled ethically as each of the method requires. The purpose of the study was explained clearly to the respondents when seeking appointments at least two days prior to the start of data collection and every time before the start of face-to-face interview and focused group discussion. Respondents were further told verbally and in a form of a letter (informed consent letter) that participation was voluntary, and that participants may withdraw from the study at any stage of participation without any form of disadvantage. In the same way, participants were also told that there were no monetary gains in participating in the project. They were assured that the information they provided would only be used for academic purposes; that the results would be generalised and the names of respondents would not be included. Respondents were then required to sign the declaration of consent letter attached together with the informed consent letter as proof of their voluntary acceptance to participate in the study. Those who could not read and write used thumbprint signatures. The details of the informed consent is appended in Appendix 8 and 9.

In order to conform to the UKZN research ethics, which emphasis publication of research results, after having this research report on hand, the results was published as stated in the UKZN Research Ethics Policy of (2007:9) that:

“The University encourages the widest dissemination of research results by appropriate publication. Pressure to publish is a modern fact of academic life with a strong bearing on the career and standing of the researcher.”

In addition, all research ethical considerations were strictly observed and adhered to. With understanding of the fact that ethics and research code of conduct promote good research, this

study was carried out with honesty and integrity, safe and responsible methods and, in favour of fairness and equity for the participants. Hence, bearing a high sense of moral obligation during the entire period of data gathering analysis and reporting the findings of this study.

1.15 Structure of the thesis

The structure of this thesis comprises of seven chapters as follows:

Chapter One: Introduction

The chapter provides an overview of information which gives the context of the study. The sub-sections of the chapter are as follows, introduction, background to the study, statement of the problem, objectives of the study, research questions, significance of the study, assumptions of the study, originality of the study, delimitations and limitation of the study, definition of the key terms, broader issues investigated and the principal theories of the research project. It also outlines the methodology and ethical considerations used to conduct the study, before presenting the structure of the thesis and summary of the chapter.

Chapter Two: Theoretical framework

The chapter provides the theoretical framework grounded in KM theories which formed a basis for the study. The Organisational Knowledge Creation by Nonaka and Takeuchi (1995) Knowledge Category models by Boisot (1987) Knowledge Processing Chain by Oluic'-Vukovic' (2001) Holistic Strategy for the Maintenance and Transmission of Traditional Knowledge by Cetinkaya (2009) and Working Knowledge by Davenport and Prusak (2000) offered a comprehensive framework for the study, although the dominant model which guided the study was Davenport and Prusak's (2000) model.

Chapter Three: Literature review

The chapter reviewed literature related to the study, according to the study's objectives which covered three areas of access, documentation and preservation of IHHK; the available link between IPR systems; existing policies and documentation of IHHK; and the impact of ICT in the process. It aimed at showing what has already been done, the existing gaps in knowledge and hence the need to fill these through the present study.

Chapter Four: Research methodology

The chapter examines the research methodology and methods used in order to achieve the objectives of the study. The chapter include the introduction, research design, area of the study, population of the study, sample and sampling techniques, data collection methods, research instruments, ethical issues, data quality control, data processing and analysis, and summary of the chapter.

Chapter Five: Presentation of results

The chapter contained presentation and interpretation of refined and analysed data from the responses obtained from the selected respondents. The data is presented in figures, tables, pie and bar charts with frequencies and percentages. The results presentation are guided by the research objectives and questions of the study.

Chapter Six: Interpretation and discussion of the findings

The chapter interprets and discusses the findings of the study obtained from both qualitative and quantitative analysis of data. The interpretation and discussion of the findings is also based on the objectives and the research questions of this study.

Chapter Seven: Summary, conclusion and recommendations

The chapter presents the summary of the findings before providing conclusions and recommendations of the study. References and appendices, follow on completion of Chapter Seven.

1.16 Summary of Chapter One

This study sought to investigate existing KM efforts in Tanzania in relation to the documentation and preservation of IHHK. It aimed at proposing strategies for the purpose of identifying, collecting, organising, documenting, popularising and preserving IK in the context of Tanzania where not many of such studies exist, despite its rich IHHK. Thus, to set the context for the research problem in the background to the study, necessary concepts such as knowledge, KM, human health and IHHK were defined, in order to aid in the understanding of the study and the manner in which the variables were treated. The chapter examined topical and relevant KM

issues in the context of Tanzania, which is rich in IHHK but the documentation of such knowledge remains unexploited, to create room for easy access, sharing and use by Tanzanians. Thus it is observed that the available IHHK is scattered within various local communities without any organisation. This poses serious challenges to the preservation of IHHK in Tanzania. Hence, the findings and recommendations of this study, if well executed, could offer solutions to the problem and knowledge gap.

This study is grounded in KM theories. Various theories including Organisational Knowledge Creation by Nonaka and Takeuchi (1995), Knowledge Category models by Boisot (1987), Information Space by Boisot (1995), Knowledge Processing Chain by Oluic' -Vukovic' (2001), Holistic Strategy for the Maintenance and Transmission of TK by Cetinkaya (2009) and Working Knowledge by Davenport and Prusak (2000) are used in the study, but the Working Knowledge by Davenport and Prusak (2000) is used as the principal model guiding the study. Each step/component forming part of each model was critically analysed in Chapter Two. In some stances, the origins of the model were provided before an explanation of the definitions of the main features and the linkage of the model with the study.

The research methodology adopted in the study is based on mixed methods where the qualitative method was the dominant approach, supplemented by quantitative. Specifically, the qualitative method was largely used to collect data that provided descriptive experience on how IHHK is documented and preserved; whereas the quantitative approach was used through a selection of samples and finding relationships/differences among variables as well as analysing data obtained from close-ended questions available in the instruments.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

The aim of the study was to investigate the ways in which IHHK is managed, and existing KM efforts in Tanzania in relation to the documentation and preservation of IHHK. The study further investigated factors affecting the documentation and preservation of IHHK with a view to proposing a sustainable course of action for proper management of such knowledge. Therefore, this chapter briefly reviews theories or models with concepts that inform the study. There are slight differences between a theory and a model, as illustrated by Shafique and Mahmood (2010:4) who define ‘model’ as “a representation or abstraction of an actual object or situation surrounding human understandings”. They further state that a model shows the interrelationships (direct or indirect) of an action and reaction in terms of a cause and effect. Creswell (2009:51) defines ‘theory’ as “an interrelated set of constructs (variables) formed into proposition”. Lwoga (2009:65) on the role of theories in research, is of the view that they are used as a theoretical lens or perspective to guide a study and raise questions that a study would seek to address. The theoretical basis of this study is grounded in KM theories.

It has been observed that focusing on a single theory or model would limit organisations’ efforts to a range of possible solutions for KM practices; this study was guided by six KM theories/models. Hence this study adopted a pragmatism paradigm because the paradigm allowed the researcher to work with multiple or variations of methods in managing one problem. The details of the paradigm are explained in Chapter Three, Section 3.1. The theories which guided this study included: the Organisational Knowledge Creation by Nonaka and Takeuchi (1995), Knowledge Category Models by Boisot (1987), Information Space by Boisot (1995), Knowledge Processing Chain by Oluic’-Vukovic’ (2001), Holistic Strategy for the Maintenance and Transmission of TK by Cetinkaya (2009), and Working Knowledge by Davenport and Prusak (2000). The Davenport and Prusak’s (2000) model being the dominant, supplemented by the KM theories/models offered a comprehensive framework for the study. Therefore, the models provided a framework for the analysis of IK, specifically the traditional medicine of Tanzania for human health. Hence, the framework strengthened the study by making the research findings meaningful, focused and generalisable. It further provided an explanation or prediction about

relationships among the variables studied. The following are the identified theoretical basis of each model/theories and the definitions of the main characteristics in their strategies of managing IHK.

2.2 Nonaka and Takeuchi's (1995) Organisational Knowledge Creation

The Nonaka and Takeuchi's (1995) Organisational Knowledge Creation is a well-known and most referred to theory in KM studies, especially in terms of the conversion of tacit to explicit knowledge and vice versa. This theory is originally based on Nonaka and Takeuchi's experience and culmination of working and researching Japanese companies (the Matsushita Electric Industrial) in developing bread-making appliances. Their research in 1985 examined the success of Japanese companies concerning their ability to create new knowledge and use it in producing successful products and technologies. In simple terms, it was about establishing creativity and innovation (Hauptman and Neuringer, 1997; Choo, 2003; Cristea and Căpațină, 2009).

The model does not view tacit knowledge and explicit knowledge as mutually exclusive but rather as inseparable or complementary entities (Choo, 2003; Lwoga, 2009; Cristea and Căpațină, 2009). Nonaka and Takeuchi (1995) present two dimensions or sets of activities involved in the process of knowledge amplification. The two dimensions are epistemological and ontological. The epistemological dimension is about knowledge conversion whereby tacit knowledge is converted into explicit knowledge and vice versa through the four phases listed in order of socialisation, externalisation, combination and internalisation (SECI). The ontological dimension entails the passage of knowledge from the individual through groups and organisations to the inter-organisational levels (Nonaka and Takeuchi, 1995; Hauptman and Neuringer, 1997; Choo, 2003; Cristea and Căpațină, 2009). The process grows like a spiral due to a continuous rolling process between tacit and explicit knowledge and from the individual to the inter-organisational levels (Choo, 2003). Hence, the Knowledge Spiral or SECI model. The model is diagrammatically represented in Figure 2.1.

According to Nonaka and Takeuchi's (1995) SECI model in Figure 2.1 below, socialisation is a process of acquiring tacit knowledge through sharing experiences among individuals by observation, imitation and practice. It entails the existing relationship and interaction within a

social environment at various levels, for example, at family level, community, national and international levels (Choo, 2003; Lwoga, 2009). Externalisation is a visibility process of converting tacit knowledge into explicit knowledge through the use of abstractions, metaphors, analogies or models among individuals in a group.

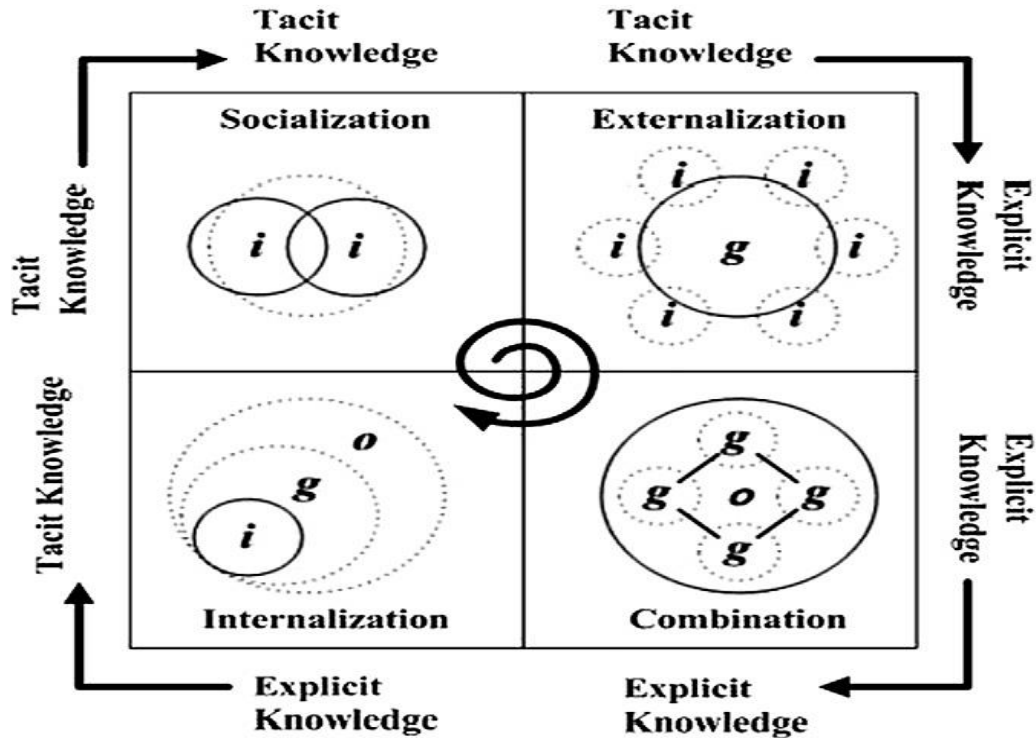


Figure 2.1: The Knowledge Spiral/SECI model

Source: Nonaka and Takeuchi (1995)

Key to the symbols:

- i = individual
- g = group
- o = organisation

The externalisation of tacit knowledge is the typical knowledge-creation activity and most often takes the shape of variables, hypotheses or models during the concept creation phase of new product development (Nonaka and Takeuchi, 1995). It can also be triggered by dialogue or collective reflection (Choo, 2003; Lwoga, 2009). ‘Combination’ is a process of creating explicit knowledge by bringing together discrete pieces of explicit knowledge from a number of sources into a new form. Individuals exchange and combine their explicit knowledge through telephone conversations, meetings and memos in a number of ways to produce new explicit knowledge or obtain a more consolidated sense (Lwoga, 2009). ‘Internalisation’ is a process of converting

explicit knowledge into individuals' tacit knowledge that broaden, extend and reframe it within their own existing tacit knowledge.

2.2.1 The strength of the Knowledge Spiral model

The strength of this model lies in the fact that it raised the idea of converting existing knowledge in the human mind into new knowledge. This is the focus of this study which investigates the available efforts, support and readiness of traditional healers in converting their tacit knowledge of healing and curing of some physical ailments into explicit knowledge. Among the two sets of activities involved in knowledge creation, the epistemological set has four stated modes of converting knowledge including tacit to tacit, tacit to explicit, explicit to explicit, and explicit to tacit which are very important in understanding how human knowledge can be transformed. Ontological aspects of this theory on the levels of sharing knowledge, is basically about considering customer, supplier, competitors and creator (McAdam and McCreedy, 1999). This is similar to Davenport and Prusak's (2000) model of the idea of the knowledge market which comprises the commodity, sellers, brokers and buyers.

Moreover, the model creates spiralling effects of knowledge accumulation and growth which promotes organisation innovation and learning. Nonaka and Takeuchi (1995) appreciate the dynamic nature of knowledge growth and conversion from tacit to explicit and back again. Knowledge starts by sharing tacit knowledge, through concept creation and justification, and building archetype. On the other hand, the model provides a framework for the dynamic nature of KM, specifically on the levels involved with knowledge transfer from individual to inter-organisations.

2.2.2 The weakness of the Knowledge Spiral model

The weakness of this model in relation to the study on managing knowledge is that the model is more about knowledge conversion than knowledge creation. In dictionaries, the term 'creation' is referred to as making something that is new, or of causing something to exist that did not exist before (Hornby, 2010:14). This means that creation is just like the beginning or starting something for the first time. From a philosophical point of view, knowledge is delivered from sources of knowledge, but not created, because it already exists somewhere else. For example,

Nonaka and Takeuchi's (1995) model acknowledged that when knowledge which exists in the human mind (tacit) is converted into explicit, they actually meant knowledge is converted from one form to another. When discussing knowledge validation, especially in the aspect of the means through which the reality is being perceived, in his example Mwanahewa (1999:24) questions whether religious authority or revelation is a source of knowledge that comes from God. Given the possibility that due to weaknesses in the minds of individuals, this knowledge from God is misinterpreted, is that which we have on the ground a mere resemblance or even falsification of the original knowledge? This question shows that knowledge exists somewhere else, but what is needed is the discovery of such knowledge.

The Nonaka and Takeuchi's (1995) model should therefore be 'knowledge conversion', that means converting from tacit to explicit and the vice versa, rather than the 'creation model' because knowledge already exist in an individual's mind and only needs to be converted (conversion is what entails changing something from one form or system to another). This is rather the 'knowledge discovery model' because from an ontological perspective, it is possible that in the process of transferring or sharing knowledge people may discover new knowledge. Gourlay (2003:2) citing Jorna (1998) states that since the four phases of knowledge conversion concern a change of signs from one form to another, a semiotics framework for dealing with signs is required but with the Nonaka and Takeuchi's (1995) model it is absent.

The Nonaka and Takeuchi's (1995) model is like categorising knowledge as tacit and implicit on the one hand, and as individual, group, organisation and inter-organisation on the other hand. The two criterions used in such categorisations are conversion and passage respectively (Haslinda and Sarinah, 2009). The model therefore says nothing about the important elements to consider in either the knowledge creation or conversion process. The elements include, but are not limited to the influence of environmental factors such as infrastructure, legal and administrative support and IT on the process; stakeholders' concerns and support; establishment and maintenance of systems or repositories for codified/externalised knowledge; and the perceived benefits for it. Thus, this study attends to fill that gap.

With Nonaka and Takeuchi's (1995) model, it is difficult to make generalisation regarding Tanzania especially on codification of IHHK because of cultural variations, ethics and values that exist in Tanzanian organisations which differ from that of the Japanese, particularly with regard to the aspects of IHHK codification and preservation. The Nonaka and Takeuchi's (1995) model's focus on success of Japanese companies (the formalised companies) on obtaining creativity and innovation (Hauptman and Neuringer, 1997; Cristea and Căpațină, 2009), but this study focuses on Tanzania's scattered IHHK.

In the process of sharing or the transfer of knowledge through the socialisation aspect of Nonaka and Takeuchi's (1995) model, it is important to understand that this process is very personal as it depends much on the individuals' ability to articulate correctly to the group (Cristea and Căpațină, 2009). While the knowledge conversion is a social process, its effects in epistemological dimension appears to be an individual commitment based on an organisation (Gourlay, 2003).

2.2.3 The usefulness of the Knowledge Spiral model in this study

With this particular study, the attributes of this Knowledge Spiral model are important in a number of ways. For example the socialisation attribute shaped and required the researcher to accept a social approach to the method of collecting information from individuals. This component informed the researcher that people tend to share their tacit knowledge (know-how, secrets, personal skills) with people who they are familiar and trust. Therefore, socialisation nowadays can occur online and through face-to-face communication involving mental models, mutual understanding and rapport between the researcher and participants prior to the interview and discussion sessions was created. The externalisation component as the heart of the study, guided the research by influencing individuals to articulate their feelings, concern and readiness in codifying IK. After having interviewed the knowledgeable individuals; the researcher extracted, modelled and synthesised data in a way that a larger audience can understand and apply the collected information. The combination aspect in the study was used through the documentary review technique where the researcher consulted various published and unpublished sources with information related to the study. The information extracted from such

sources was combined, improved and logically organised so that it made more sense, consolidated the argument and supported the findings of the study.

This theory was chosen and used in the study to help in data collection and interpretation of findings related to Objective One which involved assessing the available KM efforts in relation to documentation and preservation of IHHK in Tanzania. It was further used to study the relationship that exists between knowledge owners’ perceptions and readiness to put their tacit knowledge into writings. The combination provided a full picture on how IHHK is transferred and shared within groups and organisations. Thus it helped in designing the guidelines for codifying and transfer of IK as the need had been identified in the study. This is discussed in more detail in Chapter Six.

2.3 Boisot’s (1987) Knowledge Category model

In 1987, Boisot developed a model that considers knowledge as either codified or un-codified and as diffused or un-diffused within an organisation. In this model, Boisot (1987) used the terms codified and diffused. ‘Codified’ is used to refer to knowledge that is readily structured and therefore prepared for transmission purposes; whereas the term ‘diffused’ referred to the spread of knowledge over a wide area. Therefore, in this model, codified un-diffused knowledge refers to a propriety knowledge that is deliberately transmitted to a small group of people on a ‘need to know’ basis (Boisot, 1987; McAdam and McCreedy, 1999; Haslinda and Sarinah, 2009). According to this model, un-codified and un-diffused knowledge is personal knowledge such as personal experiences, perceptions, views and ideas. Boisot in the (1987) model, mentioned the knowledge that is codified and diffused as ‘public knowledge’ that may include knowledge in and/or from among others, the library, journals, books and newspapers. The model finally advocates that ‘common sense knowledge’ which is relatively diffused and un-codified can gradually develop through the process of socialisation and externalisation (Boisot, 1987; Haslinda, and Sarinah, 2009). The model is diagrammatically represented in Figure 2.2.

Codified	Propriety knowledge	Public knowledge
Un-codified	Personal knowledge	Common sense
	Un-diffused	Diffused

Figure 2.2: Knowledge Category model

Source: Boisot (1987); Haslinda and Sarinah (2009).

2.3.1 Strength of Knowledge Category model

There are several similarities between this model and the Nonaka and Takeuchi's (1995) Knowledge Spiral model. Both models categorise knowledge, with horizontal dimensions relating to the spread or diffusion of knowledge across an organisation (McAdam and McCreedy, 1999). Moreover, while Boisot's (1987) model is about codified and un-codified knowledge, Nonaka and Takeuchi's (1995) model is about tacit and explicit knowledge. Both models assume that there is a spread or diffusion of knowledge across organisations. Finally, in correspondence with Boisot's (1987) model which views that codified and un-codified knowledge as two separate categories of knowledge; the Nonaka and Takeuchi's (1995) view tacit and explicit knowledge also as two separate categories of knowledge. Indeed what Boisot's (1987) model, calls 'un-codified' and 'codified' are what Nonaka and Takeuchi's (1995) model calls 'tacit' and 'explicit' knowledge respectively.

The difference with Nonaka and Takeuchi's (1995) model is that while Boisot's (1987) model says nothing on the process involved in transforming un-codified to codified, Nonaka and Takeuchi's (1995) model is of the view that tacit can be transformed to explicit through various processes such as socialisation, externalisation, combining and internalisation. However, Boisot categorised and gave the names of the un-codified to codified knowledge based on the diffusion criteria. The detailed matrix of this is indicated in Figure 2.2. If un-codified knowledge is un-diffused (according to Boisot) such knowledge is personal knowledge which is true because it will continue existing in that particular person's mind, thus it is personal. To Boisot, when codified knowledge is un-diffused such knowledge is propriety knowledge. When un-codified is diffused such knowledge is common-sense knowledge; and when the codified knowledge is diffused, such knowledge is public knowledge; and therefore can be accessed by every individual in a community. Thus, only two categories of knowledge exist according to Boisot (1987) which can be matched and are reflected in Nonaka and Takeuchi's (1995) model, namely common-sense and public knowledge. Common-sense knowledge is matched to Nonaka and Takeuchi's externalisation, whereas public knowledge is matched as a combination aspect in Nonaka and Takeuchi (1995) model.

2.3.2 The weakness of the Knowledge Category model

The model lacks an element which shows that knowledge exists somewhere else, the environment that influences codification and diffusion. Such an environment may include legal and administrative efforts and an environment that allows the use of IT in various processes. It also lacks an element that analyses how people would benefit from the codification of uncodified knowledge and spread of undiffused knowledge and back again. Thus, there is a possibility of lack of support from stakeholders, hence its difficulty with influencing the establishment and maintenance of repositories and other knowledge systems.

Therefore, the Boisot (1987) model has weaknesses because it appears to have not demonstrated the processes involved in codifying un-codified knowledge, but rather categorises the diffused or undiffused knowledge. The model raises a lot of questions necessary for the understanding of KM. It does not indicate clearly as to whether Boisot wanted this model to be used in categorising knowledge or wanted to establish the modes in which knowledge is converted or transformed (from being un-codified to codified and the vice versa). If wanting to categorise knowledge did Boisot want to use the criteria of originality (where the knowledge originates or come from)? Or rather did Boisot want to show the spreadness/diffusionness of knowledge within the wide area? These questions could be asked as to why codified undiffused knowledge is propriety knowledge? What does 'propriety' really mean?

2.3.3 The usefulness of the Knowledge Category model in this study

Leaving aside the shortfalls of this model, the Boisot's (1987) model is still useful in this study of investigating the ways in which IK is managed. The codified and un-codified elements of this model give the study the basis for an investigation of the possibility of un-codified IHK to become codified. The un-codified knowledge in relation to this study is the knowledge that stays in the minds of the knower (which in this case is the traditional healer). The traditional healer's knowledge is therefore supposed to be codified. The model further helped in understanding stakeholders' and government concerns and treatments to the knowledge that is considered to be public against personal knowledge. Practically this model helped in understanding the broader issues studied. Specifically the IPRs, policies and strategies, and if there are established databases for IHK; what and why knowledge data has been codified in such a way; how people

get access to it; who and why are they granted rights to access and use such information? This has helped in understanding the concern regarding knowledge as public or personal property, basing on their similarities and differences in terms of management as stated in the IPRs, national policies and strategies.

2.4 Boisot's (1995) Information Space (I-Space)

As an advancement or improvement of the Boisot's (1987) Knowledge Category model, in 1995, Boisot developed another model named Information Space (I-Space). This model was developed as a conceptual framework for analysing the nature of knowledge flow between agents (individuals, groups, organisations, firms, industries or alliances). In this model, the nature of knowledge flow is as a result of the degree of structure of knowledge (how far such information is/has been structured). Basically, such structure occurs through the process of codification and abstraction to diffusion as that knowledge develops (Boisot, Canals and MacMillan, 2003). That is to say, the more structured the knowledge is, the faster and more extensively it can be shared. In other words, the I-Space model was developed as a conceptual framework or tool for studying how knowledge and information is codified, abstracted and diffused through a social system. Moreover, the model presents Boisot's debate, discussion with or challenge to economists who treat knowledge as an asset comparable to other products and goods (Sjarbaini, 2009). According to Boisot's (1995) model, I-Space is inaccurate because knowledge is intangible and a human mental construct, and that knowledge develops and goes through certain cycles. Figure 2.3^a represents the I-Space model as a cube with three axes: abstraction, codification and diffusion. The structuring of knowledge is represented by codification and abstraction dimensions while sharing is represented by the diffusion dimension.

It is in this context that codification is done to distinguish categories of knowledge and subsequently make sense of the world. Codification involves the activity of choosing codes for particular knowledge. Boisot (2004) is of the view that codification is a precondition for the creation of objects and categories. Abstraction occurs when the different categories of knowledge exhibit such a high degree of association that one can stand in lieu of the other, and thus reducing the number of 'things' one needs for navigating in a particular situation (Boisot, 2004; Sjarbaini, 2009). Therefore, abstraction is closely related to codification because it is

similar to an extension form of data reduction. However, they do differ due to the fact that the process of codification gives form to phenomena, whereas the process of abstraction structures the phenomena.

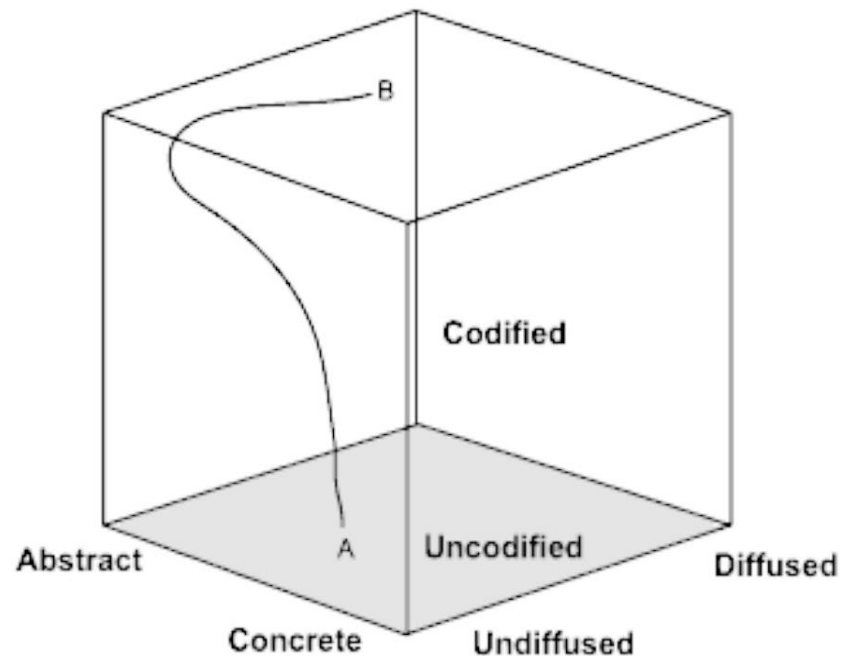


Figure 2.3^a: Three regimes in the I-Space (codification–diffusion–abstraction curve)
 Source: Sjarbaini (2009)

According to Boisot, Canals and MacMillan (2003), codification facilitates the associations required to achieve abstraction. Abstraction in turn keeps the number of categories needed down to a maximum, and reduces the data processing load associated with the act of categorisation. Thus, codification plus abstraction leads to better structured knowledge. Thus, structured knowledge is the product of reducing encoding, transmission and decoding effort, hence facilitating and spreading the diffusion of knowledge within a given population of agents while economising on communicative resources. Sjarbaini (2009:51) citing Boisot (1998) notes that:

“Diffusion expresses the ratio of a certain population compared to that part of this population that is susceptible to the way that the information is codified and abstracted. This diffusion scale establishes the availability of data and information for those who want to use it. It does not measure adoption: information may be widely diffused and yet remain unused”.

Figure 2.3^a shows that there is a mutual relationship between codification, abstraction and diffusion. Hence, structuring of knowledge facilitates its flow and such flow in turn facilitates the exchange and diffusion of knowledge assets (Boisot, 2004). The more codified and abstract a given knowledge, the larger the population of agents to whom knowledge can be diffused in a given period of time (Cristea and Căpațină, 2009). What is required is the ability of the agents within the population to receive, process and transmit knowledge to others and the unified agency's capacity as well. Therefore, the I-Space contributes to the learning process, specifically the social learning cycle (SLC) which exists and takes place within the six phases. The phases include scanning, codification, abstraction, diffusion, absorption and impacting. In moving around the SLC, an agents incurs both costs and risk (Boisot, 1995). There is no guarantee that the cycle can be completed. See Figure 2.3^b for details.

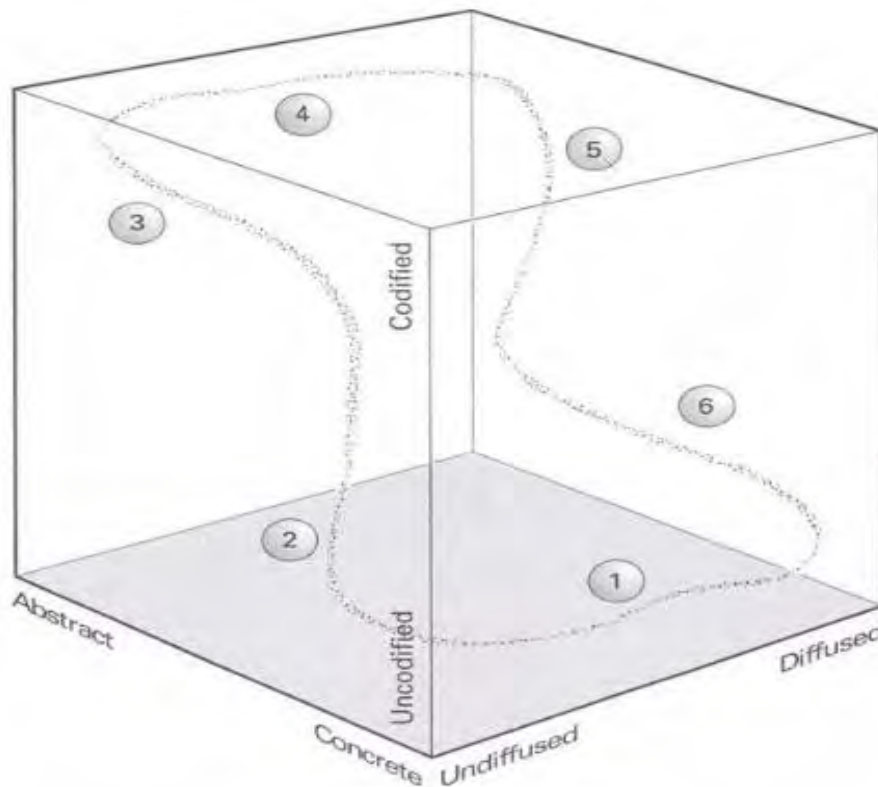


Figure 2.3^b: Movement of knowledge in the I-Space: the social learning cycle (SLC)
Source: Sjarbaini (2009)

Key to numbers: 1: Scanning, 2: Problem solving, 3: Abstraction, 4: Diffusion,
5: Absorption, 6: Impacting

‘Scanning’ is about the ways in which original raw data is collected and that individual knowledge and experience allows interpreting it in an individual’s own way. In other words, it is

about identifying the available threats and opportunities by classifying, interpreting and eliminating ambiguity before the knowledge can be codified (Cristea and Căpațină, 2009). Therefore, it is important to note that codification is an individual's response to data that has been scanned. Scanning may be very rapid when data is well codified and ordered, but very slow when data is random and context-specific (Canals, Boisot and MacMillan, 2005).

'Problem solving' is the process of giving knowledge its structure and shape, and much of the uncertainty initially associated with such knowledge is eliminated. Problem-solving initiated in the un-codified region of the I-Space is often hazardous and conflict generating.

'Abstraction' is about generalising the application of newly codified insights to a wider range of situations. This involves reducing knowledge to its most essential features. Both codification and abstraction have a highly hypothetical structure given an individual's expertise and reality. Because problem solving and abstraction often work in tandem, once knowledge has been codified and abstracted, diffusion can happen quite quickly.

'Diffusion' is a process of sharing knowledge with a target population. This process occurs rapidly only when knowledge is easily accessible. The diffusion of well-codified and abstract data to a larger population will be technically less problematic than that of data that is un-codified and context specific. Only the sharing of context from sender to receiver and vice versa can speed up the extent to which knowledge diffusion takes place.

'Absorption' refers to the process of receiving and applying the diffused knowledge by modifying it to suit different situations or behaviour in a pattern of learning by doing. Thus, absorbing more knowledge builds up a stock of practical experience. Applying diffused knowledge within and from different situations provides a chance for more generalisable knowledge over time. 'Impacting' is the process of embedding abstract knowledge in concrete practices. In a very simplistic manner, impacting occurs when newly absorbed knowledge is actually used and applied to concrete situations. When behaviours have been modified and new actions have taken place, then an individual can impact on his/her environment with the new knowledge which they have just acquired. The impacts may be in terms of artefacts, technical or

organisational rules or behavioural practices dependence. Absorption and impact often work in tandem.

2.4.1 The strength of the I-Space model

There are some similarities and differences among the three aforementioned models (i.e. the Nonaka and Takeuchi (1995) Organisational Knowledge Creation, Boisot's (1987) Knowledge Category model and the Boisot's (1995) I-Space model from both an epistemological and ontological perspective. Each model examines and analyses the nature of information flow between agents by making reference to the transfer and sharing of knowledge from individuals to organisations and vice versa. They all assume that some processes take place either at individual or organisational levels. Nonaka and Takeuchi's externalisation component and Boisot's scanning assume the role of individuals in the knowledge flow within the organisation. In terms of categorising knowledge, both Nonaka and Takeuchi's (1995) and Boisot's (1987 and 1995) models articulate the same thing in different words. For example, while Nonaka and Takeuchi's (1995) model is directly and openly articulating the conversion of tacit to explicit knowledge, Boisot's (1987 and 1995) models distinguish explicit from tacit knowledge as un-codified and codified dimensions.

The strength of the I-Space model is actually based on, among others, its ability to facilitate an understanding of knowledge processing and its flow within and between agents. From both an epistemological and ontological perspective, the I-Space model has fully indicated how knowledge is or may be structured and shared among agents. The model brought about the concept of the degree to which knowledge has been coded by considering other attributes, especially the degree to which the knowledge is structured; the degree to which it is concrete or abstract; and the extent to which the knowledge has been disseminated or shared between agents. The I-Space model, therefore, rests on the following tenets: first, the more the knowledge is structured, the easier and faster is its sharing and diffusion; and second, the more contextual the knowledge, is the more difficult to transfer and share such knowledge.

In addition to what has been mentioned above, another strength of the I-Space model is that of the attributes that link to the concept of KM in an organisation. The codification dimension

which is linked with categorisation and classification of knowledge; the abstraction dimension linked to knowledge creation through analysis and understanding; and the diffusion dimension linked to knowledge transfer and sharing. The connectionist perspective is well represented by the attributes of degree of diffusion of the knowledge. The model also provides a more detailed characterisation of organisational knowledge by using attributes that extend the degree to which knowledge is tacit or explicit, as in the SECI model. However, the I-Space model is much less widely known and used, especially in comparison to the Nonaka and Takeuchi's (1995) Knowledge Spiral model.

The knowledge flow within the I-Space model give rise to the learning process in an organisation. That is the Social Learning Cycle. According to the 'Social Learning Cycle' (2008), the flow of knowledge within the I-Space model give rise to a four-step learning process within an organisation and agent population in the I-Space called the SLC. Social Learning Cycle (2008, para. 1) further states that:

“In the SLC, following a scanning process, new knowledge is created through problem-solving activities, shared through a diffusion process with a wider population, and internalised by that population through an absorption process (Figure 2.3^b). Different SLC configurations in the I-Space reveal the learning strengths and weaknesses of different agent groups. Some are given to hoarding their knowledge, others to sharing it”.

2.4.2 The weakness of I-Space model

Boisot's (1995) I-Space model exhibits the same weakness as the Knowledge Category model explained in Section 2.3.3. In addition, Boisot's (1995) I-Space model uses the concept of information and knowledge interchangeably which is problematic. Information and knowledge are quite different terms as defined in Section 1.1.1.

Moreover, in relation to this study whereby the management (codification and preservation) of IHK was investigated, as well as the factors that affect the process, and the possible course of action that may expedite the process, the I-Space model was challenged for lacking the aspect of 'context' or 'environment' that may facilitate documentation. In terms of environment the I-Space model is very silent on the infrastructure necessary for codification. The impact of the

legal and administrative environment towards the process of managing knowledge (such as the IPRs, policies and strategies) have no position in the model.

Without considering whether it is imported or is local, technology is one of the most important elements in undertaking various activities. As far as the subject matter of codifying knowledge is concerned, it was thought that the Boisot's (1995) I-Space model would have considered the issue of technological applicability in codification of un-codified knowledge, but unfortunately the model is silent on the use of IT in the process. The point to be noted here is that the selection and use of certain IT in managing knowledge depends on the readiness and support of stakeholders towards the modes and IT. Unfortunately, the I-Space has no room for stakeholders' support and the benefits to be achieved, which may act as a stimulus to the process of codification of knowledge.

2.4.3 The usefulness of the I-Space model in this study

The use of the I-Space model in this study is important because some of its components are very relevant to the study. As the axis that describes the degree to which knowledge has been codified or documented is similar to the externalisation (tacit and explicit) form in the Knowledge Spiral model; the elements of the I-Space model such as codification and abstraction were used in the process of choosing and giving codes to the IHHK in Tanzania. The elements also helped in determining the recommended and applicable structures for the knowledge data available in the repositories. This helped with the collection of data for Question One which sought to study the approach in which IHHK is managed (accessed, documented and preserved) in Tanzania.

The axis based on diffusion helped in determining how widely IHHK in Tanzania has been diffused. The diffusion element, which according to Boisot's (1995) I-Space model is the result of codification and abstraction, gave an understanding of ways in which codified or un-codified knowledge is spread, transferred and shared within the organisation. It further provided answers to the sub-questions in Question One. For example, how do prospective users of IHHK obtain access to the available knowledge (the documented knowledge data) in the repositories (if any); who receives access amongst the population of agents and why? Knowledge has a context in which it can be described and shared, and that the efficiency of knowledge transfer is largely

dependent on senders and receivers, who have to share the same codification scheme or language. Therefore both the sender and receiver will have to share the context in addition to the codification scheme. This component of the I-Space model is very important. Moreover, the abstraction axis which describes the degree to which knowledge is concrete or abstract was used to determine the possibility of uses of repositories to navigate easily from the interface of one database to another.

Some of the Boisot's (1995) components of SLC within the I-Space model were very useful in undertaking and interpreting data for the study. The scanning process helped the researcher during data analysis through the content analysis method used in this study. Having collected data, the researcher scanned, refined and removed the bulk of the information before analysing relevant information that was used during the interpretation and discussion of the findings in the study. Furthermore, during interpretation of the findings, the I-Space components of abstracting were used and helped in generalising the findings throughout the country.

Through observation used in the study as one of the data collection methods, the components of 'absorption' and 'impacting', the researcher was in a better position to understand how IHK is shared or transformed from elders to the young generation. Furthermore, 'impacting' helped in understanding the concrete world of KM applications which were measured by concrete practices.

2.5 The Oluic'-Vukovic' (2001) Knowledge Processing Chain

Oluic'-Vukovic''s (2001) model of KM represents the activity of knowledge production in five steps. The steps in the Knowledge Processing Chain include gathering, organising, refining, representing and disseminating. According to Oluic'-Vukovic' (2001), knowledge gathering is a very important process in any organisation because through this process, the particular organisation obtains an understanding of knowledge that exists in its other parts. The process of knowledge gathering involves knowledge discovery, acquisition and creation of new knowledge.

Knowledge discovery entails detecting the presence of knowledge that can be mined and extracted from various parts within and out of an organisation. On knowledge discovery, Jurisica

(2000) is of the view that discovered knowledge has three important facets which are form, representation and degree of certainty. Jurisica (2000, para. 10) further states that:

“The main use of discovered knowledge is for hypothesis formulation and verification, building models for forecasting, planning and predicting, decision rule discovery, information cleaning, identifying outliers, information organisation and structure determination... In addition, discovered knowledge can be used for optimization of information systems”.

Knowledge acquisition involves bringing knowledge into an organisation from external sources, whereby creation of new knowledge may be and is actually accomplished in several ways. Internal knowledge may be combined with other internal knowledge to create new knowledge. Secondly, information may be analysed to create new knowledge. According to Oluic'-Vukovic''s (2001) Knowledge Processing Chain, technologies are useful at this stage of gathering because they can facilitate the creation of new knowledge through the synthesis of data and information captured from diverse sources. In their conceptual framework on managing information and knowledge, Bouthillier and Shearer (2002, para. 17) support Oluic'-Vukovic' (2001) model on the importance of technologies that “technologies are useful in all stages because it can facilitate the creation of new knowledge through the synthesis of data and information captured from diverse sources”. To emphasise, they recommend that people and organisations should also be ready to implement different methods for sharing different types of knowledge (Snowden, 1998). The position of technologies as an important component in KM is also well covered by Davenport and Prusak's (2000) Working Knowledge model.

‘Organising’ is another component of Oluic'-Vukovic''s (2001) knowledge processing model and entails classifying and structuring of knowledge; similar to Boisot's (1995) codification and abstraction attributes in the I-Space model. According to Oluic'-Vukovic' (2001), organising comprises the activities such as cataloguing, indexing, filtering mechanisms and clustering techniques as the means for placing significant amounts of data into a comprehensible number of categories, enabling identification of relevant concepts (knowledge) embedded in the documents efficiently and effortlessly, and visualisation of underlying structure for explanatory purposes. Organising activities enhance identification, location, retrieval and manipulation of knowledge using metadata schemes and tools, as well as techniques that enhance the processing and retrieval capabilities. These include latent semantic indexing, symbolic learning algorithms for

object classification, genetic algorithms-based approach for indexing and clustering. This component resembles the Nonaka and Takeuchi (1995) externalisation component where tacit knowledge is converted into explicit. For Davenport and Prusak's (2000) Working Knowledge model, this attribute relates to codification and transfer components.

According to Oluic'-Vukovic' (2001), refining includes the processes and tools based on the concepts of content analysis. The aim of refining is to improve knowledge attributes by making knowledge more concise, comprehensive and usable. The researcher used this attribute prior to and during analysis of the corrected data, whereby data had to be refined before analysis.

In terms of representation, knowledge representation may be in the form of rules. Such rules indicate the degree of association between two attributes, mapping of knowledge data into several predefined classes, and the identification of a finite set of categories or clusters to describe data (Oluic'-Vukovic', 2001). Oluic'-Vukovic' (2001:58) is of the view that:

“To avoid the dichotomy between reasoning and representation, the emphasis in a knowledge representation system is given on flexibility of representation, allowing the user to decide whether the system will basically operate as a theorem prover, a frame-like system, or an associative network”.

Chen (1995) cited by Oluic'-Vukovic' (2001) is of the view that knowledge representation such as semantic net, frame, decision trees and logic, grounded on cognitive research, are often considered more natural and understandable for users than statistical formulas or neural nets (grids of neurons and nervous system in a living organism).

According to this model, the fifth step in the Knowledge Processing Chain is dissemination. Dissemination involves all the processes, channels and formats necessary to communicate the knowledge (Oluic'-Vukovic', 2001). To speed up the knowledge dissemination and facilitate its availability, access, and ease-of-use, a mix of dissemination channels and formats need to be designed and put in place. A multitude of communication channels have evolved to communicate different type of knowledge, including recorded knowledge, Web pages, video, and art objects. Figure 2.4 shows the Oluic'-Vukovic' (2001) model's five steps/major processes and activities involved in the Knowledge Processing Chain model.

Knowledge processing	
Major process	Includes these activities
Gathering Knowledge discovery, capture and creation	Data mining; text mining; information extraction Pulling information from various sources (real-life databases, domain-specific knowledge sources, data dictionaries, etc.)
Organising Knowledge classification and structuring	Cataloguing, Indexing, Clustering and classification, Filtering, Linking
Refining Knowledge content improvement	Contextualizing, Collaborating, Compacting, Projecting, Mining
Representing Knowledge representation schemes	Semantic networks, Frame, Decision trees, Predicate logic
Disseminating Knowledge communication through a mix of dissemination channels and formats	Flow—Communication, Sharing—Publishing, Push—Push versus pull

Figure 2.4: Knowledge Processing Chain

Source: Oluic'-Vukovic' (2001)

2.5.1 The strength of the Oluic'-Vukovic' (2001) Knowledge Possessing Chain

The model identifies very important components used in the process of knowledge processing. The Oluic'-Vukovic' (2001) five steps are very important in the Knowledge Processing Chain including gathering, organising, refining, representing, and disseminating. This model covers a range of activities involved in the organisation's flow of knowledge. The model closely resembles the information life-cycle processes.

2.5.2 The weakness of the Oluic'-Vukovic' (2001) Knowledge Possessing Chain

Treating the two steps such as the refining and as representing as an independent attribute in the model is unnecessary in knowledge processing, since they can be omitted and nothing will be affected. This is because refining is not a major process in the knowledge flow, but merely one aspect of the knowledge creation step. In addition, knowledge representation generally falls within the scope of the storage and organisation process (Bouthillier and Shearer, 2002). Thus, in their study, Bouthillier and Shearer (2002) added a separate process which is 'knowledge

sharing' to replace knowledge dissemination in the previous Oluic'-Vukovic' (2001) model because to them sharing seemed to be the terminology more commonly used in the KM field. In developing a conceptual framework that fitted their study, Bouthillier and Shearer (2002) slightly altered the last processes of the Oluic'-Vukovic' (2001) Knowledge Processing Chain model. This is illustrated in Figure 2.5.

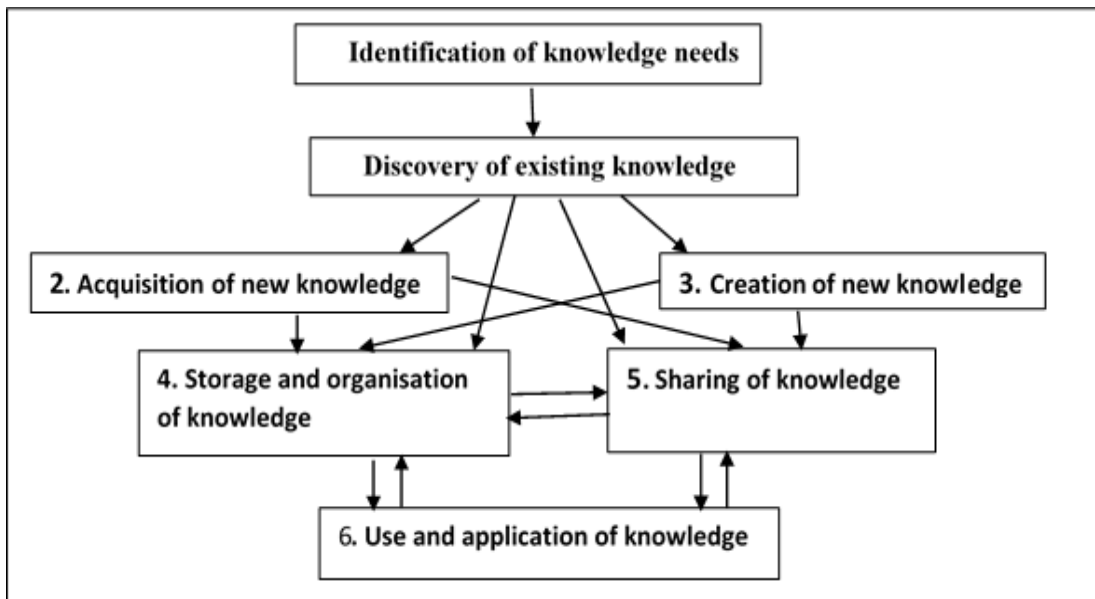


Figure 2.5: Knowledge Management Processes
Source: Bouthillier and Shearer (2002)

According to Bouthillier and Shearer (2002), after knowledge has been gathered, it must be stored and shared. Knowledge sharing involves the transfer of knowledge from one or more persons to others. Knowledge sharing is often a major preoccupation with KM and is frequently addressed in the literature. Although knowledge can be acquired at the individual level, to be useful it must be shared by a community, often described as a community of practice. (Bouthillier and Shearer 2002). Similar to the previous reviewed models in this study, the Oluic'-Vukovic's (2001) Knowledge Processing Chain lacks the components of the external elements that may affect the whole process of knowledge flow within an organisation. The model is also silent on issues such as technologies, stakeholders' support and involvement in the process, the issues of infrastructure and the storage/knowledge repositories, and the community benefits.

2.5.3 The usefulness of the Knowledge Possessing Chain in this study

The gathering step in the Oluic'-Vukovic' (2001) model is divided into three different processes namely discovery, acquisition and creation of knowledge as shown in Figure 2.4. Each of which is distinct from the other (Bouthillier and Shearer, 2002). In this study the gathering and organising component of the Knowledge Possessing Chain model was very useful in an organisation's understanding of the parts where knowledge resides; because gathering involves knowledge discovery, acquisition and creation of new knowledge. Furthermore, revealed the ways in which IHHK is codified and preserved. Thus these two components were used in seeking answers to Questions One and Four of the study concerning how the IHHK is managed as well as in analysing factors which affect codification and preservation of IHHK in Tanzania. Together with an understanding of how transfer and sharing of IHHK among traditional healers is done, these components sought to provide a full picture of how IT impacts on all the processes. Bouthillier and Shearer (2002: para. 5) in discussion of the conceptual framework for managing information and knowledge argue that "in the end, the cycle of KM is neither complete nor successful if no efforts are made to ensure the use of stored and shared knowledge". They actually maintain that success of a KM programme ultimately depends on the sharing of knowledge (Martensson, 2000).

This theory was used to interpret the findings for the question on how IHHK is managed in Tanzania. The model was also used to seek answers to Question Five of the study which concerned suggestions on the strategies that could assist in the documentation and preservation of IHHK in Tanzania. Therefore, the components of this study were useful in designing the guidelines for gathering, organising, storage, and sharing of the available IHHK in Tanzania because the need arose from the findings of the study, which are discussed in details in Chapter Five. Although the model was also used to interpret and provide meaning to the findings of the study (especially in an investigation of the relationship between IHHK access, documentation and preservation); the country's efforts towards the process, and the ways in which the management of IHHK is exactly featured in the existing IPRs, policies and national strategies. The Knowledge Processing Chain model was very useful for Question Five of the study both during data collection and interpretation. During the course of data collection, the researcher

used the components of representation and dissemination to capture responses on how IHHK is represented, codified and shared.

2.6 Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of Traditional Knowledge

The Holistic Strategy for the Maintenance and Transmission of Traditional Knowledge (TK) by Cetinkaya (2009) was developed by considering the community goals, assessment of the United Nations Educational, Scientific and Cultural Organisation (UNESCO)/Link programme; the Millennium Ecosystems Assessment of 2005 and potential responses for the maintenance of TK (Cetinkaya, 2009:35). According to Cetinkaya (2009), the strength of community capital, human capacity and institutional development are necessary in ensuring the continued well-being of TK, including IHHK. Cetinkaya's (2009) model has a range of responses such as documentation of tourism-related TK, economic related, and social and behaviour development which calls for the establishment of instruments for providing benefit sharing in order to maintain TK as a living cumulative body in the society. The diagrammatic representation of this model is presented in Figure 2.6 followed by the discussion of the relevant responses and instruments:

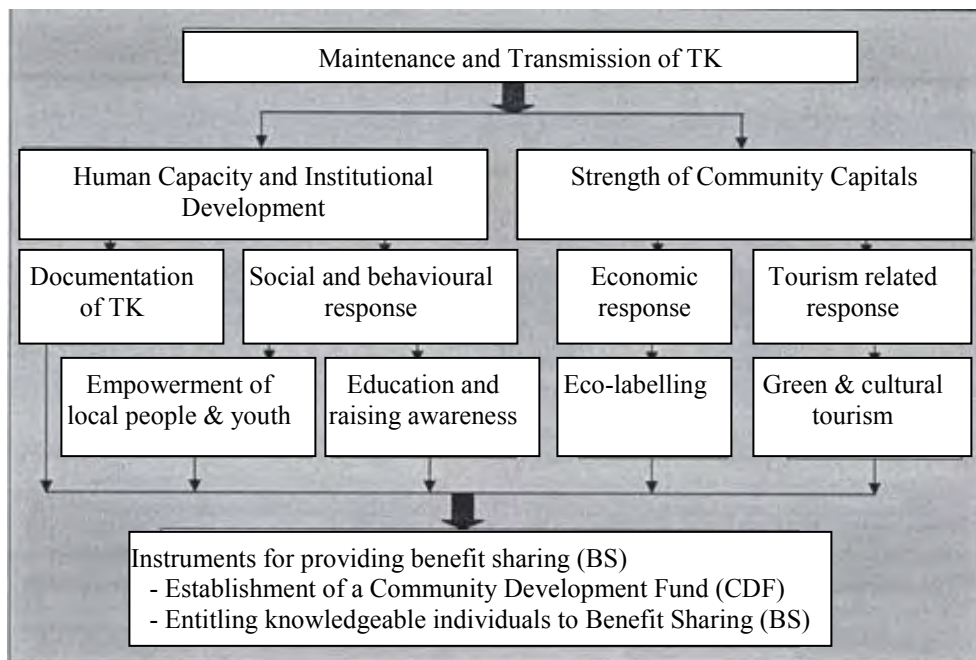


Figure 2.6: Holistic Strategy for the Maintenance and Transmission of TK
Source: Cetinkaya (2009)

‘Eco-labelling’ is giving community members and the knowledgeable community members the label to commercialise their know-how as means to improve their economic welfare through job creation and employment (Cetinkaya, 2009). However, this response may be affected by IT and agencies’ support in terms of improving access and marketing strategies, infrastructure, and accessing micro-credits, capacity building and dealing with externalities such as co-operation with tourism agencies.

Green and cultural tourism is an initiative to generate employment opportunities and income as well as improving cultural interaction and relations. According to Cetinkaya (2009), green tourism encourages visitors to work together with the local people to collect and preserve the available IHHK. Active participation of the knowledgeable community members in green and cultural tourist activities should be supported to create opportunities for the transmission of TK.

Social and behavioural response is and indeed occurs when the local community members who in this case are the traditional healers and youth are empowered to actively participate in decision-making, particularly on issues related to access, use, documentation and preservation of IHHK. As a cornerstone to the establishment of a country-wide project of documenting and preserving IHHK, this study determined the perceptions/attitudes and needs of various stakeholders towards the project. The need for educational and awareness-creation programmes for positive change, particularly in the attitudes of stakeholders towards documentation and preservation of IHHK was also determined.

A systematic initiative should be established to document and preserve IHHK in a compendium using ICT in the form of a database. Formatting of data to be stored should include, but not be limited to prominent figures at a particular time, types of disease, location of medicinal plants, most useful parts, time for collection, method for preparing and storage, who is allowed to access and use, natural, historical, cultural, economic, and social aspects, descriptions of plants, and harvesting. Population dynamics and traditional management systems are very important in order to enable easy access and the usability by people for future reference and for the comparative study of human health knowledge, to preserve the identity of indigenous people for future generations.

From all these responses, dialogue and active participation among the knowledgeable community members and agencies such as policy-makers, religious commissions, NGOs, local governments, and private sectors should be facilitated to establish an instrument or advisory committee for achieving effectiveness and sustainability of the responses, and ensure equitable benefit sharing to enable the local communities to continue their traditional lifestyles and practices. The committee will have to attend to the provision of financial funding and support to the country-wide programme of documenting IHHK and the related projects, and provision of sufficient benefits to the local community and to the knowledgeable community members from commercialisation of their local products (Cetinkaya, 2009).

2.6.1 The strength of Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK

The strengths of this model is based on the fact that it has attempted as much as possible to link the IK with important benefits achieved from preserving knowledge; that the IK is linked to and between cultural identity, history, and traditional occupations of people. According to Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK, the IK in this case the IHHK, should be considered a cultural heritage to contribute to providing bonds with people's historical identity linked to various components such as resources and land and into supporting the sustainable development strategies in organisations. The model further supports the participation of local communities and stakeholders in the successful implementation of the policies and strategies for managing knowledge.

Moreover, as long as the model has the attributes as responses, these responses may be affected by IT and agencies' support, especially in terms of improving access and marketing strategies; infrastructure and accessing micro-credits; capacity building and dealing with externalities, such as co-operation with tourism agencies. Therefore, encouraging visitors, the government and researchers to work together with the local people to collect and preserve the available IHHK is critical.

2.6.2 The weakness of Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK

Although this model seems to have the ability of fulfilling the theoretical requirements of the study, some issues are not openly articulated. The model remains silent on the origin of knowledge especially in organisations. Cetinkaya's (2009) model has the attribute of embedding knowledge in documents or repositories. However the question remains about organisational routines, process, practices and norms (which in this case, the IPRs, policies and strategies that guides management of IHHK). Moreover, the model does not offer principles that should guide the codification of organisational knowledge or management of the repositories.

Cetinkaya's (2009) eco-labelling gives community members and traditional healers the mechanism to commercialise their know-how as the means to improve their economic welfare. This is similar to Davenport and Prusak's (2000) views on organisations as knowledge markets, with buyers, sellers and brokers. However, the Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK is also silent on pricing and payment mechanisms. The question of payment and rewards during knowledge transfer and sharing remains uncovered compared to Davenport and Prusak's (2000) model.

Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK lacks an important attribute of possible factors that may prevent the market from working efficiently or the proper management of knowledge. Unlike Davenport and Prusak's (2000) model which identifies at least two cultural barriers including organisations rewarding and raising the status of people who own knowledge; and knowledge as a special right and privilege of such groups and therefore it should be preserved (Choo, 2003), which are the factors that may exacerbate this effect. Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK is silent on the impact of IT in all the processes of maintaining and the transmission of knowledge.

2.6.3 The usefulness of the Holistic Strategy for the Maintenance and Transmission of TK in the study

Although Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK is not a widely used model in KM literature, it still is very useful in this study as it covers many

attributes investigated by the study. For example, the potential responses for the maintenance of TK such as education and raising awareness, eco-labelling, green and cultural tourism were used in the following ways: the education and raising awareness helped in seeking responses to Question Three of this study. Question Three was about understanding the motivation, perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK. The element of eco-labelling, which is about giving stakeholders a label to commercialise their know-how as a means of improving their economic welfare through job creation and employment, gave an understanding of the ways in which the management of IHHK is featured in the IPRs, existing policies and strategies in Tanzania. It further provided an understanding of the benefit achieved from proper management of IHHK. Thus, eco-labelling provided answers to Questions Two and Four. The social and behavioural response was used to obtain responses to Question Four of this study concerning how stakeholders were empowered to actively participate in the initiation and implementation of policies and strategies relating to access, use, documentation and preservation of IHHK.

Therefore, this model was considered useful in designing the guidelines, strategies and course of action that would assist in the documentation and preservation of IHHK in Tanzania because the need arose from the findings of Question Five of this study. This is discussed in more detail in Chapter Five.

The model suggests that there is a relationship between IK with important benefits achieved from preserving knowledge; that the IHHK is therefore linked to and between cultural identity, history, and the traditional occupations of people. Hence, the study explored the relationship in more detail in Chapter Five. During the course of testing the relationship, the researcher described and conceptualised three types of efforts including administrative and legal, as well as individual and collaborative efforts. Administrative and legal efforts related to the political and governmental support in creation of an environment that is conducive for managing IHHK. This includes laws, policies and strategies that are in place. Individual and collaborative effort entailed the support invested by individual persons or groups of people whether traditional healers or not.

2.7 The Davenport and Prusak's (2000) Working Knowledge model

The Working Knowledge model came into being from the work of Davenport and Prusak in 2000. Davenport and Prusak (2000) are of the view that knowledge is originated and applied in the minds of the person who possess it. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, process, practices, and norms (Choo, 2003). The model considers organisations as knowledge markets with buyers, sellers and brokers. According to the model, markets work by having pricing and payment mechanisms. Therefore, knowledgeable community members/owners will take time and effort to share/document their knowledge if they expect the favour to be returned or rewarded, either by gaining a reputation for being knowledgeable and/or being willing to share knowledge (Choo, 2003). The model assumes that the transfer of knowledge in this case IHHK, can positively be affected by IT and other factors, the most important element is trust. Trust is the result of the well-defined norms and value that may also be reflected in the country's mission statements regarding the management of IHHK.

In the process of marketing, the model advocates for the knowledge market signals, efficiencies and absence of pathologies. Knowledge market signals indicate both where knowledge actually resides in the community or organisation, and how to gain access to it. Efficiency of markets occurs when buyers and sellers find each other and exchange their goods readily; it depends on three factors, namely completeness of information; the localness of knowledge; and reduction of asymmetry of knowledge in the country, organisation or community. There should not be a very strong asymmetry of knowledge in order to allow buyers and sellers to interact or meet (Davenport and Prusak, 2000). In this study, these aspects emphasise sharing of knowledge for preservation and use in the future. The model encourages absence of pathologies which means that there should not be monopolies in which one person or group holds knowledge that others need. The owners should be allowed to rent their expertise to accomplish or solve health problems, but should not sell their knowledge at a high price and allow competition to moderate it. This depends on the legal systems that exist.

Davenport and Prusak's (2000) model further recommends developing effective knowledge markets by using IT wisely; building marketplaces which are physical and virtual spaces

dedicated to IHHK exchange, such as talk rooms, fair trade; creating and defining knowledge market value attached to IHHK through empirical means including recognising, promoting and rewarding the owners for sharing their know-how. If knowledge marketing is well organised, the communities expect the following benefits which are the peripheral benefits of knowledge markets: higher workforce morale; greater corporate coherence which involves IHHK owners in creating corporate goals and strategies; richer knowledge stock by bringing together people with different IHHK to work on the same health problems; a stronger meritocracy of ideas (meaning undistorted markets, that is owners existing at all levels). According to this model, any organisation or community wanting to excel in managing IHHK, should perform the sub-processes of the following three KM processes well, namely generation, codification and transfer.

According to Choo (2003), knowledge generation refers to activities that increase the stock of organisational knowledge. The five modes of knowledge generation are acquisition, dedicating resources, fusion, adaptation, and building knowledge networks. In the communities' context, the community may acquire knowledge by hiring individuals 'buying' another community, or renting/leasing external knowledge. They may also dedicate resources to the generation of knowledge by establishing units. In Tanzania, for example, the TAHPC and ITM register traditional healers and undertake medical and traditional medical research and development. Knowledge generation through fusion can occur when different individuals or knowledgeable community members and groups of knowledgeable community members with different specialisations and perspectives are brought together to work on a problem or project.

Adaptation takes place when the organisation responds to new conditions in its external environment. Here, knowledge generation is a result of the community adapting significant competitive, economic, or technological changes; and the most important adaptive resources are the community members. This is specifically knowledgeable community members who can acquire new knowledge quickly and who have the openness to learn new skills. Knowledge is also generated in networks of people in a community who share common interests, face common problems, and are motivated to exchange their knowledge. Communities and organisations may attempt to formalise these informal, self-organising networks over time.

On codification of knowledge, Davenport and Prusak (2000) offer four principles that should guide the codification of organisational knowledge:

- (i) Managers must decide what business goals the codified knowledge will serve.
- (ii) Managers must be able to identify knowledge existing in various forms appropriate to reaching these goals.
- (iii) Knowledge managers must evaluate knowledge for usefulness and appropriateness for codification.
- (iv) Codifiers must identify an appropriate medium for codification and distribution.

Codification of tacit knowledge is generally limited to locating someone with the knowledge, pointing the seeker to it, and encouraging them to interact. This necessitates the need for a knowledge map, for instance an actual map, a directory or database to be constructed to point to IHHK. However, Davenport and Prusak (2000) argue that this may create a challenge by turning tacit knowledge into codes without removing its richness such as distinctive attributes, putting in place codification structures that can change as rapidly and flexibly as the knowledge itself. Davenport and Prusak (2000) suggest that stories, in their ability to embody and extend experience, and to combine feeling and thought, may be a way of capturing knowledge (Choo, 2003). Concerning knowledge transfer, Choo (2009:210) maintains that:

“Since, organisations behave as knowledge markets, they should create market spaces and places where this trading and sharing of knowledge can happen. Much of the knowledge transfer occurs through personal conversations, so places such as water coolers, talk rooms, knowledge fairs, and open forums become important venues for sharing information. A major theme in Davenport and Prusak’s (2000) discussion is that the sharing of knowledge between people and groups in an organisation may be the most daunting task in KM. Most of the impediments are related to the culture of the organisation”.

Davenport and Prusak (2000) identified the following seven barriers in knowledge sharing/transfer: lack of trust; different cultures, vocabularies, and frames of reference; lack of time and meeting places; status and rewards going to knowledge owners; lack of absorptive capacity in recipients; belief that knowledge is the prerogative of particular groups; the “not-invented-here” syndrome; and intolerance for mistakes or need for help (Choo, 2003). The ten Davenport’s (1998) KM principles as mentioned by Lwoga (2009:73) are very important in this study which seeks to understudy the KM of IHHK for the purposes of proposing a course of

action for expediting documentation and preservation of the available IHHK in Tanzania. The ten principles are:

- (i) KM is expensive: Knowledge is an asset, but its effective management requires investment of other assets;
- (ii) Effective management of knowledge requires hybrid solutions of people and IT in complementary ways;
- (iii) KM is highly political: By this principle identification of influential knowledge champions, people who know the organisations politics is very important;
- (iv) KM requires knowledge managers;
- (v) KM benefits more from maps than models, more from markets than from hierarchies. Hence, only knowledge with a strategic value should be mapped;
- (vi) Sharing and using knowledge are often unnatural acts. Thus, people should be judged according to their ability to share and use knowledge;
- (vii) KM means improving knowledge work processes. The organisation must identify and improve key business processes that are important in the knowledge work process for effective KM activities;
- (viii) Knowledge access is only the beginning. Although access to knowledge is important, it becomes useful when it is shared and applied to specific situations;
- (ix) KM never ends. The categories of the required knowledge are always changing due to the continuous advancement of technologies, management approaches, regulatory issues, and customer concerns; and
- (x) KM requires a knowledge contract which should be between the company and the employees.

2.7.1 The strength of Davenport and Prusak's (2000) Working Knowledge model

Davenport and Prusak (2000) develop a more pragmatic definition of organisational knowledge and a more operational view of managing knowledge. Davenport and Prusak's (2000) model focus on how organisations can capture, codify and transfer knowledge, with a particular emphasis on knowledge sharing. This makes their model valuable for this study which falls under the pragmatism paradigm throughout. Davenport and Prusak (2000) also state that knowledge originates and is applied in the minds of the knower and that in organisations, it often

becomes embedded not only in documents or repositories but also in organisational routines, process, practices, and norms. Davenport and Prusak's (2000) working knowledge model raises a very important component of the knowledge residence (where the knowledge resides) which has been missing in the previous reviewed models.

Davenport and Prusak (2000) believe that organisations need to function as knowledge markets with buyers (people seeking knowledge to resolve an issue); sellers (people with an internal market reputation for having substantial knowledge about a process or subject); and brokers (people who make connections between people who need knowledge and those who have it: gatekeepers, boundary spanners, corporate librarians); and marketplaces where knowledge can be traded and transacted efficiently between buyers, sellers, and brokers. In this case, communities in Tanzania are the knowledge markets possessing the product which is IHK with buyers (the prospective users of knowledge such as patients, researchers and development planners); sellers are in this case the traditional healers/knowledge owners; and brokers are the knowledge managers in the institutes who are to make connections between people who need knowledge and those who have it, such as knowledge managers in the TAHPC and ITM.

Davenport and Prusak (2000) are of the view that knowledge markets works by having pricing and payment mechanisms. In this case, the pricing system entails a legal and environmental framework that sets the pricing system and means of exchange, and conditions for paying back the owners, community and the country by buyers from outside the communities/country. Moreover, in examining entities as knowledge markets, Davenport and Prusak (2000) have identified several factors that can prevent the market from working efficiently. Therefore, Davenport and Prusak (2000) provides a caution about the possible barriers in the process of managing knowledge. As a validation of that, Choo (2003:215) is of the view that generally a strong sense of individualism can stymie the sharing and use of knowledge. Davenport and Prusak (2000) identify at least two cultural barriers that can exacerbate this effect: organisations reward and raise the status of people who own knowledge; and groups develop the belief that knowledge is their special right and privilege that should be preserved.

2.7.2 The usefulness of the Working Knowledge model in this study

This theory and the empirical studies that have been reviewed in this study to explain findings were used to design the guidelines for codification and preservation of IHHK in Tanzania as the need arose from the findings of the study. This is discussed in more detail in Chapter Five. Moreover, the Working Knowledge model by Davenport and Prusak (2000) was also used throughout the review of related empirical literature to the data collection and interpretation of the findings of this study. During the course of the study, Tanzania assumed the role of the ‘organisation’ with market places where a commodity such as IHHK is being sold. The sellers were the traditional healers, whereas the buyers were the prospective users of the traditional healers’ knowledge, and brokers were the knowledge managers in the institutions such as TAHPC and ITM in the case of Tanzania. Therefore, in this study the attribute of the knowledge market was used not only in seeking answers/responses to Question Three of the study but also during interpretation of the findings.

The attribute of pricing and payment mechanisms in the model was used in measuring the themes in Question Three concerning the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK. The component of IT for which this model may positively affect the transfer of knowledge which in this case is IHHK and other factors such as trust were used in shaping and obtaining relevant responses to Question Four in the study. As trust is the result of the well-defined norms and values that may also be reflected in the country’s mission statements regarding the management of IHHK, this attribute was used in Question Two.

The attributes of the knowledge market signals, efficiencies and absence of pathologies in the process of marketing as advocated by Davenport and Prusak’s (2000) Working Knowledge model were used in a number of ways. Firstly, the knowledge market signals indicate how prospective users of IHHK gain access to it. Secondly, the efficiency of markets as another attribute showed where, when and how buyers and sellers find each other and exchange their goods readily. These depended on three factors which were the completeness of information, the localness of knowledge and reduction of asymmetry of knowledge in the country, organisation or community. Therefore the researcher had to thoroughly review various repositories, public

domains and location where IHHK metadata is stored for access. The absence of pathologies was used in understanding how owners are allowed to rent their expertise to accomplish or solve health problems. Therefore, the absence of pathologies was a very important attribute for Question Two, specifically on pricing and competition, which in most cases depends on the current legal systems.

The four principles intended to guide the codification of organisational knowledge were very useful in seeking and interpretation of the findings in Question One. This was especially true in understanding of the business goals of codified knowledge; identification of knowledge that exist in various forms appropriate in reaching these goals; the identified goals; evaluation of knowledge for usefulness and appropriateness for codification; and the selection of an appropriate medium for codification and dissemination.

The component of barriers as identified by Davenport and Prusak (2000) was useful in structuring the research item in the instruments especially for Question Four. Davenport and Prusak (2009) further recommended developing effective knowledge markets through using IT wisely, and building marketplaces created the need for this study to understand how recognising, promoting and rewarding the owners for sharing their know-how is being done in the country. This established a basis for the necessity of Question Five in this study, whereby various recommendations on strategies that could assist in the documentation and preservation of IHHK in Tanzania were made.

2.8 Summary of Chapter Two

During the preparation process for the write up of this chapter, several theories and models regarding KM were reviewed. It is worth remembering that the focus of this study was to understudy KM specifically on the aspect of codification and preservation of IHHK. Thus, from all the KM models the researcher reviewed, only six were deemed relevant to the study because they take into consideration the aspects of codification. The six KM theories which were reviewed included the Organisational Knowledge Creation by Nonaka and Takeuchi (1995), Knowledge Category model by Boisot (1987), I-Space model by Boisot (1995), Knowledge Processing Chain by Oluic'-Vukovic' (2001), Holistic Strategy for the Maintenance and

Transmission of TK by Cetinkaya (2009), and Working Knowledge model by Davenport and Prusak (2000). The Davenport and Prusak (2000) model was the principal model that guided the study. In this chapter attributes of each model were reviewed, analysed and the definitions of the main features and linkages to the study were established.

The Nonaka and Takeuchi (1995) Knowledge Spiral model similar to Boisot (1987) Knowledge Category model, advocated categorisation of knowledge into discrete forms; while Nonaka and Takeuchi (1995) categorised knowledge as tacit and explicit knowledge; Boisot (1987) categorised knowledge as codified and un-codified knowledge diffused and un-diffused knowledge. However, they concur on the idea that knowledge is shared through social interactions, which begin at the individual level and then grow and expand to groups within organisations and to the whole organisation before it finally transcends organisational boundaries. Nonaka and Takeuchi (1995) described four knowledge conversion processes including socialisation, externalisation, combination, and internalisation. This means that each process involves converting one form of knowledge (tacit or explicit) to another form (tacit or explicit). This model focused on the crucial issue of knowledge creation through organisational sharing, and is useful for identifying and evaluating certain key activities in the KM processes.

The Boisot (1995) I-Space model paid attention to the structuring of data as the major activity that facilitates knowledge diffusion. With its three dimensions of codification, abstraction and diffusion, the I-Space model was used as a tool to analyse and understand the different kinds of knowledge flows within an organisational setting. This model hypothesized that codification and abstraction together facilitate the diffusion of knowledge and that the dimensions reinforce each other (Boisot, 1995). Hence, the I-Space model would help researchers in the KM field to study knowledge flows, and the environments that give rise to such flows. Along the same line, Oluic'-Vukovic's (2001) Knowledge Processing Chain focused on the knowledge processes in an organisation. Such processes include gathering, organising, refining, representing and disseminating. The Oluic'-Vukovic' (2001) model identified the simple flow of knowledge within and across knowledge processes in which the knowledge processes were simply characterised as creation, organisation, dissemination, and use of knowledge.

Cetinkaya's (2009) Holistic Strategy for the Maintenance and Transmission of TK is based on intellectual capital, similar to Davenport and Prusak's (2000) Working Knowledge model. According to Cetinkaya (2009), both the decline in TK and the drivers of change adversely affect five fundamental components of human well-being including health, development of good social relations, and security. Recognising this undesirable trend, a holistic strategy was developed to sustain, use, and transmit TK as a living cultural resource in society. Within this context, a number of potential responses including economic, tourism-related, social and behavioural, and instruments such as a community development fund, for providing benefit-sharing among the target groups, were developed. The aim was to achieve success in the effective maintenance and promotion of TK and also to contribute to sustainable development strategies (Centikaya, 2009). Davenport and Prusak's (2000) Working Knowledge model treats knowledge owned by the organisation as a commodity, which means an organisation is considered as a market place with sellers, buyers and brokers. According to them, markets work by having pricing and payment mechanisms in which three kinds of payments operate including reciprocity, reputation and altruism. Davenport and Prusak's (2000) Working Knowledge model is of the view that knowledge markets require an environment of trust in order to function. To confirm this, Choo (2003) affirms that any organisation that wants to excel at managing knowledge will need to perform three KM processes well, namely the generation, codification, and transfer of knowledge. Therefore, the Working Knowledge model by Davenport and Prusak (2000) focuses on how organisations can capture, codify and transfer knowledge, with a particular emphasis on knowledge-sharing within and outside the organisation. To them, IT is clearly a part of KM as it is to be used during all KM processes.

In a conclusion, it has been observed that each of the theories or models presented in this study, are relevant and each offers valuable theoretical foundations in understanding the management of IHKK. Six models were presented on the assumption that the shortfalls of attributes in one model are fulfilled by the attributes in another model. In connection to this study, all of the presented models share the idea of codification as an attribute important for knowledge preservation, transfer and sharing. In other words, all models reviewed in this chapter recognise the role of knowledge codification (documentation) in KM as it facilitates preservation, storage, transfer, sharing and use, as well as activities that require individuals, groups and organisational efforts.

Hence, codification takes place most effectively in groups and teams that share common purpose and beliefs, and have a strong sense of trust.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

The purpose of the literature review is to provide a comprehensive summary by identifying and evaluating writings/literature by other previous authors in the related field to one's research study. The literature reviewed should be synthesized and engaged critically with in the topic in hand in order to show the relevance of findings in relation to the existing body of literature (Lwoga 2009). Therefore, the context of which the study should be studied depends on reviewed literature

This study investigated KM efforts in the aspects of the documentation and preservation of IHHK in Tanzania. The study was conducted within the pragmatism paradigm, which gave the researcher an opportunity to choose the most appropriate methodologies and methods to address the research questions and problems within one study. However, it was very difficult to obtain literature relevant to this study because the documentation of IK is not well established and perhaps is a new theme in preserving knowledge on traditional healing. Therefore, there were very few empirical studies conducted on this topic. The most available literature was on IK generally, the increasing and frequent use of traditional medicine and some medicinal plants. Such studies in most cases have recommended the recording and documentation of IK specifically traditional medicine for research and development.

Therefore, the researcher had a limited opportunity to choose from a diverse literature on the topics, the literature review in this section helped the researcher to identify inconsistencies, knowledge gaps and allowed the researcher to develop a focus on the research problem since the strength and weaknesses of previous studies had been identified (Creswell, 2003; Lwoga, 2009). It further helped in identifying research methodologies and determining the effectiveness of approaches underpinning the study. This was based on previous studies about the related problems, which were done in order to avoid duplication of research results.

The review of literature in this chapter was guided by the study objectives. The chapter aimed at not only showing what had already been done and the knowledge gaps which existed, but also

making sense of the available empirical studies through critical evaluation. Hence, the review observed the significance of and the framework used. This in turn provided the central theme of the study and the background to the management of IHHK.

3.2 Analysis of the efforts in managing IHHK

The aim of analysing the efforts dedicated to the managing of IHHK is: to reveal the technique through which IHHK is managed (documented and preserved) globally, by focusing or drawing on particular cases from Tanzania. To assess the available efforts in managing IHHK; and finally, to study the roles that the government and/or NGOs have played in the management of IHHK. NGOs in this context, include privately owned companies, associations and individuals who are in most cases buyers, sellers and brokers of the IHHK commodity (Davenport and Prusak, 2000).

Many authors and researchers have considered KM (irrespective of the knowledge being foreign or IK) as the main source of competitiveness (Allameh, Zamani and Davoodi, 2010). Therefore, a lot of literature reveals that KM is an area of research interest in academia and organisational practices involving different disciplines and areas of interest. KM essentially relates to the management of anything classified as knowledge within an organisation (McAdam and McCreedy, 2000). While there still is no comprehensive definition of KM that caters across contexts and purposes, authors from different perspectives have developed various definitions of the term. Thus, it is important to first understand how various authors perceive and define the term 'knowledge' itself and its typology.

Allameh *et al.* (2010:1227) are of the view that knowledge is the mental aspect of saved ideas, realities, concepts, data and techniques in human memory. Its source is the human mind and it is based on information which is obtained through experience, beliefs and personal values. They further believe that knowledge is transformable in association with decisions and actions. Complementing this excellent definition, with believe in the restoration of marginalised Africans' ideologies, philosophy and way of life, and while viewing knowledge as a product of human thought, action and experience; Mchombu (2004:34) adds that each culture contains a knowledge base from which its members receive understanding and an interpretation of the

world. Therefore, Mchombu (2004) in his definition introduces the concept of culture, purposively to bring about the idea of the restoration of marginalised Africans' ideologies, philosophy and ways of lives, particularly IK which is rich in cultural knowledge that provides identity to people. Cultural knowledge helps African societies to answer the questions about who they are and what is their history, about appropriate IT, and useful medicinal plants for curing human and livestock diseases.

From these perspectives, knowledge from Africa's societies which existed even before, during and after colonialism needs to be maintained and preserved for study, research and development. Maintaining IK preserves culture and society's identity. Proper management of knowledge would in future clear doubt and questions as to whether Africa's knowledge has contributed to heritage and how western knowledge impact on Africa IK and vice versa. Hence, it is easy to prove the contributions of IK in development and give credit or discredit to Rodney's (1972) concerns and arguments on African achievements of any period. The question may be asked what exactly we mean when we talk of KM. Although already stated in Chapter One, Section 1.1.2; KM is of valuable importance hence, it is useful to examine some of the definitions provided by various scholars and authors.

Jafari, Akhavan and Mortezaei (2009, para. 4) citing Coates (2001) define KM as one of the management approaches, which is portrayed in popular business literature as an innovation with the potential to affect the whole of an organisation's business, especially its processes and information systems. However, such a definition may isolate KM from general management because from the definition of KM is viewed as a management method which influences innovation that impacts on organisation's business processes and information systems. The definition neglects the issue of knowledge. In this limited definition however, there is a concept of innovation which might be and indeed is the by-product of proper management of the available knowledge. This view is also reflected in Lwoga and Sife (2006:140) when they noted that:

“KM involves the discovery and capture of knowledge, the filtering and arrangement of this knowledge, and the value derived from sharing and using this knowledge throughout the organisation. With the developments of ICTs, KM practices have been enhanced and improved in terms of, creation of knowledge repositories; the

improvement of knowledge access; enhancement of the knowledge environment; and management of knowledge as an asset”.

In this definition, Lwoga and Sife (2006) also imply that KM involves discovery or innovation and the capture of knowledge and some processes involved during the management of knowledge. In their definition, Lwoga and Sife (2006) further introduces the concept of ICTs in KM. The importance of ICTs in KM is reflected in Davenport and Prusak’s (2000) model as discussed in Chapter Two, Section 2.7.

Some of the previous authors and much of the recent literature have somehow tried to define KM as a process. Chilimo and Sanga (2006:127) define KM as “a process of systematically and actively managing and leveraging the stores of knowledge in an organisation by focusing on transforming information and intellectual assets into an enduring value”. This definition is actually very narrow because the authors stress managing and leveraging the stores of knowledge. More precisely, the stores which they are talking about may be based on explicit knowledge, whereas for tacit knowledge they advocate the provision of an enabling environment for its development, nurturing, utilisation and sharing. Thus, the question of readiness of traditional healers to document their know-how still needs to be answered. However, although Chilimo and Sanga’s (2006) definition may be influential in the fact that it may be very difficult to manage un-stored (un-codified) knowledge; the definition lacks emphasis in terms of the processes involved in KM in general such as generation, codification and transfer. A more comprehensive definition would include all the processes involved in the management of knowledge.

Allameh *et al.* (2010:1228) also define KM as a process. For them, KM is seen as a set of processes for understanding and applying knowledge strategic resources in an organisation. It is a structured approach which proposes methods for recognition, assessment, and organising, storing and applying knowledge in order to meet the needs and aims of the organisation. In this comprehensive definition, KM is seen as a process by which organisations are able to identify, select, collect, organise, document, popularise, transmit and preserve knowledge which would be used to meet the needs of an organisation (in this study, a country), research, consultancy and development as well as preservation of culture and society identity. In addition, Otenya and

Nyamboga (2006:96) when defining KM as a strategy, considers it to be a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organisational performance. Therefore, defining KM as both a process and strategy gives an understanding of not only the process involved, but also helps to evaluate the overall performance of the organisation, not just at present but also in the future.

In their detailed work on managing IK for sustainable agricultural development in developing countries, Lwoga, Ngulube and Stilwell (2010) emphasise that KM promotes development and application of tacit, explicit, and embedded intellectual capital; that is, leveraging understanding, action capabilities, and other intellectual assets in order to attain the enterprise's ultimate goals. Since, their views accommodate the idea of promotion of tacit knowledge, these validate Chilimo and Sanga's (2006:128) statement that KM will enable the management of locally available knowledge, sometime referred to as the IK, which is still stored in the human brain and is handed down from generation to generation by word of mouth (Woo, Clayton, and Johnson 2004; Lwoga, 2009). Thus, the IK is vulnerable to attrition if it is not recorded for storage and wider transmission (Okorafor, 2010). Ngulube (2002: 67) citing Warren (1991) advises that it is evident that if IK is not recorded and preserved, it will be lost and remain inaccessible to other indigenous systems as well as to development workers. Ngulube (2002:96) is further of the view that there are still some development projects that appear to make little use of IK. Indeed it is a fact that such projects cannot offer sustainable solutions to local problems without integrating local knowledge. Therefore, in order to enhance the use of IK, people need not only to be made aware of the existence of IK, through marketing strategies, but also to record and preserve such knowledge in a repository.

Msuya (2007:347) citing Kaniki and Mphahlele (2002) argues that IK has traditionally not been viewed in the business sense as capital and that it has tended to be exclusive at times, susceptible to suspicion, and at times to abuse. Thus, IK has not effectively been managed in the same way as scientific knowledge which is well managed because it is taken as knowledge that can be interpreted as capital valued or taken as profit (Dlamini 2009). Dlamini (2009:1) is however confident that IK is an important resource which needs to be collected; preserved for present and

future generations; and also disseminated in every possible way. This view by Dlamini (2009) concurs with Allameh's *et al.* (2010) concern when they defined KM as a process. Dlamini (2009) further emphasises the application of marketing principles in the management of IK. The assumption is that marketing principles would facilitate the utilisation of IK as well as the production of user-oriented rather than producer-oriented services. However, for proper management of IK, Davenport and Prusak's (2000) assumptions that an organisation is a knowledge market with a commodity, sellers, buyers, brokers and technologies is of more importance in the conduct of this study as discussed in Section 2.7 of Chapter Two.

According to Dlamini (2005:19) to the community, IK is a very rich resource in developing countries. It is of vital importance in development; preserving cultural identities, bridging the past and the present, and transferring information required by various users including the public, researchers, tourists, students, policy makers and many others. To Dlamini (2005), the IK of the world's biodiversity is not only beneficial to just poor countries and poor people. IK has helped to fuel innovation and development in multi-billion dollar industries, ranging from agriculture and pharmaceuticals to chemicals, paper products, energy, and others. From Dlamini's (2005) study on the management of IK in Swaziland, with specific reference to the Swaziland National Library Service (SNLS), it was found that IK has been marginalised in the management of library resources in Swaziland. Hence the study concluded that libraries and information centres tended to ignore IK in favour of imported information sources, thus leaving IK management in Swaziland in its infancy. This is not the situation in Swaziland only, but also in most developing countries (including Tanzania) which were formerly colonised where western and eastern religions (Christianity and Mohammadism) played a role in establishing and impoverishing indigenous people's way of life and knowledge (Rodney, 1972).

The concept of IK management, according to Dlamini (2009:27), involves the identification, collection, codification, documenting, organising, preservation, transfer, linking, application, dissemination and sharing of knowledge on indigenous community livelihoods and ecosystems, for sustainable development. Since IK management covers a wide range of areas that include natural resource management, agriculture, education, health (human and animal health), food preparation, institutional management, communication, conflict resolution (governance) and

others; it was not possible therefore for this particular study to cover all of the mentioned areas. The study concentrates on IK based on human health, particularly the documentation and preservation of knowledge of traditional medicine for healing of some physical ailments. With the view that there is much IK in the areas of traditional medicine (medicinal herbs) for both human and animal use, Mchombu (2004:82) recommends identification, listing and describing various uses of such medicinal plants because since the beginning of human civilization, people have used plants for medication purposes. In a study by Dharampal (2006) using a case study of one South African primary school, where the unit of study were Grade Six learners from two different cultures (Zulu and Asian); Dharampal (2006) discovered that each culture or people had their own IK, which is used in their day-to-day lives. Therefore Dharampal (2006) concluded that IK represents a country's wealth as it provides opportunities for education, scientific and medical discoveries and a host of other social factors.

Furthermore, the study by Dlamini (2001) on facilitating collaboration between traditional healers and western health care practitioners in the management of chronic illness in Swaziland found that despite the introduction of modern medicine by the colonial powers, inhabitants of Africa had never stopped utilising traditional medicine. While citing Pretorius' (1991) observation, Dlamini (2001:32) gives an example from post-apartheid South Africa that economic circumstances were such that imported techniques and medicines became less accessible to Africans. This forced the authorities to approach the problem by exploring the possible utilisation of indigenous sources. This situation may also be similar to Tanzania where traditional healers provide healthcare to a large part of the Tanzanian population, outside the formal health services provided by the state or non-governmental organisations (Gessler, *et al.* 1995).

In addition, Gessler *et al.* (1995:157) observed that traditional healers can undoubtedly contribute positively to the health of the population, and not only with herbal remedies; they have also had a very important social function in trying, not only to treat the symptoms, but also to locate the causes of illness in the patient's environment. However, Gessler *et al.*'s (1995) observations on the function of traditional healers in treating and locating the causes of illness may still face a critical challenge from conventional/western healers who rely on established

scientific methods and procedures which in traditional healing practices are missing. That criticism does not dismiss the truth however that traditional healers are an important part of African societies.

Dharampal (2006:1) is of the view that for hundreds of years, people have relied heavily on medicinal plants to cure or treat a variety of ailments. This so-called IK has through the years been replaced by Western scientific discoveries that have in some cases copied or improved on these early forms of knowledge. The available literature today shows that the world, and specifically developing countries, have experienced an increased use of traditional medicines and medicine plants as the basis for the maintenance of good health (Kanwar, 2005; Caldwell, 2007; Ghimire and Bastakoti, 2009; Ghosh and Sahoo, 2011; Gurdal and Kultur, 2013). A number of factors for the increased use and demand for traditional medicines have been provided by authors in the KM and medical fields.

As mentioned in Chapter One, Section 1.2, the increased demand for traditional medicines is due to their non-narcotic, limited side effects, easily available, cost effective benefits. In addition, they are the only source of healthcare for the poor or rural communities where western health resources are scarce (Gessler, *et al.* 1995; Kanwar, *et al.* 2005; Caldwell, 2007; Ghosh and Sahoo, 2011; Yetein, *et al.* 2013). Such reasons for increased demand are also supported by Posey (2000:35) citing Posey (1986) that “science has increasingly recognised the importance of IK in advancing hypothesis and enriching scientific knowledge in such disciplines as botany, ecology, zoology, entomology, forestry and agriculture”. This is in line with Ghosh and Sahoo’s (2011:67) view that traditional medicines have been recognised as a valuable input for modern industries (Elujoba, Odeleye and Ogunyemi, 2005). Thus, income can be generated from medicinal plants and traditional medicines (Baviska, 2000; Caldwell, 2007).

Another common reason given for consulting traditional healers from the study by Ross (2008) was dissatisfaction by patients with the treatment received from or negative experiences with western, conventional medical practitioners. However, the study by Naicker (2002) which aimed at gauging the respondents’ perceptions, preferences, motives and attitudes towards alternative medicine as compared to conventional medicine, found that respondents believed that traditional

medicine had a better effect than conventional medicine and that it was reliable and effective. Naicker (2002:63) further mentioned the price of traditional medicine as another factor. The traditional medicine price ranged from cheap to expensive; thus delivered value for money. Furthermore, in his study, Naicker (2002) found that respondents were highly motivated by the safety, gentleness and holistic form of treatment of alternative medicine.

Using an interview with key informants as the main method of data collection, the study by Mpono (2007:78) found that traditional healers play a very important role in health care delivery among the Nguni people of the Eastern Cape and KwaZulu-Natal, and they were well respected by their clients. In Mpono's (2007) area of study, traditional healers were found to be the main healthcare providers in rural areas of the two provinces where the majority of people live. Mpono's (2007) observation on frequency use of traditional medicine in rural areas is not new, many authors including: Elujoba *et al.* (2005); Kanwar *et al.* (2005); Caldwell (2007); Ghosh and Sahoo (2011); Yetein *et al.* (2013) and others maintain the view that traditional medicines and traditional healers are primary healthcare for the poor or rural communities where western health resources are scarce. However, Kaniki and Mphahlele (2002:4) add the concept of urban poor when arguing that herbs are a key or primary medicinal treatment and are accessible to rural communities and the urban poor. In the case of Tanzania, Stangeland *et al.* (2008) discovered that due to the lack of proper conventional healthcare systems, traditional medicine is often the first choice for providing primary health care. Thus, if Kaniki and Mphahlele's (2002) argument is also true for Tanzania, one may therefore argue that there is a need to re-define the terms 'poor and rich' because the increased use of traditional medicine (by both the urban rich and poor) may be one of the factors for the high price of traditional medicine and an increase in the number of traditional healers in urban areas.

The contentions, explanations and views of authors such as Kaniki and Mphahlele (2002); Elujoba *et al.* (2005); Kanwar *et al.* (2005); Caldwell (2007); Stangeland *et al.* (2008); Ghosh and Sahoo (2011) and Yetein *et al.* (2013) tend to overlook the fact that traditional medicine is not only used in rural but also in urban areas and cities where there are many well-established western health resources. One could however understand the reason for the increased use of traditional medicine because of the benefits mentioned earlier, regardless of whether the users

are from the rural or urban areas. Therefore, one could agree with Moshi *et al.* (2007) that a good number of Tanzanians use traditional medicines for their day-to-day healthcare needs. The use of traditional medicines has such a strong cultural influence to the extent that, even in urban settings where many conventional healthcare facilities are available, people still consult traditional healers.

However, the issue of cultural influence in the use of traditional medicines needs to be re-examined. The researcher here is not arguing against the fact that in Tanzania the accessibility to conventional medical doctors is very low as per ratio of 1:33,000, compared to that of traditional medicine practitioners of 1:350 to 450 as stated by Stangeland *et al.* (2008) or in the case of South Africa where Ross (2008:17) citing Keeton (2004) reveal that “there are between 250,000 and 400,000 traditional practitioners compared to 23,000 registered medical doctors”. The issue here is about rural or urban, and the motivation for choice of practitioners. When Mpono (2007:42) states that “it is evident that traditional healing still plays a very important role in South African society especially in the rural areas”; this might be true in South Africa; but in the case of Tanzania, a question that one may however ask is that, if the issue is limited to the rural areas or poorness of people living in the rural communities, why is there an increased number of traditional healers who sell their products at a very high price in urban areas. This discussion needs another platform or rather another study. The researcher therefore may agree with Mulaudzi’s (2012:1) contention that “traditional medicine is considered an important part of the everyday life and well-being in African communities”, this statement is somehow convincing and valid. Some authors such as Dlamini (2001) have advocated the increased use of traditional medicine as being advantageous to African societies and the world at large. Dlamini (2001:3) asserts that:

“Traditional medicine has many advantages in the developing countries as it is locally produced and can be obtained cheaply. Developing countries can also save scarce foreign exchange by importing fewer drugs. Traditional medicine fits comfortably into the social surroundings, thereby enhancing any psychological or curative effects”.

Today, in Africa and internationally, countries’ governments have been thinking and increasing efforts to utilise traditional medicine. This is because traditional medicine has been a major source of African socio-cultural heritage for several hundred years. Although this practice was

once believed to be primitive and wrongly challenged with animosity, especially by foreign religions, dating back to the colonial days in Africa and subsequently by conventional medical practitioners (Elujoba, *et al.* 2005). Thus, Kaniki and Mphahlele (2002:2) concede that the rise of colonialism in Africa had a profound negative impact on IK. Government efforts in some countries have resulted in increased emphasis on the integration of traditional medicine into formal healthcare systems. Such a situation arose from the call of the World Health Assembly in 1978 on governments to incorporate traditional healers into national health systems and traditional medicines into national drug policies and legislation. As Gericke (1996:37) asserts, a number of developing countries have successfully taken cognisance of the recommendation. Among the countries mentioned were China, India, Japan, Cuba, the Philippines and Tanzania. In addition to those efforts, Mulaudzi (2012:1) is of the view that thousands of natural products are currently in clinical trials, some of which are already confirmed to be useful in combating some diseases. The next section will discuss the capturing, codification and preservation processes of IHK.

3.2.1 Capturing IHK: codification and preservation processes

Regardless of the increased recognition and need for IHK in many countries, this knowledge is still passed on through oral tradition and documented in people's minds (particularly elders, after whose death, such knowledge is lost) (Kanwar, *et al.* 2005; Stangeland, *et al.* 2008). A study by Kanwar, *et al.* (2005) on inclination or preference towards herbal treatment, showed that although a majority of people from all age groups preferred herbal medicine as the primary treatment, elderly people have more inclination or preference towards herbal treatment than other age groups (Ghimire and Bastakoti, 2009). In her study, Caldwell (2007) concurs with Kanwar *et al.* (2005) and Ghimire and Bastakoti (2009) that there is more inclination or preference for herbal treatment by the elderly than amongst the younger generations. This is resulting in the disappearance of herbal practitioners, which in turn has serious health implications for people in developing countries who rely extensively on traditional medicines. Thus, Dexit and Goyal (2011:429) recommend that it is necessary to preserve such knowledge for the benefit of future generations. The authors recommend that the best way to preserve IK is to encourage students to learn from their parents, grandparents and other adults in the community.

Encouraging the younger generation to learn from their elderly is fine but is an insufficient condition for the long term preservation of IHHK. Of paramount importance is the documentation of such knowledge. Documenting IHHK is setting the climate for the appropriation of benefits to the community and knowledge owners; and long term preservation for sharing and use by contemporary and future generations. Kaniki and Mphahlele (2002:4) are of the view that such knowledge and skills are shared over generations, and that each new generation adds and adapts such knowledge in response to changing circumstances and environmental conditions. This means that changes in IK management may also be affected by changes in science and technology as suggested in Cetinkaya's (2009) and Davenport and Prusak's (2000) models. Modern technology in its various applications and forms has brought about changes in the way of storing and transmitting knowledge (Ayars, 1983). In consideration of the digitalisation of Chinese traditional medicines, Xie *et al.* (2010) notes that data standardisation for digitalisation is important for the collection, database processing and treatment of data. Documentation is not only important to ensure that the right knowledge is inputted into the system, but also sets the foundation for utilising and sharing. Kaniki and Mphahlele (2002:7) maintain that:

“While IT is crucial to KM, the human dimension plays an important role in knowledge creation and knowledge renewal. Knowledge generation, sharing and reuse are key requirements for organisational and community efficiency and productivity. However, by its very nature IK has traditionally not been viewed in the business sense as capital. It has tended to be exclusive at times, susceptible to suspicion; and at others, to abuse”.

Although IHHK has been stored in the minds of people (knower) and passed through word of mouth from generation to generation, the present study with its pragmatism paradigm would suggest the use of multiple methods of preserving IHHK. Since with the recent developments there are an increased use of ICTs, documentation and storing knowledge in such technologies is highly recommended. Otherwise, knowledge which cannot be converted into a form usable by those technologies; such knowledge can be lost or totally disregarded (Haralambos and Holbon, 2004). Therefore, in order to ensure sustainability and development of IK for the healing and cure of some human physical ailments, deliberate efforts are required to influence owners to document their know-how in writing. This may be possible through the provision of guarantees to individuals or a community's knowledge. Legal matters related to issues of IK management

have in recent literature been seen as an obstacle for proper management of IK, including traditional medicine.

On the other hand, in order to protect traditional medicine from being lost, misused and thus depleted, either government and/or NGOs should provide support in managing such information. The support should be directed towards collecting and categorising knowledge, establishing knowledge-oriented technological infrastructure and monitoring the use of such knowledge (Davenport and Prusak, 2000; Dlamini, 2009; Cetinkaya, 2009). As a strategy for knowledge preservation, Dlamini (2009) argues that knowledge managers dealing with IK should identify and use effective motivators and motivating techniques to facilitate knowledge-sharing. According to Davenport and Prusak (2000), the motivators include trust, sharing the same culture, time and meeting places, status and rewards. Thus, in order to facilitate knowledge sharing, Davenport (1998) cited by Kaniki and Mphahlele (2002:9) suggests that holders and generators of all types of information including IK must be assured that they will appropriately be compensated, rewarded and/or recognised for their knowledge.

Moreover, to ensure sustainability and continued knowledge generation, storage and preservation of IHHK in many countries, governments have established directorates, departments and sections with their heads titled as knowledge managers, knowledge leaders, knowledge navigators, knowledge synthesisers, content editors and knowledge brokers. According to Dlamini (2001), in Nigeria there is the department of traditional healers which is managed by traditional healers. However, according to Dlamini (2009) knowledge managers should ensure the longevity of the documented IK by devising preservation strategies of which sharing is one such strategy. To Nonaka and Takeuchi (1995), knowledge-sharing is the result of the socialisation process with and/or among owners. For Boisot (1987), codification and diffusion of knowledge makes knowledge easily shared. Hence, sharing and preservation of knowledge, including IHHK, depends on how it is organised and structured (Boisot, 1995; Oluic'-Vukovic', 2001).

Previous studies have tried to show the rationale for sharing or not sharing IK (particularly for human health). For example, Ismail and Yusof (2010) believe that knowledge sharing is an inevitable activity that underpins the business of KM. It is a crucial activity since knowledge

bears no value if it is not distributed and shared (Rasooli and Albadvi, 2007). In favour of knowledge-sharing, Ismail and Yusof (2010:2) note that since knowledge-sharing is an unnatural act, public organisations should therefore understand the factors that make their employees share knowledge to fully leverage the knowledge of their employees. Such an observation regarding knowing the factors for sharing provides an understanding of the proper motivation and reinforcement techniques that influence and sustain the acts of sharing knowledge. The study by Nkungwana (2005) provides an understanding of the scenario which may lead traditional healers to reject or become reluctant to share their knowledge. Citing Kaleeba, Kadowe, Kalinaki and Glen (2000) in his study, Nkungwana (2005:38) presents the attitudes which influence whether or not traditional healers may not share their knowledge and argues that:

“Researchers come to traditional healers, looking for help regarding traditional medicine and then take the knowledge gained free and go and develop their treatment, which they are paid for. This type of treatment or attitudes towards traditional healers makes it difficult for traditional healers to share their knowledge and treatment”.

Moreover, such views are also reflected in the study by Chirangi (2013:131) who asserts that:

“In the process of trying to share or to interact with these healers with valuable information on indigenous medical knowledge, several large pharmaceutical companies, mostly from developed countries, have developed most of their medicines on the basis of the knowledge and experience of the often poor traditional healers in developing countries, including Tanzania”.

Furthermore, the study by Chirangi (2013) showed that when the modified or adapted scientific explanation and dosage from those large companies is well packaged and protected by patents owned by those companies, this leaves the primary owners of the IK (the traditional healers and/or the community) without any compensation (Msuya, 2007). This situation is discouraging. Thus, such exposition requires refinement of IPRs to suit or accommodate shared patents between the company and the individual traditional healer, organisation or the community.

The study by Dlamini (2001), using interviews, meetings, observations and clinical measurements for data collection, discovered that it was difficult to store/preserve IK because of its special qualities and storage requirements. However, Dlamini (2001) is of the view that most

IK can be collected with increased staffing with relevant qualifications. Dlamini's (2001) respondents revealed that there was a need for dedicated transport and the purchase of relevant equipment which would greatly enhance the collection and dissemination of IK. Furthermore, participants in Dlamini's (2001) study recommended more training on the management of IK in order for the institutions to conduct the management of IK efficiently and effectively. Dlamini's (2001) findings and observation therefore validates Davenport's (1998) primary principle that KM is expensive. As in the case of documentation, organisations will incur costs in terms of personnel and resources (physical and financial) and time. Okorafor (2010:11) therefore, concedes that adequate funding is needed to achieve effective IK documentation and communication services. This is crucial due to the high cost of the equipment and qualified personnel.

Mchombu (2004:83) argues that elders with knowledge and skills in the use of some medicinal plants in the community should pass on their experience to young people as a way of preserving such knowledge. For Cetinkaya (2009), passing experience to young people is an empowerment of local people and youth. However, in Africa today, most young people who are potential successors in schooling have made a choice to join conventional medical schools as a formal career, and abandoning or feeling shy to become traditional healers (Msuya, 2007). This situation may be attributed to the tendency of associating traditional medicine and healing with witchcraft. Thus deliberate efforts are required to rescue the situation. Such efforts include providing education and awareness creation to people so that they differentiate witchcraft from traditional healing and cure (traditional medicine). This is what Cetinkaya (2009) concedes as a social and behavioural response which is the result of education and raising awareness. The second effort is to at least identify and list traditional healers' names, expertise, useful parts of medicinal plants, mode of preparation and dosage, before keeping such knowledge information in a collection. Mchombu (2004:83) is therefore of the view that traditional healers may be asked from time to time to give talks and demonstrations of their knowledge to the rest of the community. The discussion now moves to an overview of repositories for preserving IK.

3.2.2 An overview of repositories for preserving IK

The World Health Organisation (WHO) has approximated traditional medicine as the first-choice healthcare treatment for at least 80% of Africans (Ghosh and Sahoo, 2011). Thus, Elujoba *et al.* (2005:48) are of the view that there are several other official modern drugs today which were originally developed from traditional medicine. All of these drugs are currently being used as conventional medicine in modern hospitals all over the world. This creates the need to document such knowledge for proper management. Grenier (1998:22) recommends that “appropriate arrangements need to be made for in-country recording, storing, application and transfer of local IK within and between national and international communities”. Therefore, countries are urged to set strategies for documenting and preservation of IK.

The study by Kanwar *et al.* (2005:300) in the Western Himalayas in India, using field observation and a questionnaire, found that attempts have been made to document IK related to medicinal plants for various diseases/ailments at a home scale level by farm facilities. Today China and India are considered to have made considerable efforts to institutionalise indigenous medicines (Gericke, 1996; Ghosh and Sahoo, 2011). Thus, while India is said to have launched a massive effort to document IK, Hartzell (2005) is of the view that Chinese Traditional Medicine (CTM) has been well-documented and thus more easily accessible to scholars and researchers; thus, supporting the discovery of new drugs to benefit humans (Ghimire and Bastakoti, 2009).

In addition, Caldwell (2007) is of the view that documented traditional medicine is also a source for tourists attraction and has the potential for bio-cultural diversity that promotes ecologically sustainable behaviour, natural resources management and contributes to sustainable development (Ishtiaq, Hanif, Khan, Ashraf, and Butt 2007; Idu, *et al.* 2010; Yetein, *et al.* 2013; Tetik, *et al.* 2013). Hartzel’s (2005) views on CTM are in line with Xie *et al.* (2010) who reports that digitisation of information involves collecting, processing, analysing and storing CTM-related data digitally. It combines research, application, development and service. Xie *et al.* (2010) reports that documentation or digitisation avoids duplication, advances research levels, and speeds up science and technological development. According to Xie *et al.* (2010), digitisation ensures that the right data is inputted into the system, but also sets the foundation for utilising and sharing. It is therefore clear that institutionalisation of TK, particularly traditional medicines

for human well-being, helps government efforts to create more jobs, conserve wild plants, promote and maintain aspects of cultural heritage (Gericke, 1996). From these observations, there is the need to understand the system used to input IK information in Tanzania, the foundations and/or rules governing the use and sharing of such knowledge. This will provide an understanding of who is given the rights to access such information and why.

Recent studies show that in many countries, IHHK is still stored and preserved in the minds of the owners and passed through oral traditions. This means that elders are considered storehouses of such knowledge (Dlamini, 2005; Kanwar, 2005; Stangeland, *et al.* 2008; Dexit and Goyah, 2011). The same view was presented by Ikoja-Ondongo (2006) at a Standing Conference of Eastern, Central and Southern Africa Library and Information Associations (SCESCAL) conference held in Tanzania that “Africa’s knowledge base is still limited, it is largely oral and little has been codified”. The view by Ikoja-Ondongo (2006) is in line with Ngulube (2002) who acknowledges that the IK database that provides humankind with insights on how societies have interacted with their environment is very important. However, Ngulube’s (2002) observations are that IK is ignored in the management of information in Africa, and that the dominant KM model has been based on acquiring, organising and preserving recorded and codified knowledge, which is largely generated by researchers, laboratories and research institutions (Msuya, 2007). Therefore, if IK is not recorded and preserved, it will likely be lost and remain inaccessible for research and development in future (Ngulube 2002; Dlamini 2009). Reflecting on Chisenga’s (2002) views on the importance of documenting IK, when taking into account human interaction with resources of flora and fauna, Okorafor (2010:10) reveals that the status of documentation of IK in Nigeria has not yet been given due importance as not much of it has been captured and recorded for preservation.

As a technique to validate IK and grant protection from bio-piracy and other forms of abuse; researchers and indeed the present researcher agrees with Ngulube (2002) and Okorafor (2010) who advocate and recommend the need to codify IK into print and electronic formats in order to make it widely accessible through the global information infrastructure. According to Okorafor (2010) and Ngulube (2002), documentation and communication of IK is very important in terms of globalisation and knowledge societies, where IK should be recognised and paid for. On the

other hand, documenting and preserving such knowledge into a repository provides evidence that local communities or individuals are the owners of the knowledge. In addition, Okorafor (2010:10) asserts that, “documentation processes should establish the origin of the knowledge and the claims of local communities to share profits obtained from the commercialisation of products derived from communicating their knowledge”. Some knowledgeable community members may not be willing to reveal their knowledge to any one for the fear of being misused. For some healers, knowledge is their only source of income so exposing it without being assured of profit may affect their income gains (Kanwar, *et al.* 2005). This is mostly common in communities where there are no established strategies, rules and regulations to motivate and guide the use and/or misuse of such knowledge (Lwoga, 2009) where there is limited or lack of trust (Davenport and Prusak, 2000).

In Tanzania, despite several studies conducted and co-ordinated by the TAHPC and ITM at MUHAS, comprehensive and updated knowledge databases or a collection with required information for proper management which simplifies access, use and sharing of traditional medicine knowledge, is lacking (Chirangi, 2013). However, Chirangi (2013:133) is of the view that “the present health management information system in Tanzania does not include data about patients, diseases and management from traditional medicine and their contribution to health care delivery”. Chirangi (2013) advocates for the establishment of a health information system which would help in managing traditional healing knowledge access and use. However, the views by Dlamini (2009:30) can be taken as advice to knowledge managers prior to collecting and documenting IK, Dlamini (2009:30) advised that:

“There is a need to define the knowledge to be collected, and the likely inhibitors (that could disturb the collection of IK). The culture and knowledge systems have to be identified and taboos considered. The resource person (IK holder) has to be identified and the media to be used for documentation. The resource person or IK holder is the key figure in documenting IK”.

In ensuring that IK is documented and the repositories are in place, Moahi (2007:52) argues that governments should act by supporting and championing IK resource centres or repositories as clearinghouses for collecting, documenting and disseminating IK. Governments are therefore urged to sponsor and encourage research into IK. Moahi (2007:52) is further of the view that in order to ensure that holistic documentation is maintained in the documentation of IK,

communities should be involved in almost all processes. This process should have established proper strategies, rules and regulations which motivate and guide the use of documented and preserved IK, particularly traditional medicine. The qualities of a person involved in the documentation and preservation of IHHK should clearly be indicated. According to Ngulube (2002), information professionals are to ensure that IK is managed and preserved in the same manner as any other documentary material. Ngulube's (2002) opinion on the roles of information professionals concurs with Dlamini (2005:30) who maintains that "with the help of librarians (custodians of information) IK can be easily preserved in different formats".

In terms of the storage/preservation of IK, the study by Dlamini (2009:77) revealed that in the Swaziland National Library (SNL) and the University of Swaziland (UNISWA) Library, there are special rooms called the Swaziana sections which house IK. The SNL had such storage cabinets for the IK related audio and video tapes in their Swaziana section. Steel cabinets are used because they are lockable and so prevent theft as well as being fire proof. The next section will deal with the legal and administrative environment for managing IHHK.

3.3 Legal and administrative environment for managing IHHK

The literature review under this sub-section is aimed at providing an assessment of the available efforts (both legal and administrative) in managing IHHK. The section covers studies on the available legislation and law based on the IPRs, policies and strategies in relation to the management of IHHK. It further provides an understanding of their influences on the changing perceptions and readiness of traditional healers towards documentation of their healing knowledge.

According to Gessler *et al.* (1995), in countries such as Tanzania where there is a growing interest in using traditional and indigenous health care resources, governmental policies should aim at guaranteeing recognition of the importance of medicine and their medicine preservation as part of the country's resources, and also stress the passing on of knowledge regarding the use of medicinal plants to the younger generation to guard against the loss of such knowledge. To stimulate human innovation and creativity, Ruiz *et al.* (2004) note that patents, copyrights, trademarks, plant breeder rights, trade secrets and industrial designs as the best examples of

intellectual property and tools to be used. Stressing on the importance of IPRs, Feris (2004:248) asserts that “IP rights are often regarded as the most effective legal mechanism to safeguard the products of human creativity”. Thus, as a strategy for managing IK, IPRs should be upheld so that indigenous communities can benefit from the commercial use of their IK (Dlamini, 2009).

World Bank (2002) as cited by Dlamini (2009:40) views IPRs as the means of acquiring ownership over a particular resource that is intangible in nature. It usually involves the protection of some form of invention created by the human mind. Citing Merrill and Elliott’s (2004) definition of IPRs, Sharabati and Nour (2013:112) define IPRs as those legal rules, norms and regulations that prevent the unauthorized use of intellectual products. Thus, the IPRs are the legal rights, which are the result of intellectual activity of human beings based on their innovation, invention and creation of new practices in industrial, scientific, literary and artistic fields. The IPRs safeguard creators and their new invented practices from being infringed or misused by others. Hence, the IPRs grant the inventor a certain time-limited right to control their use. According to Sharabati and Nour (2013), once IPRs are established, their owner enjoys certain specified rights in terms of its use for up to 20 years for patents and life plus 50 years for copyrights (United Nations, 2007).

Authors including Sharabati and Nour (2013) and the United Nations (2007) have categorised IPRs into two domains: first, that which deals with industrial products, which are protected by tools such as patents, trademarks, industrial designs and geographical indications of source; and the second is artistic products, which are protected by copyright and related rights. While Kaniki and Mphahlele (2002:11) are of the view that the IPRs should identify the originator or owner of the knowledge; to Kaniki and Mphahlele (2002) a community that develops and applies a particular IK as their culture generally owns the IK. As with other property, the IPRs can be owned, sold or bought. Therefore, the innovation and discoveries in IK should be protected under the IPRs which are basically done through patents, copyrights, trademarks, trade secrets and geographical indications. These property rights allow the holder to exercise a monopoly on the use of the item for a specified period.

In a knowledge economy, IPRs are very important as Sharabati and Nour (2013:113) further citing European Patent Organisation (2007) note that “the patent system is one of the most successful and important components of the system for managing IPRs that underpins the global knowledge economy”. Therefore, in this context, the IK and traditional medicine in particular, must be protected by patent. According to Feris (2004) in order for IK owners (traditional healers) to benefit from patent protection of their knowledge, the three criteria for patentability, namely novelty, non-obviousness and usefulness, must be satisfied. Of these three requirements, utility is arguably the easiest to satisfy. Furthermore, Feris (2004:249) is of the view that the utility criterion ensures that those products or processes that, although novel and non-obvious but without current practical application, are prevented from being patented. IK would, for the most part, fulfil this requirement as it would have been utilised for generations within the community.

According to Chirangi (2013), there is still weak protection of traditional property rights in Tanzania. A recent example is that of a retired pastor of the Evangelical Lutheran Church of Tanzania who was nick named in Kiswahili as *Babu wa Loliondo* (meaning ‘a grandfather’ from Loliondo in English) claimed to have discovered a traditional herb which heals chronic diseases such as cancer, herpes simplex virus, liver ailments, blood pressure and diabetes, and some people thought maybe it could also heal HIV/AIDS. *Babu wa Loliondo* with his herb cup won the hearts and minds of long-suffering patients from in and outside Tanzania who flocked to Samunge village (where the retired pastor lived) seeking the grandfather’s herbal cure (National Bureau of Statistics, 2011).

From the above discovery, the government of Tanzania improved infrastructure in the area. Many youths were temporarily employed as car drivers for *Loliondo*. Hotels and guest houses in Arusha were full, and catering businesses did well. According to statistics from the Regional Administrative Secretary and Arusha Regional Statistical Office (July 2011) as cited by National Bureau of Statistics (2011) since the herb cup of the retired pastor became publicised, from the end of 2010 up to 18th July, 2011 a total number of 4,431,768 people from all over the world had already paid a visit to *Loliondo* for medical tourism and cure of their ailments. Indeed the community in the area and the government benefited from the income generated by the discovery.

Protection of IK through IPRs is now a global agenda being presented in different forums including WHO meetings, the World Trade Organisation (WTO) and many others with a view to address the issue of protection of IK in developing countries (Msuya, 2007; Chirangi 2013). Msuya's (2007) views focus specifically on documentation of IK in Africa, and concern that Africa has not been able to document IK in order to protect and prevent it from extinction. However, these views raise questions that one would ask and seek an answer for. The questions include: why has Africa not been able to document IK? If IK protection and prevention from extinction and pirates have been an agenda in different forums, what is the implication of increasing global discussion of IPRs in the protection of traditional medicine for human health? What policy components of IPRs significantly affect the flows and use of traditional medicine in Tanzania? How are the strategies and policy components on KM linked to management of IK, specifically traditional medicine, in Tanzania? To what extent are the patent issues covered in policies, enforcement mechanisms of such policies to the implementation of IPR, provisions for loss of protection, traditional healers' organisation and memberships to other international patent agreements, and duration of patent protection?

Since proper management of knowledge through protection of intellectual activities under IPRs requires support in term of resources and financial allocation, Chirangi (2013:198) is of the view that there is weak governmental support for the traditional medical system which in turn leads to insufficient fund allocations compared to the conventional medical system. Therefore, as a result it is very difficult to succeed in the management of IK specifically for traditional medicine in Tanzania. The result of failure to effectively protect IK has led to the situation whereby researchers from developed countries conduct research in Tanzania, and leave after data collection. Worse, they continue to enjoy the patents of the findings without involving the indigenous people who were only used to generate data and have no knowledge of the outcome of the data which they produced (Mchombu, 2004; Msuya, 2007; Dlamini, 2009). The issue of who owns the findings of the research or the innovation under patents rights, especially for research involving local communities, should be re-defined through *sui generis* (an approach that modifies some of the features of existing IPRs in order to accommodate the requirements of the specific subject matter at hand) by which means, the local community is given a share of the benefit from the research findings (Feris, 2004).

Furthermore, Msuya (2007:348) argues that countries should have in place appropriate policies that encourage and provide guidelines on the innovation, conservation and preservation of IK, especially IHHK (Mchombu, 2004; Okorafor, 2010). According to Msuya (2007), the policies should address among other things: government appreciation of IK; political commitment to the IK system; copyright and patent issues; use of IK; a trans-border IK system and how to share it; a statement on protection of IK; preservation of IK; and distribution of benefits accrued from IK. To succeed in all these matters, governments in developing countries should play a leading role in the creation, development and protection of IK for human health (Msuya, 2007). Therefore the traditional healers, individual members of the community and private organisations will have the courage and support to get involved in the management of traditional medicine knowledge because they would realise that there are government efforts and value attached to traditional medicine. As mentioned earlier, traditional medicine is beneficial for both the maintenance of human physical well-being and financial well-being, thus governments need to set policies, rules and regulations that will protect and promote the use of traditional medicine, healing and cure for the national interest (Msuya, 2007; Moahi, 2007). Moahi (2007:21) is further of the view that documenting IK in databases and websites to establish prior existence and deter fraudulent claims of intellectual property is another form of promoting and protecting IK.

According to Kiggundu (2007), once IK is documented it becomes easier to market for the benefit of communities, and prevent it from unauthorized and surreptitious exploitation (Feris, 2004). He further recommends that governments, in consultation and collaboration with local communities, to put in place *sui generis* legislation to govern the flow and use of IK in a bid to protect it from misappropriation on the grounds that, it cannot be patented, because it does not have novelty value. This can be done by adding legislation within the existing laws that govern IPRs. However, Quiroz (1994:13) indicates that “the existing IPRs agreements do not give full and proper recognition to the rights of indigenous and local communities to their own knowledge, innovations and practices”. Due to unfriendly existing legal frameworks, it becomes difficult for traditional healers and communities to apply the classic IPRs regime for their knowledge; thus, Feris (2004:249) observed that:

“Research institutions and pharmaceutical companies have established co-operation agreements with developing country governments and indigenous people/communities, whereby they receive prior informed consent to obtain

biotechnological samples and utilise associated TK. In turn, they agree to share the profits from any commercial product derived from the biotechnological material with the indigenous people/communities”.

Therefore, the instruments for providing benefit sharing and advice as stated by Cetinkaya (2009) for effectiveness, achievement and sustainability of the responses, and insurance of equitable benefit-sharing to the local communities should be put in place in order to negotiate fair terms, provide monetary support to the country-wide programme of documenting IHHK and the related projects which provide sufficient benefit to the local community and to the knowledgeable community members from the commercialisation of their local products (Feris, 2004; Okorafor, 2010). In this context, national indigenous policies and strategies are pivotal to the documentation of IK. The lack of these policies remains a challenge to many countries with IK (Okorafor, 2010).

Historically, in Tanzania, like many other developing countries in Africa and elsewhere, during the pre-colonial period, the governments of the tribal chiefs recognised the role of traditional medical practitioners, although there were no written policies. They were highly respected and often acted as famous advisors to the tribal chiefs on issues related to illnesses, environments, socialisation and behaviours. They were allowed to practice their knowledge and skills freely (Chirangi, 2013). However, during colonial time as stated by Chirangi (2013:9) both the German and the British colonialists made efforts to suppress the work and role of the traditional healers, while their foreign religious teachings were also against the practice of traditional medicine associating them with witchcraft as mentioned earlier (Stangeland, *et al.* 2008). This may have been done intentionally to suppress and discredit indigenous people from participating in the health sector or was just a misconception of Africa’s indigenous cultures (Ross, 2008; Stangeland, *et al.* 2008).

In addition, a study by Stangeland *et al.* (2008) on traditional medicine and regulations in Tanzania found that during colonialism and after independence until 2002 the practice of traditional medicine in Tanzania was not officially permitted (Chirangi, 2013). As a process of recognising the traditional healers and incorporating traditional medicine practices into the health sector after independence, the study by Stangeland *et al.* (2008) found that in 2002 the

Parliament passed the Traditional and Alternative Medicine Act, replacing the old laws. The new legislation aimed at integrating traditional medicine in the national healthcare system, and encouraged co-operation between traditional healers and physicians. The legislation also provided protection against piracy of the traditional healers' products. Their findings concur with Gericke (1996) who notes Tanzania's recognition of traditional medicine.

The recognition of traditional healers and medicine can however be observed through the establishment of the TAHPC under Act No. 23 of 2002 which monitors, regulates, promotes and supports the development of traditional medicine; implements the provisions of the Act; and registers persons who fulfil the requirements to be a traditional or alternative health practitioner (CINS-AAF project 2007). The country also established the ITM in 1991 under the MUHAS with the broad objectives of seeking materials of plant and animal origin that might be of medicinal value, and to establish a record of cultural significance (Stangeland *et al.* 2008). In addition, the UDSM-SoL established training on IK systems and the IPRs. Thereafter, as Chirangi (2013:9) asserts, the Medical Practitioners and Dentists Ordinance, and the Pharmaceuticals and Poisons Act was established in 1978. The Act provided legal recognition of traditional healers to allow them to practice in their communities.

Although today, traditional medicine in Tanzania is recognised by Act of 2002 and all of the initiatives explained above, the issues at hand are (i) how can the traditional healers' knowledge of using some plants for healing of some human physical ailments be documented? (ii) How do the available IPRs provide security against any form of misuse or pirating? The study by Stangeland *et al.* (2008) found that traditional medicines and plants brought large amounts of profit to people trading with traditional medicines without any benefits of the shares appropriated to Tanzania. The findings are actually in line with Lwoga's (2009) argument that the existing IPRs systems are inadequate to appreciate the collective nature of IK, and therefore have failed to protect such knowledge.

The Tanzania situation during colonialism cannot be isolated from other African countries. Matomela (2004) cited by Ross (2008:17) is of the view that during colonialism in South Africa, the 1974 Health Act and its 1982 amendments restricted traditional healers' from performing any

act related to traditional medical practices, until after the 1994 independence, when the African National Congress (ANC) government formulated the White Paper for the Transformation of the Health System in the country in 1997 which recognised traditional healers as part of the broader primary health-care team. The South African government promulgated the Traditional Health Practitioners' Bill in September 2004. The Bill acknowledged the role that traditional healers play in South Africa. Moreover, the Bill recognised the unique circumstances of traditional healers. The Bill set professional and ethical norms and standards, and seeks to empower traditional healers in order to regulate their practices.

Therefore, in many countries during colonialism and soon after independence in most of these African countries, the laws governing traditional healing and cure practices were very ambiguous and unclear. This was despite the fact that in 1978, WHO made a resolution that urged governments to utilise traditional medicine systems, with appropriate regulations that suited their national health care systems. However, even today the situation of protection of traditional medicine through the available legal environment is not encouraging or motivating. The issue might be due to the fact that most of the TK is not documented. Mchombu (2004) is of the view that recording IK is like safeguarding it from being misused or theft by other people. The documented IK will provide evidence that a particular community owns such knowledge. Hence, as earlier stated, governments need to play the role of agent for the documentation, protection and preservation of the available IK for current and future development. That is why Cetinkaya (2009) advocates the instruments for providing benefit-sharing as one of the attributes of his model. A country as an organisation to Davenport and Prusak's (2000) model is urged to manage the IK properly by having market places and spaces for trading and sharing.

3.4 The use of ICTs in managing IHHK

ICTs is now the vital component for development. Internationally, ICTs have increased their use in almost all aspects of living including economies, business, agriculture, education, knowledge management and health science. Therefore, this section gives a brief picture based on the literature on the use of ICTs or on how ICTs should be used in the management of knowledge, particularly the IHHK.

According to Adam (2012:2), ICTs includes telecommunication technologies such as telephone, cable, satellite and radio, as well as digital technologies such as computers, information networks and software. Jain (2006:54) is of the view that “technology can guarantee the accurate and timely expression and delivery of knowledge, in a more efficient way than can be done by people”. Further to that, Jain (2006:54) is of the view that researchers have proven that there is no direct relationship between ICT use, KM and organisational performance. However, according to the World Bank (1998:13) the use of ICTs could become a powerful enabler for the exchange and sharing of IK (Koopman, 2002). Although it may need another platform and discussion, ICT is very important in facilitating KM, particularly IHK because with ICT use, codification of IHK metadata can easily be done, hence the easy of storage, access or sharing.

This view is also reflected by Jain (2006:57) and Adam (2012:2) that ICTs can be used to capture, store, disseminate and preserve IK for future generations. ICTs for KM promote cost-effective dissemination of IK, create easily accessible IK information systems, promote the integration of IK into formal and non-formal training and education, and provide a platform for advocating for improved benefit from IK systems of the poor. This means that proper application of ICTs is essential to stimulating the flow of IK and incorporation of modern scientific and technological understandings to TK (Adam, 2012:91). Although the study by Lwoga (2011:17) discovered that ICTs were less used in sharing agricultural IK in the communities, in spite of their availability in the surveyed communities, there were little use of ICTs to preserve agricultural IK in the sample under investigation. Lwoga (2011:17) shows that ICTs are significant tools for KM because they allow the movement of knowledge at higher speeds and efficiencies, and thus facilitate sharing as well as the accelerated growth of knowledge. Therefore, according to Lwoga (2011), if farmers were to be guided and empowered it would be possible for them to document and share their knowledge. This means that education on the use of ICTs in managing IK among the owners is very important and critical for the development of such knowledge. Hence as Jain (2006:54) specifies, ICT can be used as a mechanism to create knowledge. These views by Jain (2006) are in line with Ayars (1983:129) and by Haralambos and Holbon (2004:974) that ICTs provide ways of transmitting and storing knowledge; and that any knowledge which cannot be converted into a form usable by ICTs can get lost or totally disregarded.

Relating each of the four types of KM by Nonaka and Takeuchi (1995) with ICTs application, on socialisation, Jain (2006:54) is of the views that individuals can share tacit knowledge with colleagues in a face-to-face or via teleconferencing technologies including desktop video-conferencing. With externalisation, explicit knowledge can be stored on paper, audio or video or videotape, computer disks through IT use. However, on a combination attribute, Jain (2006) is of the view that it can be done through e-mail and new web-based software and servers to facilitate explicit knowledge sharing by the use of intranet home pages for publishing applications to exploit the hypertext linking and search capabilities of these web technologies. Jain (2006:55) is also of the view that internationalisation is possible because computer applications can help people recognise patterns or anomalies through data mining tools based on neural networks, simulation modelling and applications based on visualisation technologies such as geographic information systems which are increasingly being used by decision makers for understanding complex sets of data. All these show that ICTs are crucial in the management of knowledge.

On the other hand, literature has identified many challenges on the use of ICTs for managing IK. This also is in line to Koopman (2002:5) who affirms that “efforts to capture IK by ICTs and setting up databases are not successful because people had no access to ICTs”. Lwoga *et al.* (2010:15) commented that whilst developments in ICTs enabled access to IK, the digital divide was still prevalent in the surveyed regions despite the fact that the study was carried out in the areas with ICTs. Jain (2006:56) citing Mutula (2002) is of the view that:

“ICTs application constraints for the KM was due to high cost of access to telecommunications, government policy towards ICT use, underutilisation of existing technologies, limited IK base, lack of skilled and trained manpower, inadequate IT exposure in schools/digital illiteracy, poor communication infrastructure, and ignorance of IT benefits”.

However, Averweg (2010, para. 8) citing Mutula (2008) is of the view that:

“While local content is critical for Africa’s full participation in the global knowledge society, the absence of information systems in digital/electronic format for IK perpetuates the paucity of local content found Internet web pages and the misperception of information-poor societies”.

All these indicate that much of African IK can be managed using ICTs, however not much of such technology has been used for that purpose. Thus, literature surveyed identified lots of challenges in the use of ICTs for the management of IK.

From the empirical review of literature under this section it is clear that ICTs have not been fully utilised for managing IK, particularly IK for human health. This is regardless of the increased use of ICTs tools in Africa and internationally. It was evident in other literature such as Lwoga (2011) that regardless of their availability in the surveyed communities, ICTs tools were less used for acquiring and sharing of IK by community members. This asserts the need for this study to investigate how ICTs could be used in managing IHHK.

3.5 Challenges in the documentation and preservation of IHHK

Documentation of IK for human well-being (traditional medicine knowledge) is very important as a means of preservation and protection of IK (UNEP and CBD, 2007). However, there are factors affecting documentation and preservation of IK for human well-being. The factors may range from matters pertaining to culture (including attitude, readiness) technological, property rights and access issues. Cultural factors can be observed from Tитоce's (2002:95) work on how western churches impacted on African practices:

“The church's great tradition has dismissed African practices as immoral and not compatible with Christian faith. It has done more than that: it has demonised them making them appear the prototype of darkness which the Christians, including African Christians, have to avoid at any cost”.

Therefore, the negative attitude towards the core of African life and traditional human health care system as implanted by early Christian missionaries to the converted people and followers in Africa may have affected the preservation and protection of IHHK. This is because even today many churches existing doctrine teaches that using traditional medicine and traditional healers as means to restore human health are against Christian beliefs and therefore evil. A study by Tитоce (2002:96) found that any health care system was connected with a system of beliefs of a specific culture, which may sound unusual to the outsiders. From both Biblical and African perspectives, Tитоce (2002) wanted to demonstrate the evolution of attitudes towards healing in the Old Testament and explored the history of Jesus' healings with the view of demonstrating the

rejection and demonisation of African traditional medicine. In this regard, Titoce (2002:96) presents his findings as follows:

“To demonstrate the evolution of attitudes towards healing in the Old Testament, I discovered in my readings that from the belief in God's totalitarianism in the field of health care, the Israelites had acknowledged, accepted, and valued other forms of healing which they adapted to suit their beliefs in God.....discussed the historical Jesus' healings. I found that even Jesus' healing interpretation raised, and continues to raise socio-religious, and cultural problems. I found that some people connected his healings with magic and the devil, even in his own world and time.....tried to demonstrate that the rejection and demonisation of African traditional medicine was a result of Western cultural prejudice. I also tried to read the Bible from the African perspective, and explore the essentials of African traditional healing to try to see any contradiction between them, and I reached the conclusion that African traditional medicine was in no way against the teaching of the Bible”.

Literature reviewed in this study reveals that there are many challenges, faced by the management of IK. Dlamini (2009:67,68) and Ngulube (2002:96) are of the view that the challenges were centred on financial constraints, lack of trained personnel, staff shortages and knowledge hoarding by some IK holders. Others include policies, accessibility, storage and preservation media, and IPRs. According to the study by Dlamini (2009:80), it was discovered that financial constraints were the main challenge, for example, affecting the acquisition of the necessary equipment for IK management and crippling transport costs to travel to places where IK could be collected. Other challenges in the management of IK included the methods of identifying, access, IPRs, and the media and format in which to preserve IK (Ngulube, 2002). Another challenge was the debate about whether or not to use the Western paradigm for preserving IK. However, based on the pragmatic nature of day-to-day working it is evident that there is no one correct answer to these questions (Ngulube, 2002). Thus, a combination of the methods may yield better results rather than a single methodology of preserving IK. This is reflected in Davenport's (1998) KM principle number two that effective KM requires hybrid solutions of people and IT in complementary ways.

In addition, another major challenge to the management and preservation of IK is misappropriation and legal protection of IK. While documenting may expose IK to some misappropriation as noted by Moahi (2007) that documenting IK exposes IK to the public domain and makes it much easier to be misused. However, not protecting IK runs the risk of

making it disappear as the custodians holding it die, or as communities become swamped by the effects of globalisation. The conclusion is that governments have to take more interest in protecting, promoting and using IK than they have been doing. Therefore, documentation of IK is still very important in order to make it accessible, but protecting IK through IPRs is critical, in order to protect it from any form of misuse.

The legal and administrative environmental issues (rules, regulations) are another challenge facing documentation and preservation of IK. Legal and administrative framework issues have three concerns. The first is that the IPRs should protect IK for the benefit of owners and the community at large. Moahi (2007:4) argues that the IPRs of knowledge products have to be vested in those who created it, and not in big corporations that become the content providers who command the greatest profits and leaving the communities which generated such knowledge with no benefit for what they generated. Second, there should be clear policies in place in order to ensure that laws are implemented for the security of IK (Ngulube 2002). Okorafor (2010:11) is of the view that, national indigenous policies are pivotal to the documentation of IK and the lack of these policies remains a challenge. The study by Dlamini (2009) on the management of IK initiatives in Swaziland, found that there were no policies specific to the management of IK in Swaziland which the institutions focused could rely on for the effective management of IK. Furthermore there are no set standards or specified guidelines for IK management in Swaziland. However, the results of the study revealed that two institutions had specific policies which govern the management of IK. Third, the management of IK is also affected by ethical issues. Literature shows that sometimes knowledge managers are restricted by knowledge owners in terms of access. Dlamini (2009:75) found that staff members (knowledge managers) were sometimes not allowed to visit certain sacred places in the country because it was a taboo to go there. Only special people could visit such places. Thus, there were few documented sources of IK which staff members could use to support IK management. Hence, Davenport and Prusak's (2000) attribute which highlights the barrier to KM, that is, lack of trust, status and reward.

IT is very useful in preservation of IHHK because it may facilitate the creation of new knowledge (Oluic'-Vukovic', 2001; Rasooli and Albadvi, 2007). However, in most developing countries there is lack of proper IT and expertise to implement the available technologies for

documentation and preservation of IK. This technological challenge is associated with the application of media in identifying, collecting and storing IK. It also goes together with a lack of required expertise amongst management staff members dealing with IK (Ngulube 2002; Dlamini, 2009). When Dlamini (2009) mentions the rejection of some IK holders sometimes refusing to be video recorded, introduces a debate about whether to use or not to use western methodologies in the management of IK (Ngulube, 2002), as well as the question of what should be the proper and effective equipment to use in collecting and documenting IK.

Lack of motivation among knowledge owners to participate fully in the IK management projects is another factor and a challenge in collecting and documenting IK. The study by Dlamini (2009:74) discovered that some IK holders demanded payment for their knowledge. This means that whenever there were no incentives to be given to the IK holders, the holders were not ready to cooperate with the knowledge managers. This may be due to the fact that for some of them the IK was their only source of income or due to the improper implementation of IPRs which could result in no assurance of any benefits (Davenport, and Prusak, 2000). Hence, Davenport (1998) principle one that KM is expensive is justified.

Other studies including a study by Dlamini (2009) have mentioned accessibility of traditional healers as another factor affecting proper management of IK. Dlamini (2009:73) showed that respondents in his study indicated that most IK holders were in remote areas where it was difficult to reach them via transport. The question is whether this also applies to the efforts of KM in Tanzania.

3.6 Gaps in existing literature

There is a strong growth in the literature concerning KM especially managing IK in agriculture, climate change and other systems of IK. However, there is lack of attention devoted by social science research particularly from an information studies perspective on the management of IK, more specifically on documentation and preservation of IK used for healing some physical ailments/diseases. In Tanzania, previous social science studies were on the availability and use of traditional medicine and medicinal plants by some societies. Whereas many of the studies and those done in other countries were ethnographic, ethnobotanical and biomedical in nature,

placing emphasis on the management of plants diversity and traditional use (frequent use) of some medicinal plants by the indigenous communities (providing scientific description of individual human societies) measuring active ingredients, chemical compounds and their possible physiological effects on the human body (Hartzell, 2005, Ishtiaq, *et al.* 2007) rather than qualitative and quantitative estimation of community gains such as forging of national identity, tourist attraction and increased research. In addition, no study has analysed how IHHK is documented and preserved, or the willingness of traditional healers in the process and how technologies have been used in the process of managing IHHK. This study is an attempt to examine the role of technologies in documentation and preservation of IHHK in order to simplify its accessibility, organisation and sharing for cultural preservation and identity, increased health research and development related to the physical well-being of humans.

3.7 Summary of Chapter Three

This chapter has reviewed relevant literature related to the topic. The literature was based on the study objectives and research questions. The following three topical areas were reviewed: KM and the physical aspect of human well-being; the legal and administrative environment that provides security and protection of IK; and the factors that affect the management of IK. Therefore, the reviewed literature helped the researcher to identify gaps in the existing literature.

The review of literature in this chapter showed that there is a strong growth in the literature concerning KM particularly the management of IK. However, as indicated in Section 3.5, there is a lack of attention from social science research to the management of human health knowledge regardless of its importance and increased use for maintaining human physical well-being (human health). It was also found that there are several theoretical and empirical studies which have highlighted the importance of and use of some medicinal plants/traditional healing and their contribution to conventional health practices.

The literature review, therefore, revealed that KM is an area of interest in academia and organisational practices that covers different disciplines and areas of interest for academics and practitioners. However, IK has not effectively been managed, unlike scientific knowledge which is well-managed because it is taken as knowledge that can be interpreted as capital valued or

taken as profit (Dlamini 2009). This is regardless of the increased use of traditional medicines and medicine plants as the basis for the maintenance of good health internationally and specifically in developing countries. Unfortunately the literature shows that IHHK is still passed on through oral tradition and documented in people's minds, particularly the elderly, and is lost upon the death of such knowledgeable persons.

Literature reviewed also highlighted the instances where attempts have been made to document IK related to medicinal plants in China and India. Documented traditional medicine has also been used as a source of tourist attraction and has the potential for bio-cultural diversity that promotes ecologically sustainable behaviour, natural resources management and contributes to sustainable development. Thus, many authors in KM recommend codification and recording of IK into print and electronic formats in order to make it widely accessible through the global information infrastructure. However, weak governmental support of the traditional medical system in turn leads to insufficient fund allocations compared to the conventional medical system. Therefore, governments are urged to support and champion the establishment of IK resource centres or repositories as clearinghouses for collecting, documenting and disseminating IK. Governments are also urged to sponsor and encourage research in IK.

Since, the legal and administrative environment involves both material and financial support for initiation of rules and regulations that protects IK; the literature showed that protection of IK through IPRs is now the agenda in different forums such as the WHO, WTO and many others with a view to address the issue of protection of IK in developing countries. Therefore, the innovation and discoveries in IK should be protected under the IPRs which should basically be done through patents, copyrights, trademarks, trade secrets and geographical indications. These property rights allow the holder to exercise a monopoly on the use of the items for a specified period. Thus, countries need to have in place appropriate policies that encourage and provide guidelines on the innovation, conservation and preservation of IK especially traditional medicine.

Lastly, governments and/or NGOs are urged to play a leading role in the management of IHHK. Knowledge managers and information professionals are urged and recommended to play a

leading role in facilitating access to IK by codifying the IHHK metadata that are descriptive and evaluative. The codified and preserved IHHK metadata can be very useful in informing readers of the relevance, accuracy and quality of the IK held in various national repository centres. The codified and preserved IHHK metadata eliminates chaos, disorganisation and inapplicability of miscellaneous contributions to knowledge systems. Hence, managing and preserving IHHK in that way will help to reduce poverty, enhance equity, and reduce environmental degradation and lead to sustainable development, as well as increased local participation in the development process.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter describes and examines the research methods chosen and used to achieve the objectives of the study. The chapter provides the rationale and the philosophical assumptions underlying and governing research practices in the study. It also leads to and informs the methods (Wisker, 2008). According to Hoskins (2010:185), describing the methods used by a researcher is very important because it enables another researcher to replicate the study as well as ascertaining the validity and reliability of the findings. This chapter consists of the research design (paradigms, approaches) area of the study, population of the study, sample and sampling techniques, data collection methods, research instruments, data quality control, ethical issues, and data processing and analysis.

4.2 Research design

Hoskins (2010:185) citing Terre Blanche, Durrheim and Painter (2006) and Babbie and Mouton (2001) argues that “a research design is a plan or blueprint of how a researcher systematically collects and examines the data required to answer the research questions”. It describes a flexible set of guidelines that connect theoretical paradigms, first to strategies of inquiry, and second to methods for collecting empirical materials (Lwoga, 2009:123). This study was conducted within the pragmatism paradigm. According to Munyua and Stilwell (2012:30), the pragmatism paradigm provides a progressive lens for looking at, and making sense of, phenomena in a complex, multidisciplinary and multifaceted study comprising multiple actors, different knowledge systems, and KM practices. Pragmatism helps to address research questions using the most appropriate methods. Pragmatism means that one or more methods are used for answering particular questions only if one was observed to be more appropriate than the other. It is perfectly possible to work with variations. Therefore, mixed methods were used.

In this study, both qualitative and quantitative approaches were deemed highly appropriate; and that the use of the results was possible in ways that brought about positive consequences within the value system (Saunders, Lewis and Thornhill, 2009). While qualitative methods were used to collect data that provided descriptive experience on how IHHK is documented and preserved in

Tanzania, a quantitative approach was used through selection of samples and finding relationships/differences among variables (Frankfort-Nachmias and Nachmias, 2008) as well as analysing data obtained from closed-ended questions contained in the instruments. Thus, multiple cases specifically those focusing on the management of IHHK were studied for the purpose of obtaining multiple realities (Stake, 1995; Creswell, 1998; Daiute and Lightfoot, 2003; Sillitoe, Dixon and Barr, 2005).

4.3 Areas of the study

This sub-section provides a brief account of Tanzania in relation to KM needs. The brief account of Tanzania is given in order to fully understand the origins and context of management of IK in the country. Tanzania is in East Africa and it lies between 35 00E and 6 00S. Tanzania came into being after the unification of two independent countries namely the mainland, formerly known as Tanganyika and the islands of Pemba and Unguja (Zanzibar). While Tanganyika attained her independence from British colonisation in December 1961 and became a republic on 1962, Zanzibar became independent from Arab rule through revolutionary means in 1963. The unification of these two countries in 1964 formed the United Republic of Tanzania.

In the North, Tanzania is bordered by Kenya, in the North-West by Rwanda, Burundi, and Uganda; in the West by the Democratic Republic of Congo; in the South by Zambia, Malawi and Mozambique, and in the East by the Indian Ocean (Matefu, 2002). Although Tanzania has been rich in IHHK whereby a majority of traditional healers are herbalists using mainly plants, and a few animal and mineral products, their knowledge is still not well managed. Currently the country has 30 administrative regions; of the 169 administrative districts, only 10 districts have traditional healers registered by the TAHPC.

Therefore, in order to understand the ways in which IHHK is managed in the country, this study was conducted within four districts with registered traditional healers and three institutes of Tanzania. The four districts involved in the study were from the regions of Mwanza, Singida, Njombe and Mtwara; and the institutes involved were located in the Dar es Salaam region. The districts of Njombe, Masasi, Magu and Singida urban, were among those containing registered traditional healers. While two of these districts were districts in rural areas, the rest were located

in urban areas. In terms of statistics of the registered traditional healers: the first two districts had a large number of registered traditional healers whereas the other two respectively had a low number. The zones distributions and representation of regions was the key criteria in sampling the districts. Thus, each district represented a zone.

Magu district represented Sukuma land regions near Lake Victoria (Lake Zone); Singida Urban represented the Central zone regions; Njombe district represented regions in South-Western highlands (South-western highlands zone) of the country; and Masasi represented Coastal regions along the Indian Ocean. The selection of districts based on the zone region aimed at facilitating the notion of location and the tribes (including their cultural and institutional differences). This helped the researcher to obtain perspectives concerning the process of documentation and preservation of IHHK in each of the districts under study. The study findings were generalised among the registered traditional healers in Tanzania, and the results were used as a needs assessment to initiate the establishment of an IHHK documentation project throughout the country. The following sections provide a detailed profile of each districts involved in the study.

4.3.1 Magu district

Magu district is one of the seven districts in Mwanza region. It is bordered to the North by Lake Victoria, to the South by Kwimba district, Misungwi district and the Shinyanga region, to the east the district is bordered by the Serengeti National Park and Shinyanga region, and to the West by the city of Mwanza. According to TAHPC as of April 2013, the district had a population of 62 registered traditional healers. The district was selected to represent Sukuma land regions near Lake Victoria (Lake Zone). Furthermore, the district was purposively chosen to be studied because of the minimal number of registered traditional healers compared to other districts with registered healers.

4.3.2 Singida urban district

Singida Urban district is among the four districts of Singida region. The others are Iramba, Singida rural and Manyoni districts. Singida urban district is also the capital town of the region which is comprised of the town and the peri-urban areas. It is a hub with roads leading to the

Dodoma, Arusha, Kigoma and Mwanza regions. Singida urban district covers an area of 754 square kilometres, which is equivalent to 75,400 hectares with arable land, a water area, grazing land, forest, residential and other land patterns. The district is bordered to the North by Iramba district, to the Northeast by Manyara region, to the South by Manyoni district and to the West by Singida rural district. The climate of Singida Municipality is characterised by a long period (up to eight months) of a dry season from May to November. Heavy intermittent rainfall occurs between December and April with typical tropical characteristics. The mean annual rainfall is about 660mm. Temperature ranges from 15°C and 31°C with the highest temperature in September and October. Cool weather is experienced in the months of June to August with temperature reaching 15°C. The district was chosen to represent the Central zone regions. According to TAHPC as of April 2013, the district had 62 registered traditional healers. The district was purposively selected as among the sampled districts to be involved in the study not only because of having a minimal number of registered traditional healers compared to other districts with registered healers, but also to represent the views of people in the central regions of Tanzania.

4.3.3 Njombe district

Up until 2012, Njombe district was among the districts of the Iringa Region. In 2012, the area that had been within the old Njombe district was incorporated into the new Njombe region. Within the new region, three districts were created that had wards that were formerly within Njombe district: Njombe rural district, Njombe urban district (Njombe Town Council) and Wanging'ombe district. In addition Njombe region received Makete district and Ludewa district from the Iringa region.

Etymologically, the name Njombe originated from a name of the tree species known as *Mdzombe* in *Bena* and *Hehe* tribes. The *Mdzombe* trees were dominant in the place called Mdandu which was a German *Boma* during German colonialism. This tree species has a medicinal value. The Njombe urban district was chosen to represent regions in the South-Western highlands (South-western highlands zone) of the country. The district was chosen to represent the views of the districts with a large number of registered traditional healers. According to TAHPC as of April 2013, the district had 127 registered traditional healers. Most

people in Njombe are involved in herding and subsistence farming. The district roads are poor and most of them have a seasonal access which influenced data collection time.



Figure 4.1: *Mdzombe* trees from different views
Source: Field Survey, 2014

4.3.4 Masasi district

Masasi district is one of the six administrative districts in Mtwara region. The district is bordered to the North by the Lindi region, to the East by the Newala district, to the South by the Ruvuma River and Mozambique and to the West by Nanyumbu district. In this study, the Masasi district was chosen to represent the Coastal regions along the Indian Ocean as well as the district with a large number of registered traditional healers. According to TAHPC as of April 2013, Masasi district had 157 registered traditional healers.

4.4 Institutions involved in the study

As stated in Section 4.3 that this study involved three institutions located in Dar es Salaam. The institutions involved in the study were TAHPC, ITM and the UDSM-SoL. These institutes were purposively selected according to their objectives, responsibilities and influences in the planning and implementation of various policies and strategies in the country. The TAHPC was established under Act No.23 of 2002. According to the Act of Traditional and Alternative Medicines, the functions of the TAHPC are to monitor, regulate, promote and support the development of traditional medicine and to implement the provisions of the Act. Among these functions, the TAHPC registers and enrolls persons who fulfil the requirements to be a traditional

or alternative health practitioner (CINS-AAF project 2007:9). The ITM is responsible for seeking materials of plant and animal origin that may be of medicinal value and establishing a record of cultural significance. The UDSM-SoL has developed some initiatives to train people in IK principles as one of their courses relates to IK systems which is taught from a legal perspective (Msuya, 2007). The UDSM-SoL also provide training on IPRs. The following sections provide a detailed profile of each of the institutes involved in the study.

4.4.1 Traditional and Alternative Health Practices Council of Tanzania

The TAHPC was established under Act No. 23 of 2002; the Traditional and Alternative Medicines Act. The functions of the TAHPC under the Ministry of Health are to monitor, regulate, promote and support the development of traditional medicine and to implement the provisions of the Act. Among these functions, the TAHPC registers and enrolls persons who fulfil the requirements to be a traditional or alternative health practitioner (CINS-AAF project 2007:9). The establishment of the TAHPC was therefore the recognition by the government of Tanzania, of the need to properly manage traditional and alternative medicines.

4.4.2 The Institute of Traditional Medicine (ITM)

The ITM started as a research unit in July 1974 and its research activities were under a Senate sub-committee. The research unit was upgraded into the ITM under the Muhimbili University College of Health Sciences by an Act of Parliament, No. 9 of 1991, Section 10-(1) (c). The Act provides for an Institute Board, which reports to the Academic Board of the College. ITM is charged with the responsibility to research traditional healing systems in Tanzania to identify useful practices which can be adopted and to also identify useful materials with medical value that can be modernised and developed into drugs. The Institute has so far documented over 2,500 species with limited preliminary chemical and pharmacological work. This means that there is still much work to be done to effectively exploit this vast potential.

4.4.3 The University of Dar es Salaam, School of Law (UDSM-SoL)

The UDSM-SoL has its unique history in the establishment of the University of Dar es Salaam. The UDSM was officially established on 1st July 1970, under Parliament Act No. 12 of 1970. The University started with only one faculty, the Faculty of Law (now UDSM-SoL). The

UDSM-SoL has since developed some initiatives to train people in the principles of IK as one of their courses on IK systems. The course is taught from a legal point of view (Msuya, 2007:346). The UDSM-SoL also provides training on IPRs. Thus the UDSM-SoL is thought to have capacity to influence policies, laws and issues of practice at the national level, while obtaining its mandate and support from the grassroots.

4.5 Population of the study

The population of the study consisted of knowledge owners/traditional healers, prospective users, head of departments from institutes and District Co-ordinator of TAHPC as shown in Table 4.1. According to the “Brief history” (2013, para.2) Tanzania is estimated to have over 80,000 traditional healers with varying specialities. This estimated number includes registered and unregistered traditional healers all over the country. For the purpose of this study, the traditional healers forming part of the study population were those registered by TAHPC. According to statistics from the registrar’s office as of April, 2013 only 10 districts had 1,160 registered traditional healers.

If 1,160 registered traditional healers were to be eliminated or removed from the overall estimated list of 80,000 traditional healers irrespective of their registration status, the number of unregistered traditional healers all over the country would be approximately 78,840. In 2006 the researcher visited traditional healers in the Magu district and discovered that some traditional healers in the area hospitalised about five to 15 patients in their residence. With the increased population in Tanzania, the researcher expected to meet 30 prospective users from each district. Hence, the estimated study population for prospective users was about 300 respondents from all 10 districts before the sampling of districts was completed. Since this study involved the 10 districts with registered traditional healers, the sample population of District Co-ordinator of TAHPC was also 10 because each district had one District Co-ordinator of TAHPC. The eight Head of Departments/Units from the three surveyed institutes such as TAHPC, ITM, and the UDSM-SoL formed a part of the population of the study. The distribution of heads of departments was the Registrar of TAHPC, four District Co-ordinators, two heads of departments from ITM and two from the UDSM-SoL. Thus, making the estimated population of the study be 1,478 respondents from categories and, from all 10 districts and three surveyed institutions. This

was the population number before the districts were sampled. These details are presented in Table 4.1.

Table 4.1: Population distribution before the districts were sampled

Location of sample	Population				
	Owners	Users	HoD	District Co-ordinator	Frequency
Magu district	62	30	-	1	93
Singida Urban	62	30	-	1	93
Njombe DC	127	30	-	1	158
Masasi DC	157	30	-	1	188
Singida DC	68	30	-	1	99
Manyoni DC	110	30	-	1	141
Uyui DC	115	30	-	1	146
Misungwi DC	142	30	-	1	173
Bariadi DC	147	30	-	1	178
Chato DC	170	30	-	1	201
UDSM-SoL	-	-	2	-	2
ITM	-	-	3	-	3
TAHPC	-	-	3	-	3
TOTAL	1,160	300	8	10	1,478

After identification of the four districts to be involved in the study as explained in Section 4.3, the selected districts such as Magu, Singida urban, Njombe urban and Masasi therefore produced a total population of 408 traditional healers, 120 prospective users, and four District Co-ordinators of TAHPC as each districts had one Co-ordinator (in this study Co-ordinators were then merged with Heads of Department because they were actually heads of TAHPC activities at a district level). Then, eight heads of departments from three institutes including the Registrar of TAHPC formed part of the population of the study. Thus resulting in an estimated population of 540 respondents after the districts were sampled.

4.6 Sample and sampling techniques

The sample and sampling techniques provide a shortcut method for investigating a whole population whereby data was gathered from a small part of the entire population or sampling frame, and is used to inform what the whole picture looks like for the whole population. In reality there was simply not enough time, money, equipment, access to suitable sites to measure every single item or site within the parent population or the whole sampling frame. The sample and sampling techniques were used to give explanations of the sample unseen. Therefore, an

appropriate sampling strategy was adopted to obtain a representative, and statistically valid sample of the whole population. Since a sample is a subset of the population selected for the study, sometimes called subjects or respondents of the study; sampling is therefore the process of choosing a representative portion of the entire population (Saunders, *et al.* 2009). As an integral part of research methodology; sampling techniques involve selecting a group of people, events, behaviour or other elements with which to conduct a study. The process basically involved two types of techniques, namely probability (random) sampling techniques and non-probability (non-random/purposive) sampling techniques to involve individuals to participate in the study.

4.6.1 Sample size

It is obvious that before selection of sampling techniques a researcher must first determine the size of the sample. Thus, the Slovin's (1960) formula which is still used by researchers today was used to determine the sample size for this study. Among the authors who used such formula in their studies includes Fernandez (2011); Vedra and Ocampo (2013); Aziz, Salim and Sekine (2013) and Legaspi (2014) and Yator (2014). The formula is:

$$n = \frac{N}{1 + Ne^2}$$

Where: n is the sample size

N is a population

e is the margin of error

I is a constant value

$$n = \frac{540}{1 + (540 \times (0.1)^2)}$$

$$\frac{540}{1 + (540 \times 0.01)}$$

$$\frac{540}{1 + 5.40}$$

$$\frac{540}{6.40}$$

$$84$$

My sample size "n"

$$n = 84$$

From the population of 540 elements comprising some people with knowledge on healing, use, management and co-ordination of TK, the researcher expected to involve a total sample size of 84 individuals with a margin error of 10% in the study. In the study, knowledgeable community members/traditional healers were considered the main participants who could provide first-hand information.

Table 4.2: Sample size distribution

Location of sample	Sample size				Frequency
	Owners	Users	Head of departments	District Co-ordinator of TAHPC	
Magu district	5	13	-	1	19
Singida Urban	5	13	-	1	19
Njombe DC	5	13	-	1	19
Masasi DC	5	13	-	1	19
UDSM-SoL	-	-	2	-	2
ITM	-	-	3	-	3
TAHPC	-	-	3	-	3
TOTAL	20	52	9	4	84

Source: N. Mpemba, personal communication, April 22, 2013.

Although some of the districts had larger numbers of registered traditional healers than others still five traditional healers from each districts was chosen to participate in this study in order to establish equality amongst the traditional healers' representation in the study from each district. Thus they were not proportionate in representation to the study because the representation was based on the geographical or zones representation of traditional healers as stated in Chapter Three, paragraph three of section 3.5. Thus each zone of Tanzania was equally represented.

4.6.2 Sampling methods

Probability sampling (or representative sampling) through systematic sampling was used where samples are chosen in a systematic or regular way (Powell, 2002). Systematic sampling was used to include knowledge owners in the study. With this technique, traditional healers were selected at regular intervals from the sampling frame provided by the office of Registrar of the TAHPC. The researcher calculated the sampling fraction using the formula of: actual sample size divide by total population in a sampling frame of each district (Saunders, *et al.* 2009; Walliman, 2011). Then, the researcher selected subsequent cases systematically using the sampling fraction to determine the frequency of selection, by which it was expected that five traditional healers from each district would participate in the study. To begin with, systematic sampling a random starting point was chosen and ended with the first name of the interval immediately preceding the starting point. The systematic sampling had the advantage of being more straight-forward than random sampling, a good coverage of the study area was more easily achieved than using random sampling, and the sampling was at uniform intervals.

Non-probability sampling (or haphazard sampling) was used through a convenience sampling technique. Convenience sampling was used to include prospective users in the study (Sillitoe, *et al.* 2005; Saunders, *et al.* 2009). With this technique, the prospective users were conveniently involved in the study depending on their availability, ease of access, their convenience of time and readiness, and willingness to participate and articulate their experience (Sillitoe, *et al.* 2005). Thus, the sample selection process was continued until the required sample size had been obtained. This technique was prone to bias and influences that were beyond the researcher's control, as the cases appeared in the sample only because of their ease of access (Saunders, *et al.* 2009). Since, the researcher had no identified numbers (sampling frame) of prospective users (patients, development planners and researchers), the knowledge owners and/or District Co-ordinator of TAHPC helped the researcher in formulating groups for discussion sessions.

Participants occupying administrative positions as directors, head of department/units in selected institutes were purposively selected on the assumption that due to their leadership positions they would most likely possess sufficient knowledge on policies and strategies guiding access, documentation and preservation of IHHK. With these methods, bias in selecting elements that formed the study sample was avoided.

4.7 Data collection methods

Both primary and secondary sources of information were consulted during data collection. Primary data was collected through focus group discussions and face-to-face interviews supplemented by direct observation. The elements interviewed included knowledgeable community members and individuals occupying administrative positions in the institutes. Focus group discussions were conducted with the prospective users. The selection of these methods was based on the fact that they were suitable in capturing views, feelings and attitudes of respondents concerning the topic. On the other hand, secondary data were gathered through documentary reviews from archival collections, library and internet sources.

4.7.1 Interviews

Saunders *et al.* (2009:318) citing Kahn and Cannell (1957) define interview as a “purposeful discussion between two or more people”. An interview can be done face-to-face between

interviewee and interviewer or through telephone and other media calls depending on one's skills of using such media. Therefore, in this context the interview involved a conversation between a researcher and respondents or people with information relate to the management of IHHK in Tanzania. Interviews are suitable and usually when descriptive, qualitative and quantitative data are sought (Pickard, 2007; Walliman, 2011) and can be categorised as structured, semi-structured and unstructured or in-depth interviews (Saunders, *et al.* 2009).

Pickard (2007:175) citing Fontana and Frey (1994) define structured interviews as “a situation in which an interviewer asks each respondent a series of pre-established questions with a limited set of response categories”. In the structured interviews, a researcher or interviewer has limited chance and must resist the temptation to react, respond or expand on the content of the interview schedule. According to Pickard (2007:175) there are two forms of structured interviews. The first is a standardised/open-ended interview: in this type of interview all interviewees are asked the same open-ended questions but allowed to respond in any way which they feel is appropriate. The second type is closed/fixed response interview where interviewees are asked the same questions and choose a response from the predetermined set of alternatives. The second category of interview is the semi-structured interviews. This category requires a researcher to prepare a list of themes and questions to be covered prior to interviewing. This category of interview may vary from interview to interview sessions because given a specific organisational context that is encountered in relation to the research topic, a researcher may omit some questions in particular interviews. In addition, the order of questions may be varied while additional questions may be required to explore a particular research question and objectives depending on the flow of the conversation and the nature of events within particular organisations (Kothari, 2004; Creswell, 2007, Saunders, *et al.* 2009).

Therefore, a face-to-face semi-structured interview was used as the main technique in the collection of data for this study. The technique involved a conversation between the researcher, the traditional healers and participants occupying leadership positions in the visited institutions. The process involved identification of predetermined questions and themes together with some open-ended ones which were administered to the participants by means of interview sessions (Grenier, 1998; Mugenda and Mugenda, 1999; Hesse-Biber and Leavy, 2011). The method

helped the researcher to gather valid and reliable data relevant to the research question(s) and objectives of this study (Saunders, *et al.* 2009). Thus, the researcher had a chance to collect supplementary information about the respondent's personal characteristics as well as learning some other issues from the respondent's body language (facial expressions and gestures) and environment, which are often of great value in interpreting results (Kothari, 2004; Creswell, 2007; Saunders, *et al.* 2009).

Since samples were drawn from a heterogeneous population and the focus of the research questions were wide ranging; the researcher expected to undertake between 25 and 36 interviews (Creswell, 2007). Thus, six interview sessions from each district as a matter of representation and three from each of the selected institutions were conducted. The rationale behind this method was to capture the attitude, feelings and behaviours of the respondents towards documentation and preservation of TK on healing and cure. Hence, maximising data reliability and overcoming delays.

4.7.2 Focus group discussion

Powell, Single and Lloyd (1996:499) cited by Pickard (2007:219) define focus group as “a group of individuals selected and assembled by researcher to discuss and comment on, from personal experience, the topic that is the subject of the research”. Lawal (2009:86) is of the view that “they are called focus groups because the discussion starts out broad and then narrows down to focus on the topic of the research”. Utilising this method, the researcher's task was to facilitate the discussion and at the same time confine the participants to such a discussion (Jackson, 2010). In other words, the researcher acted as a mediator between the question and the group and between the individual members of the group (Pickard, 2007).

In this study, four focus group discussion sessions were carried out with prospective users who were available in the community amongst the knowledgeable members or who interacted with traditional healers. Hence, one focus group discussion from each district was conducted. One session comprised of between five to 13 participants. The predetermined themes were tabled for discussions. With this method the researcher believed that the whole is greater than the sum of its parts (Sillitoe, *et al.* 2005:177).

4.7.3 Observation

According to Walliman (2011:195), observation is a “method of recording conditions, events and activities through the non-inquisitorial involvement of a researcher”. The aim of the observation in researching is to record whether people acted the same or differently from what they said during interview and focus group discussions, and/or what was intended (Powell, 2002; Walliman 2011). The three forms of observation include the participant observation, semi-participant observation and non-participant observation.

Pickard (2007:203) citing Patton (2002) states that “participant observer shares as intimately as possible in the life and the activities of the setting under study in order to develop an insider’s view of what is happening”. Semi-participant observation is the type of observation in which the presence of any observer in a situation is highly likely to influence the situation to some degree. This type of observation may limit the impact of the situation (Pickard, 2007). In a non-participant observation, a researcher is just a passive observer, have nothing to do with the setting being observed (Pickard 2007).

In this study, the non-participant observation method was used and helped the researcher to make a preliminary assessment of the state and condition of the management of IHHK in Tanzania. The method involved observing events and activities related to the documentation and preservation of IHHK in the visited sites (Kothari, 2004:96). It included recording the nature and conditions of the available physical infrastructure for the management of IHHK as well as the activities related to the IHHK generation, codification and transfer. Direct observation was applied so that the behaviour of people in their natural setting was recorded without asking the respondents in order to get in-depth descriptions of events and activities (Grenier, 1998; Kothari, 2004; Sillitoe, *et al.* 2005). In using this method, subjective biases were eliminated (Kothari, 2004).

4.7.4 Documentary review

Documentary review involved visiting, browsing and gathering secondary data from archival collections, library and internet sources. This method was used in order to obtain data that enabled the researcher to make comparison and cross-reference information for the purpose of

qualifying the process of triangulation. In other words, the documentary review enabled the researcher to make clear analysis of the common narrative about the issue shared by similar documents with similar information (Kothari, 2004; Fisher, 2010).

Table 4.3: Mapping of the research questions to the instruments

Research questions	Instruments
How is IHHK managed (accessed, documented and preserved) in Tanzania?	Interview schedule Observation checklist Focus group discussion themes
How does the management of IHHK feature in the IPRs, existing policies and strategies?	Interview schedule
What are the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK?	Interview schedule Focus group discussion themes
What factors affect documentation and preservation of IHHK?	Interview schedule Observation checklist Focus group discussion themes
What strategies could assist in the documentation and preservation of IHHK in Tanzania?	Interview schedule Focus group discussion themes

4.8 Research instruments

The researcher used the following instruments to collect data for this study:

4.8.1 Face-to-face interview schedule

According to Mugenda and Mugenda (1999:86), the interview schedule is “a set of questions that the interviewer asks when interviewing”. An interview schedule for a face-to-face semi-structured interview was arranged and guided by the main thematic topics derived from the research objectives of the study. This was purposively done to help the researcher collect in-depth qualitative data from knowledge owners, prospective users, cultural officers and heads of department. Due to the fact that the interview schedule used to guide the interview sessions, the interview questions in the schedule was divided into the three main thematic topics followed by specific questions. A number of possible replies thought that respondents would provide were also predetermined and included in the schedule. Thus, during the sessions respondents’ opinions, feeling and answers regarding documentation and preservation of IHHK were noted in the schedule document and the researcher’s notebook.

In order to succeed in collecting data from respondents of different categories through interviews, three schedules of interviews were prepared. The first interview schedule as appended in Appendix 10 and 11 was meant for traditional healers who were the main respondents in this study. The schedule for traditional healers had questions that basically intended to extract information on the status of management of IHHK as well as the readiness of traditional healers for the documentation and preservation of IHHK. The second schedule was for the head of departments from the TAHPC and ITM. The interview schedule for the head of departments from the afore-mentioned institutions as shown in Appendix 12 and 13, had questions that intended to explore the experience of head of departments and the responsible institution in the management of the IHHK. In addition, the third interview schedule was purposively prepared to collect data from respondents from the UDSM-SoL. The intention was to collect information on legal aspects governing the management of IHHK in Tanzania. See Appendix 14 and 15 for the details.

4.8.2 Focus group discussion themes

The focus group discussions were guided by the predetermined themes on which follow-up questions for clarification and need for more descriptions were given to respondents during the session. The themes for discussion were presented to the participants and included the IHHK and the management efforts in Tanzania; factors affecting management of IHHK; and the strategies to assist in the documentation and preservation of IHHK in Tanzania. See Appendix 16 and 17 for details. All these discussions were intended to solicit information on how IHHK is managed in Tanzania, particularly concerning its documentation and preservation. During the focus group discussions, the researcher assumed the role of a discussion moderator where he ensured that the discussion started out broadly before being narrowed down to focus on the topic of the study (Lawal, 2009). Although strong individuals wanted to dominate the discussion leaving little opportunity for others to express their views, the researcher convinced all members to participate and at least say something in relation to the topic for continuity of the discussion. Points from the discussion were recorded by the researcher. To avoid missing any important information, some voice recording was done with the consent of participants.

4.8.3 Observation checklist

An observation checklist was created with items to be observed. The researcher was not supposed to answer every question on the checklist rather than observing some of the items in and out of the prepared observation checklist (Fisher, 2010). The researcher was supposed to observe what was happening in the field regarding the documentation and preservation of IHHK. The observation was conducted to determine available efforts in the management of IHHK; cooperation and the ways in which traditional healers participated in the management of IHHK; the role of ICTs in managing IHHK and providing access to prospective users; and the factors that affected the management of IHHK in local communities. In this study, non-participant observation was conducted by taking field notes in the local communities. The field notes collected during an excursion included facilities for use, such as the availability of computers connected to the internet. The checklist also comprised of observing the availability and collection of physical and electronic collections for IHHK metadata to use by the public, as well as the activities involved in the documentation, preservation, storage and dissemination of IHHK. All these were directly observed through the non-participant observation technique. See Appendix 18 and 19 for the details of the observation checklist.

4.9 Data quality control

In order to collect quality data for the study, a number of issues were taken into consideration. These included pre-testing of the research instruments. A combination of data collection methods was employed. The instruments of this study were also translated into Kiswahili. The rationale behind the translation was to capture the responses of respondents, especially the traditional healers who speak Kiswahili (Jackson, 2010:24). Therefore the researcher who is also a Kiswahili teacher used the knowledge he acquired during his undergraduate studies on translation theories and analysis to translate all instruments and the responses which were in Kiswahili.

4.9.1 Pre-testing of instruments

To ensure that the instruments used were valid for data collection, the instruments were pre-tested. The pretesting of instruments was done prior to the field work, the last week of June 2014. One District Cultural Officer, one Legal Officer, three traditional healers and five

prospective users from Chunya district were involved in the pre-testing. The pretesting helped the researcher to evaluate the effectiveness and efficiency of a constructed questions. It also helped to ensure that the study was free of any bias and that professionalism and an ethical research code of conduct was observed (Jackson, 2010). Therefore, pre-testing of research instruments helped to refine the questions of the interview schedules.

4.9.2 Validity and reliability of instruments

Validity and reliability are the two main technical criteria used to assess the quality of the research and instruments used. The validity and reliability of instruments are the essential criteria that help a researcher to determine the degree of appropriateness of the instruments and the consistency of the results based on the methods employed in a particular research (Mugenda and Mugenda, 1999; Bryman, 2008). Reliability in research indicates the extent to which the measures is without biases (error free) and hence offers consistent measurement across time and across various items in the instrument (Pelosi, Sandifer and Sekaran, 2001; Fraenkel and Wallen, 2003). Reliability is of two main aspects to this consistency. The consistency over time (stability) and internal consistency. The first aspect measures the consistency of the answers over time, that if the same instruments were given to the same person under the same circumstances but at a different time, to what extent would these instrument achieve the same score? In this study, the concern is the repeatability of the study results. The intention being to assess how the study could be repeated to the people of the same characteristics, demographic information and location, and then produce the same results (Bryman, 2008).

Reliability in this study was determined by the degree of accuracy and comprehensiveness of the coverage in the data collection process. The triangulation of methods of data collections established the fit between the data recorded by the researcher and what actually was occurring in a natural setting regarding the management of IHHK. Hence, replication of the results, provided that the situation has not changed radically. The use of multiple methods of data collection increased the overall confidence in the findings as well as eliminating the inherent biases and enriches the instruments validity and reliability (Ngulube 2010). On the other hand, the researcher in this study ensured higher reliability through accurate coding, issuing explicit instructions to the participants in the project as well as maintaining objectivity throughout the

process. The test-retest technique was used to evaluate the reliability of the results as the instruments were pre-tested as described earlier. This indicated high level of consistency of the responses among respondents with the same biographic information (Mugenda and Mugenda, 1999).

On the other hand, the validity ensures the ability of a scale or research instrument to measure the intended concept/variable. In other words, validity is used to refer to the test of ‘goodness’ of the measures (Pelosi, Sandifer and Sekaran, 2001:129) or the degree to which the researcher has measured what was set out to be measured (Kumar, 2005). In short, validity is concerned with the integrity of the conclusions generated from a piece of research (Bryman, 2008). In order to ensure that the research instrument measured what was supposed to be measured (the validity) in this study, pre-testing and peer reviewing of the instruments were implemented. Thus some changes and refining of some issues in the research questions prior to data collection was made. This criteria worked on the concern that the results obtained from the data analysis should represent the degree of accuracy of data in relation with the phenomenon under study (Mugenda and Mugenda, 1999).

4.9.3 Ethical issues

The purposes of the study were explained clearly to the respondents before the start of the face-to-face interview and focus group discussion. The respondents were also assured that the information which they were to provide was to be used for academic purposes only. The study was thus conducted within the framework of the guidelines of the University of KwaZulu-Natal Research Ethics Policy. Written permission was requested from the University of KwaZulu-Natal’s Research Ethics Committee, research host institutions in Tanzania and from participants as stated and directed by the UKZN Ethics Policy (2007). Details of request for permission to the host institutions in Tanzania is shown in Appendix 1 to 3, and for the granted permission in Appendix 4 to 6, whereas the details for the research ethical clearance certificate from the University of KwaZulu-Natal is in Appendix 7. A full explanation of the purpose of research was explained to the participants in order to obtain written consent after they were presented with the informed consent forms. See Appendix 8 and 9 for the details of the informed consent form.

Individual rights to confidentiality were guaranteed. The ethical consideration issues were explained in detail in Chapter One, Section 1.14.

4.10 Data analysis and presentation

In the process of analysing and summarising data from the field, the intention was to extract useful information and draw conclusions for research results and pronouncements of whether the hypotheses could be accepted or rejected (Lawal, 2009). A combination of qualitative and quantitative approaches for data analysis was used. The qualitative data collected through face-to-face semi-structured interviews, focus group discussions and observation was analysed through thematic content analysis. This approach provided a systematic examination of the materials that are more typically evaluated on an impressionistic basis. The analysis started with the classification of data (Mugenda and Mugenda, 1999; Lawal, 2009). The content of in-depth interviews and focus group discussions were broken down into smallest meaningful units of information that were systematically coded to produce numerical descriptions and statistically analysed with computer software - NVivo (Sillitoe, *et al.* 2005). This helped the researcher in ascertaining the values and attitudes of respondents. NVivo facilitated the storage, manipulation of large amounts of qualitative data, analysis and find insights in unstructured or qualitative data based on realistic environment (Sillitoe, *et al.* 2005:223).

Quantitative data was analysed using the Statistical Package for Social Sciences (SPSS) Version 18, where descriptive statistics was used. Thus, a statistical technique such as the Chi-square test for independence was used to determine whether the association/relationship between two categorical variables was statistically significant or not. The alpha level (*P*-value) used to measure statistical significance was $P < 0.05$. This means that for the association to be significant, the significant value (Sig. value) needed to be .05 or smaller. If this happened to be larger than the alpha value of .05, then the conclusions were made that the result was not significant. In other words, there were no associations between the tested variables (Pallant, 2007:212,217). Hence, positive or negative relationship of variables was assessed. This meant that whenever the association of variables was positively related (as one variable increases, the other increases as well), but when it was negatively related, it meant that as one increases, the other declines

(Lawal, 2009). The results were presented in graphs, tables and charts with frequencies and percentages.

4.11 Summary of Chapter Four

This chapter presented the methods adapted to undertake this study. The study was guided by the pragmatism paradigm, combining quantitative and qualitative approaches. The pragmatism paradigm allowed the use of one or more methods in answering a particular question(s). Therefore, mixed methods were used. A social survey research design was adopted, which is consistent with the pragmatism paradigm. The population of the study comprised of the traditional healers, prospective users of IHHK and head of departments in the visited institutions. This chapter described in detail the sampling procedures and sampling of research elements to participate in the study. This study was conducted within four districts with registered traditional healers. Three institutions located in Dar es Salaam, Tanzania such as TAHPC, ITM and UDSM-SoL were also involved in the study. The districts involved in the study were Njombe urban, Masasi, Magu and Singida urban.

Data for this study was collected from both primary and secondary sources of information, though semi-structured face-to-face interviews, focus group discussions, observation and documentary review based on the pragmatism paradigm that one or more methods can be applied to a study a particular issue (Munyua and Stilwell, 2012). All ethical issues set out by the UKZN, as stated in Chapter One, Section 1.14 were adhered to. While qualitative data was thematically analysed through the content analysis technique using NVivo, quantitative data was analysed using SPSS of which descriptive statistics was applied. Thus, the Chi-square test was used to test whether or not there was statistical association among/between two categorical variables. In this chapter, all the above motivates that the research methods adopted throughout this study were appropriate for the research problem investigated. In each of the chosen methods for a particular matter whether it was for the study area, study population, sampling procedures, data collection procedures and instruments, qualitative or quantitative data analysis and the pretesting of instruments, the reasons were also given.

CHAPTER FIVE

PRESENTATION OF RESULTS

5.1 Introduction

This chapter is focused on the presentation and interpretation of data from the responses of the selected participants in the study. The data as presented in this chapter was obtained through semi-structured face-to-face interviews, focus group discussions, direct observation and documentary reviews. Data addressing a particular or related research theme are presented together in this chapter regardless of the tools used. That is done in order to logically and clearly present the findings of the study on the management of IHHK in Tanzania in a manner that influences the establishment of the course of action for its proper management. This study was guided by five key questions, namely: (i) How is IHHK managed (accessed, documented and preserved) in Tanzania? (ii) How does the management of IHHK feature in the IPRs existing policies and strategies? (iii) What are the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK? (iv) What factors affect documentation and preservation of IHHK? (v) What strategies could assist in the documentation and preservation of IHHK in Tanzania?

In order to obtain answers to the key questions of the study, the interview guide questions for semi-structured interviews were developed, and structured with some sub-questions that followed after the key thematic question. Themes to be discussed during focus group discussions were also predetermined. Some of the questions were asked across all categories of respondents in order to validate and complement the strength of data obtained from each category of responses. The respondents of this study came from four categories of individuals from the population as stated in Chapter Four, Section 4.5. However, it is important to note that in this section, the category of District Co-ordinator of TAHPC merged with the category of head of departments because they were actually head of departments representing TAHPC in districts. Data was collected using the semi-structured face-to-face interviews with different questions for each category were used; except for prospective users where focus group discussions with uniform themes were used. A total of 18 interview sessions with traditional healers from four districts, and nine interview sessions with head of departments from the afore mentioned institutions were carried out. In addition, a total of four focus group discussions were held in four

villages from four districts. The focus group discussions involved between ten to thirteen participants per session, depending on their availability and readiness to participate. Hence, this study involved 18 traditional healers from among the mentioned villages, nine participants from the mentioned three institutions (ITM, TAHPC and UDSM-SoL), and 45 prospective users. Thus, a total of 72 (86%) out of the 84 expected respondents participated in this study.

Thematic content analysis in analysing and presenting the obtained qualitative data was used. Contents from face-to-face interviews and focus group discussions were disintegrated into the smallest meaningful units of information that were systematically coded to produce numerical descriptions and statistically analysed with NVivo. Quantified and all quantitative data were analysed using SPSS Version 18 after the data was cleaned and coded by assigning numerical values to each batch of data. The process enabled the researcher to determine the relationship between two categorical variables. Prior to the analysis of collected data, in order to capture the responses of respondents who were Swahili speakers, the exercise of collecting data was done in Kiswahili; and the responses translated into English before analysis.

Before presenting the main results of the study, this chapter gives the demographic information of traditional healers and other respondents. The chapter builds on the research objectives and questions, presented in thematic form in terms of the manner in which IHHK is managed; the available KM efforts for documentation and preservation of IHHK in Tanzania; factors which affects the documentation and preservation of IHHK; and the strategies to assist the documentation, preservation and sharing of IHHK in Tanzania. The chapter ends with a summary of the main results. Wherever deemed necessary, data and results of this study are presented in the form of figures, pie and bar charts, and tables with frequencies and percentages.

5.2 Demographic information of respondents

The biographic information of respondents was not a part of this study's objectives, but it was considered necessary to present such information because it can partly have an impact on the management of IHHK. Therefore, the biographic information of the respondents who participated in the semi-structured interviews and focus group discussions in terms of regions, districts, wards and villages of their residence, gender, religion, age and level of education are

indicated. This information was necessary in order to provide the context under which the study was carried out. It was also necessary to understand the biographic information of respondents in order to determine the representativeness of respondents from each district, village and gender, thus informing the influence of respondents' characteristics in managing IHK.

Villages and wards were not variables of this study. This is because the systematic sampling technique employed in this study is what identified the possible respondents and the issue of location (village/ward) came later when locating the place where such a person is. It is however important to note that a total of 18 villages, 18 wards in four districts of Tanzania from four regions, and three institutions in Dar es Salaam were surveyed. The districts and their regions in brackets are Magu (Mwanza Region), Singida urban (Singida Region), Masasi (Mtwara Region) and Njombe urban (Njombe Region). The institutions consulted included ITM, TAHPC and UDSM-SoL. In Magu district, the wards surveyed included Kahangala, Kitongosima, Nyanguge and Mwamabanza. In the district, four villages including Kahangala, Lugeye, Muda and Mwalinha were surveyed. In Singida urban district, the wards surveyed included Uhamaka, Muhanga and Minga. In the district, four villages including Muhondwe, Unyakunu, Misuna and Mmung'una were surveyed. In Masasi district, the wards surveyed including Nyasa, Lukuledi and Mkomaindo. In this district four villages such as Nyasa, Lukuledi, Maendeleo and Mraushi were surveyed. In Njombe urban district, the wards surveyed included Mtwango, Ikuna and Igongolo. In the district, three villages including Ilunda, Ikuna and Ibiki were surveyed.

5.2.1 Participants' designation and responsibilities in the visited institutions

Of the nine head of departments from the aforementioned institutions, 22% were senior lecturers from the UDSM-SoL responsible for teaching and researching on legal issues as well as assisting in policy recommendations and improvement; 22% were research fellows from the ITM, responsible for teaching and researching in traditional medicine, assisting in improving policy and creation of regulations on traditional medicine; 56% comprised of District Co-ordinator of TAHPC and the Registrar of TAHPC, whose responsibilities involved supervising the development of traditional and alternative health practices, creating awareness about various issues on traditional healing including record keeping, and ensuring biodiversity.

5.2.2 Details of the respondents

As stated earlier, respondents of the study were from the groups of traditional healers, head of departments and prospective users of IHHK. The respondents were from both genders. However, among the 27 respondents who participated in this study through interviews, 33% were female and 67% were males whereas among the 45 participants in focus group discussions 31% were female and 69% were males. The study involved fewer females than their male counterparts as summarised in Table 5.1.

Table 5.1: Respondents' distribution by characteristics

Characteristics	Frequency	Percentage
Gender (N=72)		
Female	23	32
Male	49	68
Religion of the traditional healers (N=18)		
Traditional	1	5
Muslims	7	39
Christians	10	56
Age groups of traditional healers (N=72)		
Between 20-30 years	1	6
Between 31-40 years	4	22
Between 41-50 years	2	11
Between 51-60 years	8	44
Above 60 years	3	17
Education of the participant in interview (N=25)		
Primary education	17	68
Post-secondary	7	28
Did not go to school	1	4
Places of services provision (N=18)		
Traditional dispensary	1	6
Home	17	94
Range of experience (in years) (N=18)		
Between 4-7 years	3	17
Between 8-10 years	1	5
Over 10 years	14	78

Source: Field data, 2014.

The low number of female participation in the study may be attributed to the historical nature of most African societies from primitive communalism where men were involved in gathering fruit and hunting animals in order to sustain food for their families, thus, men engaged more often in traditional healing because they had more extensive knowledge of medicinal trees than women

who were accustomed to staying at home. In addition, in some societies women were not allowed to practice traditional healing.

The religion of the main respondents was studied under this section. According to the data, among the traditional healers who participated in the study 56% were Christians while 39% were Muslims. Although this finding may be attributed to the fact that Christianity is the dominant religion in Tanzania followed by Islam, it is also important to note that among the surveyed districts there were a lot more Muslims participants in the urban districts of Masasi and Singida than in the Njombe and Magu urban districts where there were predominantly Christians. The attribute of age of the traditional healers and years of experience in practising IHHK were also studied. Data showed that 44% of the main respondents in the study ranged between the ages of 51 to 60 years. As most of the respondents were of 51 to 60 years, it suggests that age may influence the practicing of traditional healing and medicine. See Table 5.1 for the summary of religion and age attributes.

Data in Table 5.1 on age groups of traditional healers are in line with literature that elderly adults have a higher inclination to IHHK than young persons. Msuya (2007) found that age has a significant effect in practicing IHHK. Although Msuya (2007) did not consider the specific age group but rather mentioned that older persons had more of an inclination towards traditional healing than younger persons. On years of experience basing on the number of years since a particular traditional healer has started practising IHHK, data of this study show that out of 18 respondents, 78% had experience of over ten years, whereas 17% had experience of four to seven years, and 5% had eight to ten years of experience. See Table 5.1 for the summary.

The respondents who participated in the interview sessions were also asked to state the highest level of education which they had reached. Data shown in Table 5.1 demonstrates that traditional healers had a very low level of education, of which 68% attended primary school while 4% did not go to school. However, 28% of respondents who had post-secondary school education belonged to the category of head of departments. This shows that most traditional healers had a very low level of education. This may be attributed to the fact that people had to choose whether or not to continue with formal schooling or opt for practicing traditional medicine as Msuya (2007:345) argues that “as children go to school, the potential successor has a choice between

abandoning western education and being a traditional medicine man or joining a conventional medical school towards a formal career”.

In order to establish the environment in which healers provide their services to patients, traditional healers in this study were asked to point out the places where they provided their treatments and healing services to patients. The data in Table 5.1 show that 94% of the main respondents of this study provided healing services from their residences. Only 6% stated they have a traditional dispensary where traditional healing services are delivered. It was also observed that the dispensary environment of one of the traditional healers used to provide health service was in a good condition with a large area of land and good buildings with wards equipped with beds. A traditional healer who owned the place noted that his traditional dispensary was been transitioned to a traditional hospital. Figure 5.1 shows the outer and inner appearance of the dispensaries.



Figure 5.1: Different views of a traditional dispensary in Njombe

Source: Field data, 2014.

However, onsite observation showed the quality of the dispensaries traditional healers used to provide their services. In some areas of this study (especially in Njombe, Singida and Magu) the environments used to provide service were moderate because most of traditional healers in places provided the services in their residences and therefore reserved a special room for such services in their homes. This is featured in Figure 5.2.



Figure 5.2: Traditional healers in their special reserved service rooms

Source: Field data, 2014.

However, the area where urban traditional healers' services were provided was somewhat discouraging. In urban and townships areas, traditional healers provide health services in an unhealthy or open environment. Most of them provide their services (especially pharmaceutical services) in open places along main roads or nearby market places as illustrated in Figure 5.3.



Figure 5.3: Traditional healers' service provision in an unhealthy environment

Source: Field data, 2014.

In terms of acquisition of IHHK, 78% inherited such knowledge from their parents and grandparents, 17% stated that they had been granted the knowledge by the ancestral spiritual, only 5% stated they learned it through attending a traditional healing school. This is an indication that IHHK can be documented and shared through training in schools, workshops and seminars. It was also found that out of 18 traditional healers in this study, 78% had been practising traditional medicine for over 10 years. Thus, most of the traditional healers who participated in this study had lengthy experience in practising traditional medicine. Data in Table 5.1 summarises this. The lengthy experience may also be the reason behind their acceptance to participate in this study.

5.2.3 Area of specialisation in traditional healing

Traditional healers were asked to state their areas of specialisation. The specialisations included mentioning the ailments that a particular traditional healer was capable of healing. Based on their responses with overlapping specialisation, traditional healers explicitly were capable of treating (mental and physical) diseases, maternal (pregnancy and childbirth) diseases, and infectious and non-infectious diseases. See Table 5.2 for the details.

Table 5.2: Area of specialisations among traditional healers (N=18)

Types of diseases	Frequency	Percentage
Blood pressure	1	6
Hernia	2	11
Maternal complications	3	17
Asthma	3	17
Gonorrhoea	4	22
Back-ache	4	22
Ulcers	5	28
Syphilis	5	28
Pneumonia	5	28
Chest pain	5	28
Head-ache	5	28
Reconstruction of broken bones	6	33
Vomiting	7	39
Diabetes	8	44
Sharp pain (clamp) of the body	8	44
Malaria	9	50
Diarrhoea	9	50
Swelling of the body and legs	10	56
Convulsions and epilepsy	10	56
Stomach-ache	13	72

Source: Field data, 2014.

NB: Data based on multiple responses

Data in Table 5.2 shows that few experts treated the following diseases, included back-ache, ulcers, chest pain, asthma, head-ache, hernia, gonorrhoea, syphilis, pneumonia, maternal complications, reconstruction of broken bones and blood pressure. According to the responses in Table 5.2, it is clear that most traditional healers were specialised in convulsions and epilepsy, diarrhoea, malaria, stomach-ache and swelling of the body and legs. During the focus group discussions with prospective users, it was discovered that there were some differences between the ailments that could be treated by traditional healers in rural areas as compared to those in urban town and cities such as Dar es Salaam, Mbeya, Mwanza and Kilimanjaro. One of the respondents in Singida commented that:

“Traditional healers are mostly in the rural areas, those available in town and cities are charlatans; that is why they do advertise through posters and other means. If they are real traditional healers, in its nature IHHK is not for adverting but people knows them and follow them where they are. If you find those who claim to be traditional

healers in towns and cities like Dar es Salaam, Mbeya, Mwanza and Kilimanjaro, you will find that they only advertise to solve other things which are not diseases including bringing love for the unloved ones, chasing demons, increasing money and worthiness of a person, business, gracious gifts and blessings, locking of the wife or husband, and enlarging buttocks of ladies”.

This view was also supported by an expert and experienced researcher in traditional medicine from ITM who commented that: “the real traditional healers in most cases stays in the rural areas, those available in town and cities are just the charlatans”.

5.2.4 The status of traditional healers

It is from experience and common understanding that traditional healers play an important role in the Tanzanian health system and in improving human health. During interview sessions with the traditional healers and the head of departments, questions were asked which sought to determine the feelings of the respondents towards the status of the traditional healers, and whether they were accorded the same status as conventional medical practitioners by the Tanzanian health system. The following issues were investigated.

5.2.4.1 Registration status

It was imperative that the registration status of traditional healers had to be known before the researcher sought an appointment from a particular traditional healer. This was done in order to ensure that the researcher was interviewing the right person. However, traditional healers who agreed to participate in the study were also asked to present their certificate of registration/license of service. Thus, it was confirmed that all 18 traditional healers in this study were registered by the TAHPC. Figure 5.4 is an example of the certificate of registration of a traditional healer who did not participate in this study.



Figure 5.4: A traditional healer’s certificate of registration

Source: Field data, 2014.

During interview sessions respondents were asked to explain the reasons why traditional healers have to be registered by the TAHPC. Table 5.3 summarises the reasons provided which were to recognise the traditional healers’ services, places from where they deliver their services, and the need to identify and prevent charlatans in traditional health service delivery.

Table 5.3: Reasons for registering traditional healers by TAHPC (N=25)

Reasons (impacts)	Frequency	Percentage
Creating awareness of the existing law on traditional healers’ services delivery	1	04
Provide them with security on their delivery of services	4	16
Identify and prevent charlatans	10	40
Recognition of traditional healers' services and place of work as government requirement	15	60

Source: Field data, 2014.

NB: Data based on multiple responses

During the interview session, the Registrar of TAHPC commented that “traditional healers are required to be registered in order to recognise their services and their places of work and the list of traditional healers in the country. Therefore, registering them was just a process of officialising their services and products”. In line with the views of the Registrar of TAHPC, it was further noted by most District Co-ordinators of TAHPC in the districts visited, that

traditional healers were required to register because registration gave them security in service delivery. It was stated that there were some cases when a patient dies while receiving the services of a traditional healer. If a particular traditional healer was not registered, such a death becomes a police matter and the traditional healer would be investigated. However, the registered traditional healer is recognised by government as a healer. Legal requirements are a further reason behind registering traditional healers. This was pointed out by another District Co-ordinator of TAHPC that:

“Traditional healers are required to be registered in order to recognise their services and their places of work. This is basically done under the Tanzania parliamentary Act No. 23 of 2002 which emphasise the registration of traditional healers. This also gives them security on the delivery of their services to patients in cases where the patient dies in their hands or during medical care”.

However, it was further emphasised by one of the respondents from ITM that:

“Traditional healers are required to be registered in order to recognise their services and their places of work and the list of traditional healers in the country because they are dealing with people’s health. Secondly, is to have an impression of what they are handling. Thirdly, is to create awareness to them that there is a government law on the provision of traditional healing services, and to effect there are ethical issues to be considered, i.e. there is a code of conduct and limitations. Thus, if they go against this law they will be sued in the court of law”.

5.2.4.2 Identification of traditional healers and the criteria for registering

Respondents from TAHPC and ITM were asked to describe the manner in which they identified traditional healers before registering them. They were also requested to state the criteria used. According to the responses from the Registrar of TAHPC, “a good traditional healer is normally known by the members within the community where the healer lives and delivers her/his services”. Therefore, before the traditional healers were to be registered and granted licence of health services delivery, they were required to apply for registration to the responsible government authority. The responsible government authority was the village authority through the responsible committee meeting. The committee wrote a letter confirming that the individual is a traditional healer and requested their registration. The letter passes through the district and regional medical offices before it reaches the office of the Registrar, who decides whether or not to grant the said healer a license of service. When responding to the same question, one of the District Co-ordinators of TAHPC stated that:

“At the beginning we used to go to their localities for sensitisation campaigns but as for now we don’t go to their communities and start looking for traditional healers to register. Instead the traditional healer who want to be registered, apply for it through the village authority of where she/he lives. This means that the village government are required to approve and forward the application to the office of District Co-ordinator of TAHPC. That is done by members of the particular community who recognise a person as being providing health services in such community. My office just receives the application with the minutes and a letter from the village government office that introduces a traditional healer”.

However, there were very different modes of identifying traditional healers in the ITM. The differences were attributed by the nature of the organisation itself and its responsibilities. That means while the TAHPC is a council responsible for registering and overseeing the development of traditional health services delivery in the country, the ITM is responsible for teaching and researching the medical material of the traditional medicine and medicinal plants. Therefore, the ITM has to devote its time and money identifying traditional healers and medicinal plants. One respondent had this to say:

“We normally identify traditional healers through government machinery whereby we do write a letter to the districts authorities (formerly we were to write to the cultural officer but now we write to the district medical officer or the regional medical officer) before they allow us to go and see our commodity in the village”.

Another respondent from ITM went further pointing out that:

“We normally use the following ways in order to identify traditional healers: Firstly, traditional healers themselves they do come here requesting us to go and inspect their medicines. Secondly, we depend on the information from people who have attended traditional healers’ attention for a certain specific disease. Thirdly, through survey whereby we go into villages and start seek the traditional healers from their localities. Another way is through training and seminars although sometimes this method is not so much perfect because in the training there is a possibility that people who are not traditional healers can also attend”.

With regard to the criteria used in registering traditional healers by TAHPC, all (100%) respondents from both the TAHPC and ITM maintained that the major criteria was that a traditional healer seeking registration should be known by the community members in her/his place of residence and where she/he delivers the health service. While the Registrar of TAHPC emphasised that “the TH should be known by the members of the community as healers before they request for a license”. The District Co-ordinator of TAHPC categorically stated that:

“Actually there is only one criterion that the traditional healer requesting registration should be known by the members of the community where he/she live. That is why before the co-ordinator recommends to the registrar to grant registration to a certain healer, the co-ordinator demands the minutes from the village council to justify that the person that is a healer and is known in that particular community that she/he is a traditional healer”.

5.2.4.3 Perceptions regarding traditional healers’ status

During the interview sessions with traditional healers, they were asked to state their perceptions on the status they were accorded in the community as compared to that of their counterpart health practitioners in the conventional hospitals. While 39% perceived themselves as accorded the same status as their counterparts, the rest (61%) did not perceive themselves as sharing the same status. In order to discover the reasons for the differences in perceptions, the respondents were further requested to provide reasons for their answers. Table 5.4 provides details as to why the perceptions that the traditional healers were accorded different status to that of conventional medical practitioners.

Table 5.4: Reasons for the perceptions afforded to healers’ status

Total sample (N=11)	Reasons for not affording the same status	Frequency	Percentage
	Unfair collaboration	6	55
	Different treatment between and among health practitioners	7	64
	Patients preferring conventional treatments before traditional healer	8	73
N=7	Reasons for affording the same status		
	Working in collaboration with conventional health provider	3	43
	Licensing our services and products (recognition)	3	43
	Use of our products and services (by conventional health practitioners)	3	43
	Treated the same (as healers by the community members)	5	71

Source: Field data, 2014.

NB: Data based on multiple responses

The findings in Table 5.4 serve as an indication that the impact of traditional healers in improving human health was not well recognised, and therefore not accorded the same status as conventional medical practitioners; alternatively it was recognised but ignored by the community members and the government as well. That means there were inequalities in according similar status among health practitioners in these two healthcare systems. The traditional healers who

perceived that they were accorded the same status as their counterparts in medical health services delivery were of the opinion that since they were given a licence to work freely, the government's health system accorded them the same status as conventional medical practitioners focusing on the view that members of the community accorded traditional healers the same status as conventional health practitioners, one of the traditional healers commented that:

“I think the patients accord me the same status as they do to the conventional medical practitioners but I don't think whether the ministry of health accord me the same status. Because if the system could accord me the same status, then, I would expect to receive patients from the conventional hospitals but none has been referred and brought here, except the patients themselves. Sometimes when they discover that their disease may not be healed in the hospitals, they escape from the hospital and come here for further treatment. For the traditional healers when we face complication in healing some patients, then we have been referring the patients to the conventional hospitals”.

Another traditional healer affirmed that:

“The traditional healers are accorded the same status as their counterpart health practitioners although there are still slight differences. This is attributed to the fact that in our District and the Region in its generality, we sometimes do exchange patients with the conventional medical practitioners. For example, when a certain ailment cannot be healed or cured through conventional medicine, the conventional medical practitioners have been advising the patients to visit traditional healers”.

However, during focus group discussions some respondents were against the idea that the traditional healers were accorded the same status as their counterpart health practitioners in conventional hospitals. One of the prospective users of IHK pointed out that:

“The conventional medical practitioners are accorded higher status compared to traditional healers as you can see patients do not go first to the traditional healers but they go to the conventional medical practitioners first. This signifies and justifies that they are at the bottom to the conventional medical practitioners”.

In support of the idea that traditional healers were not accorded the same status as their counterparts in the health systems, a participant in focus group discussion carried out at Njombe urban district commented that:

“Most of the traditional healers are like charlatans because we have been hearing them advertising their services and products through radio and newspapers. But when a patient goes to them for any ailments most of the times the patient is not healed. There are a very few patients who go to them and get healed. Therefore, I can say

that there are very few traditional healers who are trustworthy and can heal a person's sickness".

These responses indicate that there is a difference perception of traditional healers and conventional health practitioners. One of the participants in the focus group discussion in Singida urban district perceived traditional healers as killers and argued that:

“Sometimes traditional healers in the society are viewed as killers because of the death scandals of people with albinism traditional healers are said to have been directing some people who want to become rich in the community to kill people with albinism believing that the killer will become worthier by using some organs of people who suffers from albinism”.

Other participants with similar views on traditional healers, asked a lot of questions regarding the integrity of traditional healers such as:

- (i) If the traditional healers have the ability to make someone worthier, why can't they do it for themselves and their benefit?
- (ii) If that is the case, why shouldn't they then do it to their children or relatives?

The respondents insisted people should ask themselves these questions before they go to ask for wealth from the traditional healers.

5.2.4.4 The cost of traditional healers' services and the conventional health services

Participants in focus group discussions were also requested to state their experiences by comparing the cost of the traditional medicine and services with conventional ones. The rationale in motivation of this was the existing debate in the literature as stated in Chapter Three, Section 3.2 of this study, namely that people opt to use traditional medicine because it is considered to be cheaper compared to the conventional medicine. One of prospective users of IHHK who favoured the idea that the lower cost of the traditional medicine was the factor as to why most people nowadays opt for it, argued that:

“The traditional medicines are sometimes cheaper compared to the cost of the conventional medicine. But in this case you need to be aware that there are some traditional healers who are like charlatans who are after money just like some conventional health practitioners; some are expensive while others are cheap”.

It was noted that the idea that traditional medicine was cheap when compared to the conventional medicine was controversial because certain traditional medicines were sometimes very expensive

compared to conventional medicine. The costs of conventional medicine is said to be fixed but the cost of traditional medicine can vary depending on the healer's attitude on that particular day. The prospective users of IHHK in Masasi were not the only ones who were of the idea that traditional medicine and knowledge of healing provided was not as cheap as it was considered. In Singida urban district, some of the prospective users of IHHK were of the view that traditional medicines were sometimes expensive compared to the cost of the conventional medicine. Given that most traditional healers lived in rural areas where communication infrastructure was poor, therefore the cost of traveling to the traditional healers plus the cost incurred for a particular medicine made the traditional medicine very expensive as compared to conventional medicine. In support of the idea that traditional medicines were more expensive than conventional ones, one prospective user of IHHK categorically stated that:

“Cost of travelling for the patients. Most of the good traditional healers live in rural areas, where is very far from town. For example, when the magic cup of *Babu wa Loliondo* was advertised people travelled from their very distant places to Loliondo for a magic cup of a retired Lutheran pastor. It costed a lot for transport to reach the place”.

However, one of the respondents who were in favour of the idea that traditional medicine and knowledge was cheap compared to the conventional, stated that:

“Colleagues should not contradict the issues of transport from their destination to the place where health services (whether traditional or conventional) are provided and the cost of the medicine. For sure conventional medicine is very expensive compared to the traditional ones”.

5.2.4.5 Traditional healers' contribution to the treatment of illnesses and medical infrastructure

The contribution of the traditional healers in the treatment of illnesses and national medical infrastructure was sought from the Head of Departments at ITM and TAHPC during interview sessions. No direct questions were asked to determine whether or not the traditional healers had contributed to the treatment of the illness. However, respondents were requested to determine the level of healers' contribution in the treatment of illness. The findings show that of the seven participants who responded to this question, 57% considered the traditional healers' contribution as minimal in the treatment of some ailments, whereas 43% considered the contribution as major. This finding shows that traditional healers were contributing to the treatment of some diseases.

Respondents were further asked to state the impact of traditional healers in treating some illnesses. Based on multiple responses, among the seven respondents 43% mentioned traditional healers as being the primary health services providers whereas 100% of the respondents considered them as having solutions to diseases that could not be cured by conventional medical practitioners. In favour of the idea that traditional healers are the primary health services' providers for most people, the Registrar of TAHPC commented that:

“The traditional healers in Tanzania contribute a lot in the treatments of the illness because many people tend to go first to the traditional healers before visiting the conventional medical practitioners. Approximately 60% of Tanzanians use traditional medicine before seeking help to the conventional hospital”.

The Registrar was not the only person favouring this idea. The research professor at the ITM went even further to point out that:

“The traditional healers in Tanzania contribute a lot in the treatments of illnesses. They have a rich knowledge on IHHK. They are really health practitioners. As most literature shows, in the third world countries 80% of rural people and 60% in the urban areas depends on TK as the first line in health care provision, and probably in Tanzania with cost sharing in place and shortage of conventional medical practitioners the percent is more than that. Therefore, the traditional healers are the available rich force in the community”.

In the same way, another research fellow from the ITM commented that:

“The traditional healers in Tanzania contribute a lot in the treatment of illness. Various statistics show that approximately about 70% of Tanzanians use traditional medicine for healing and curing of various diseases not only because they don't have access to conventional hospitals but also because there are some diseases that cannot be healed/cured in conventional hospitals. Thus, they need traditional healers' attention. For example, some of the chronic diseases that cannot be healed by conventional hospitals are pneumonia, cancer and epilepsy. Just to mention a few. Although we are not sure a hundred percent that the traditional healers can treat those diseases but patients go there and are said to have been healed. But what we can say right now is that we have seen some HIV victims who have improved their health after attending medication from some traditional healers whom we know”.

Based on the manner in which traditional healers impact on the treatment of some illness, while believing that traditional healers do provide health services the same as other health practitioners, respondents in the ITM and from TAHPC were requested to comment on the level and mode of contribution to the national medical infrastructure. Out of seven respondents, 70% considered

traditional healers to be making a major contribution to the national medical infrastructure, whereas the remaining 30% considered the contribution of the traditional healers as insignificant. In favour of the idea that traditional healers contribute much to the national medical infrastructure, the Registrar of TAHPC stated that:

“Traditional healers contribute much in the national medical infrastructure because their knowledge on the use of some medicinal trees has been contributing materially and they are used in most of the pharmaceutical industries”.

In line with the Registrar’s views on the contribution of the traditional healers in the national medical infrastructure, another respondent from ITM commented that:

“In medical infrastructure, the traditional healers have been contributing in many ways but very quickly I can say that, they have been paying fees to the government for their services provision, and therefore by doing that they contribute indirectly to the national infrastructure. Also, they sometimes collaborate with conventional medical practitioners in the conduct of research on their medicinal trees”.

5.3 Ways in which IHHK is managed in Tanzania

In all research instruments for this study, the ways in which IHHK was managed in Tanzania was regarded as Theme One with both closed and open-handed questions. Questions under this theme aimed to determine the respondents’ awareness on matters pertaining to the management of IHHK at all levels (family, community and national). It further aimed at assessing the available efforts in managing IHHK by focusing on the individual stakeholders, government and/or NGOs’ roles. Questions regarding the current status of documentation and preservation of IHHK were also asked. All thematic questions in this section were meant to test the assumption that Tanzania is a market place of IHHK which although it greatly contributes to modern developments, is not properly managed for preservation and sharing.

5.3.1 Accessing IHHK and services

The questions on how prospective users of IHHK obtained access to information about traditional healing services and products were asked of all 18 traditional healers and also prospective users during focus group discussions. The rationale for the question was to uncover the perceived information sources used by prospective users to accessed IHHK. Basing on multiple responses, out of 18 traditional healers who took part in the survey, 100% of them mentioned peers and friends who had used the service and products as the main source of

information for IHHK, only 6% mentioned posters. From these responses, it appeared that most respondents were aware of the sources of information consulted by the prospective users of IHHK; and that peers and friends who have used such knowledge were the major sources of information frequently consulted by the prospective users of IHHK.

In order to confirm what was mentioned by traditional healers as the information sources used by prospective users of the IHHK, during focus group discussions prospective users of IHHK were asked to mention the sources of information which they consult in accessing information on IHHK. Participants in the focus group discussions mentioned a wide range of sources from peers and friends who used the services and products to posters, radio and newspapers. According to respondents from Masasi, there were various sources of information they used but the most common and preferred were peers and friends who had used the services and products. Other sources were posters, radio and newspapers. The traditional healers did not mention radio and newspapers as the source of information used by their prospective users.

After they had indicated awareness on the sources of information used by the prospective users in accessing IHHK, the traditional healers were further asked to rate the level of perceived satisfaction with the sources. The responses show that majority of the respondents (89%) rated peers and friends who had used the services and product as extremely satisfactory whereas others including posters, radio, newspapers were considered as satisfactory. The views of participants during focus group discussions did not vary from those mentioned during the interview by traditional healers. However, their answers varied from one respondent to another. For example, one respondent confirmed that, “information from peer and friends is extremely satisfactory and mostly preferred compared to other sources of information”.

5.3.2 Prospective users of indigenous human health knowledge

In order to establish the available relationship between age group, economic status and inclination to the IHHK for various ailments, respondents were asked to identify on the basis of age-groups of people who were the prospective users of IHHK consulting and use of such knowledge. Data shows that among the 18 traditional healers, 89% were consulted for their knowledge by people from all age groups, whereas 6% were primarily consulted by youths and

elders, and 5% stated they were consulted by youths. In order to determine whether a person's economic status had implications in accessing IHHK, respondents were asked to classify the economic status of prospective users who accessed the IHHK services from traditional healers. The data shows that while 72% of the respondents were consulted by people from all economic groups who also used such products and services, 22% had been consulted by people from the low income group, whereas 6% were consulted by people from both middle and low income groups.

During the interview and focus group discussions respondents were further asked to provide what they thought to be the reasons for accessing IHHK by the economic groups mentioned by the prospective users. Based on multiple responses, Table 5.5 summarises the reasons for why each of the mentioned economic groups of people accessed IHHK. While 75% of the traditional healers consulted by people from the low income group provided the reason that the cost of conventional medical treatment was very high and could not be afforded by those people, they rather had to go to a traditional healer. The same reason was also mentioned by 100% of respondents who stated that patients from both middle and low income groups accessed traditional healers. However, 85% of the respondents who received patients from all economic groups mentioned the failure of conventional medical treatment in curing some diseases as the main reason; followed by 75% who mentioned cost of conventional medical treatment as the reason for accessing IHHK. Table 5.5 shows the details of reasons why people from various economic groups opted for traditional healing services and products.

According to the data as shown in Table 5.5; the cost of conventional medical treatment was the reason for the frequently use of IHHK. This was mentioned by all respondents regardless of their different views regarding economic groups accessing IHHK. This responses show that economic considerations has implications for accessing and using such knowledge.

Table 5.5: Traditional healers' responses on the reasons for people with various levels of income accessing IHHK

Total sample (N=4)	Reasons for low income group	Frequency	Percentage
	Failure of conventional medical treatment in curing some diseases	1	25
	Having positive attitudes towards traditional healer	1	25
	Cannot afford cost of conventional medical treatment	3	75
(N=1)	Reasons for middle and low income groups		
	Cannot afforded cost of conventional medical treatment	1	100
(N=13)	Reasons for all income groups		
	Scarcity of conventional health services	1	8
	Positive attitudes towards traditional healer	1	8
	Cleanness of the environment where services are provided	1	8
	Cannot afforded cost of conventional medical treatment	7	54
	Failure of conventional medical treatment in curing some diseases	11	85

Source: Field data, 2014.

NB: Data based on multiple responses

However, one traditional healer who was of the opinion that people from all income groups accessed IHHK commented that:

“People from all groups of incomes and ages consult and access our traditional healing knowledge because of the environment in which we deliver our services and products. The environment is conducive, clean and neat for provision of health services. You know people especially those from high economic income and their status is high in the community, thus, they are very hesitant of dropping their status and reputation in the community by receiving medical services in a dirty and poor environment but this is a nice place”.

5.3.3 Perceptions on the documentation and preservation of IHHK

In order to establish the readiness of traditional healers to document and preserve their healing knowledge, all 18 traditional healers were asked to state their perceptions regarding the necessity of documenting and preserving IHHK before establishing the reasons for their answers. The response shows that 83% of the traditional healers were of the attitude that documentation and preservation of IHHK was necessary, whereas only 17% perceived it as not necessary. One of the traditional healers supporting the idea of documenting and preserving IHHK commented that:

“It is highly crucial to be put IHHK in writings. At family level I have tried a little bit to put some of the trees in writings, explaining its potential medicinal values, local Tanzanian names, the place where the tree is located and the preparation process for

a particular diseases. But is not possible for another person to understand the language I have used for it and cannot show anybody except my children only”.

According to a traditional healer who was also a conventional health practitioner in one of the regional hospitals in the districts surveyed, was of the opinion that it was very highly necessary to document IHHK because documentation would simplify preservation of the knowledge for use by future generations. However, she was unsure how documentation could be done as she stated that the knowledge in her possession was a revelation from God. Thus, she wondered how it would be possible to document the knowledge. A respondent who opposed the idea of documenting IHHK, stated that their knowledge was a gift from God. That it is only God who chooses people to become traditional healers, thus documenting IHHK is exposing it to people even to those who God would not want them to have such knowledge.

Participants were further requested to state the reasons behind their acceptance or rejection of the documenting and preserving of IHHK. Based on multiple responses, data in Table 5.6 shows that 100% of the respondents who perceived the necessity for documenting and preserving IHHK gave the reason that documenting and preserving IHHK facilitate the prosperity of such knowledge, therefore makes IHHK available for future generations. However, for those who were not in favour of documenting and preserving IHHK, 100% were of the perception that it was because they had no knowledge of the sources of such knowledge.

Table 5.6: Reasons for and against documenting and preserving IHHK

Total sample N=15	Reasons for the need/necessary	Frequency	Percentage
	Commercialising knowledge	2	13
	Make it accepted by the community	2	13
	Quick reference	4	27
	Simplify preservation-"Longevity and future use"	15	100
N=3	Reasons for the no need/not necessary		
	Ethical nature of knowledge	1	33
	Do not know where it comes from	3	100
	Comes from God, thus cannot be documented	1	33

Source: Field data, 2014.

NB: Data based on multiple responses

Another traditional healer, who was also a chairperson of the regional traditional healers' organisation in one of the visited districts, commented that:

“It is very important to put our knowledge in writing because doing that will simplify its preservation for use by future generations and easy to refer to. But it is unfortunate that on my part I haven't put anything in writing because I had no idea of such a thing”.

During focus group discussions with prospective users of IHHK, participants provided their opinions on why it was important to manage IHHK. One of the participants during focus group discussions held in Singida urban area stated that:

“It is very important to properly manage the IHHK because the knowledge shows our Africa tradition. The medicine from TK is also chemical free, thus, is good for human health compared to the conventional medicine. Traditional medicine also does not have side effects on the human health. Although proper management of IHHK gives life to the African knowledge of healing some ailments still it would create employment for people will be required to work on the established centre of IHHK. Proper management of IHHK in a centre for example will however attract tourists and researchers, thus, a source of tourists' attraction. Hence a well-managed IHHK would generate income to the nation and its people”.

5.3.4 The current status of documentation and preservation of IHHK in Tanzania

The focus for this section is to reveal the current status and actual condition of documentation and preservation of IHHK in Tanzania. The aspects of the status studied included how far the country had reached in the process of documentation and preservation, presence or absence of the IHHK databases; and the documentation and preservation activities, infrastructure/facilities, collection and staffing.

5.3.4.1 The status of documentation and preservation of IHHK

Two questions were clustered in order to obtain results in this section. The questions included: What in your opinion is the status of documentation and preservation of IHHK in Tanzania? And how far has the country reached in the documentation and preservation of IHHK? During interview sessions with the traditional healers and head of departments except for the head of departments from UDSM-SoL, respondents were asked to give their opinions on the status of documentation and preservation of IHHK in Tanzania; ways in which IHHK was preserved; and the availability of the knowledge map/databases for IHHK. Data on the status of documentation

and preservation of IHHK show that out of 25 respondents, only 8% commented that the IHHK was fairly documented while 92% of the respondents were of the view that not much had been done on the documentation of IHHK in Tanzania. The reason given was that much of the knowledge is preserved in the minds of the owners. It was further pointed out by one respondent that:

“Nothing has have been done in Tanzania, but at family level I have done a little bit in documenting my knowledge. I am doing that because to me is just a preparation to start a school for traditional medical studies. My plan is to establish a college which will be producing traditional healers in Tanzania”.

The predominant reason given for why it was not easy to document and preserve knowledge of healing was that the knowledge was God’s gift to a particular person. Thus, this knowledge, which was secretly given to someone by God, could not easily be documented. This rejection was an indication that Tanzania has not progressed in terms of documenting IHHK. However, it was motivating to observe that the ITM herbarium had sufficient information that people could access and use to help in understanding the IHHK system of the country, and the location of traditional healers and their specialisations. Unfortunately, no one was allowed to enter the herbarium except staff of the ITM and their students. This was due to information in the herbarium being confidential. The researcher of this study was allowed to enter, view and take photos of documents available in cupboards/shelves as shown in Figures 5.5 and 5.6. The researcher was briefly allowed to see the information in electronic form but was not allowed to screen shot or take a photo. The confidentiality of information that the ITM held was also noted as a reason as to why the ITM did not connect the available computer in the herbarium to the internet to avoid hackers accessing the information.



Figure 5.5: Information storage in the herbarium at ITM
Source: Field data, 2014.

Revealing that there were initiatives in place, the Registrar of the TAHPC commented that:

“The status of documenting and preserving IHHK in Tanzania is still not impressive. Our council through our representatives in the districts have been conducting awareness and sensitisation to traditional healers on the importance of documenting and preserving IHHK. Thus, we do emphasise them to send their children to school with hope that they will help their parents to put their knowledge of healing in writings”.

In many of the focus group discussions conducted in the visited districts, participants commented that documenting and preserving IHHK in Tanzania was very important. Due to lack of awareness of the importance of IHHK and the stigma of the elite society about such knowledge, documentation and preservation of the knowledge was still not promising. Awareness needed to be created among the stakeholders. It was further noted that there was a need to establish and empower institutions to deal with documenting and preserving IHHK. Traditional healers were also urged to establish a forum where they could be trained on the values of the knowledge they possess. Such initiatives would enable the traditional healers to participate fully in the process of documentation and preservation of IHHK. In addition, community members and the governments in Tanzania and Africa in general should give credit to such knowledge by establishing a department or institute to deal with the prosperity of IHHK. The governments

should also establish a mechanism of creating and raising stakeholders' awareness on the ways IPRs protect such knowledge.

The country has not gone very far in this regard and the status of documenting and preserving IHHK in Tanzania is still not encouraging. However, there was some improvement at the time of data collection for this study and the ITM was starting to research the medicinal values of various plants; and the TAHPC was registering people with IHHK. It was observed that the ITM database had a good number of entries involving medicinal plants identified as having ingredients, compounds and chemical components as shown in Figure 5.6. On the other hand, it was noted that the ITM had very few researchers to attend to the medical material. The ITM was the only organisation in Tanzania which dealt with the management of plants with medicinal values.



Figure 5.6: Dried specimens mounted on sheets at ITM herbarium

Source: Field data, 2014.

5.3.4.2 The availability of a public domain to access IHHK

The 25 respondents comprising 18 traditional healers and seven head of departments from ITM and TAHPC were asked to explain the availability of knowledge maps/directories or databases for easy access of IHHK information. Two traditional healers refused to respond to the question claiming that it was not their responsibility to know whether such information was available. Data show that of 23 responses, 96% of the respondents stated that they had no knowledge of the

existence of public domain knowledge maps/directories or databases. Only 4% of the respondents were of the opinion that there was a directory or database of IHHK in the country. The respondents with those views were from the ITM, and further stated that: “in Tanzania we are the only organisation with a database of information on medical material of some medicinal trees in our herbarium”. See Figure 5.7, the ITM staff showing a researcher some IHHK metadata stored in a computer database.



Figure 5.7: The ITM herbarium staff showing a researcher e-information
Source: Field data, 2014.

It was further observed that the ITM herbarium database comprised of metadata that if it could be accessed publicly could help people understand what was available in Tanzania, when the knowledge was collected, where it was collected, who collected the knowledge and for what purpose. Such data at the ITM herbarium could have helped in serving the purpose of informing prospective users and researchers. However, these initiatives only serve the purpose of the ITM staff and not the needs of the general public. This was revealed by one of the ITM staff who mentioned that:

“No one is allowed to enter in the herbarium because the information in the unit is confidential, even some information you will be shown are not allowed even for you as a research to take photo of it or to take it into your flash disc. That is why we do not also connect the computers with the information in the herbarium to the internet to avoid hackers to hack some information”.

5.3.4.3 The need and importance of having a database for public access

Large percent of respondents who were of the view that no such database was in existence for the general public, commented on the need and the importance of having such a system in place. It was highly recommended that such a database be created in order to establish the tangible contribution of IHHK in Tanzania's medical system and infrastructure. The Registrar of TAHPC commented that:

“Currently we are struggling to have a database of such kind but as for the time being in their application forms traditional healers are required to mention the diseases/ailments that they are capable of healing. But knowing the importance of the traditional medicine I think it is time now to start documenting their information. As you know some areas in our country where people face the problem of their limbs breaks, the patients don't go to the conventional medical practitioners because there are some traditional healers who can cure such problem at once. Therefore, it is true that there is a need to start documenting such knowledge”.

In addition to the Registrar's comment, the District Co-ordinator of TAHPC maintained that:

“For sure it would be very nice to have such a thing in Tanzania but for the time being it doesn't exist. We have only seen traditional healers advertise their services and products through television programmes but we do not have a collection of such kind or rather I have no knowledge of the existence”.

When traditional healers were asked to state the ways in which traditional healing knowledge was preserved in Tanzania, all 18 traditional healers (100%) respondents confirmed that IHHK was still stored and preserved in the minds of the traditional healers themselves. As pointed out by one of the traditional healers that:

“Our knowledge is actually stored and preserved in the mind of people who possess such knowledge. To ensure it exist for a number of years we do share it with our family members especially our children and other people from the community who have shown interest on it”.

It is the observation of this study that the way in which the TAHPC registers traditional healers, if well organised for use by the public, access would enable people to obtain information about the traditional healers by name, place of residence and types of ailments they are able to heal and cure. However at the time of data collection for this study, it would be fair to say that such information was not available to the public. Hence, most knowledge was still preserved in the minds of the traditional healers.

5.3.4.4 Respondents' perceptions on the need for public access to IHHK

During the interview sessions, respondents (traditional healers and head of departments from ITM and TAHPC) were asked to provide their opinions as to whether there was need to provide access to IHHK to the general public in Tanzania as it was not documented. Data showed that of the 25 interviewed respondents, 84% felt there was a need to have public access to IHHK, whereas 16% were of the view that it was not needed. In order to establish the strength of their answers, respondents were further asked to state the reason(s) for their answers. The reason(s) for perceiving the need or otherwise were the same as those mentioned in Table 5.6 on the reasons for the need or not to document and preserve IHHK. In this section an additional reason for the need of public access was for easy access to IHHK. This finding shows that Tanzanians considers the need to having public access for easy access of IHHK, quick reference, simplicity of preservation for future use, commercialising the knowledge and making it acceptable by the community. These results however raise many questions that one may ask including the reason that if the stakeholders recognise the importance of having public access to IHHK, then why is IHHK not well documented and preserved? What is the role of stakeholders in ensuring that IHHK is documented and preserved for public access? Thus, various questions based on the role of every stakeholders and their participation in managing IHHK were asked.

5.3.5 The role of various stakeholders in managing IHHK

For the successful management of IHHK, stakeholders' involvement and participation is very important. Following the observations and respondents' concerns that it was necessary to have IHHK documented and preserved, respondents were further asked to describe what in their opinion constituted the key roles of the various stakeholders in the management of IHHK. This sub-section was meant to test the assumption that the Tanzania central government and local authorities were the key stakeholders in managing IHHK in Tanzania.

5.3.5.1 The role of traditional healers and their professional organisations

Two questions were clustered to yield the result of this section because the questions' intentions were to understudy the role of traditional healers in the managing of IHHK. The questions were asked of the traditional healers and head of departments from ITM and TAHPC. The first question was "what is your role in managing IHHK?" The second was "what do you think is the

role of traditional healers in managing IHHK?” Based on multiple responses of the answers, out of the 25 participants who responded to this question, 60% perceived teaching/transfer of knowledge as the major role of the traditional healers in managing IHHK; 48% perceived participating in documenting and collecting knowledge as the traditional healers’ role; whereas 39% perceived that traditional healers had the role of ensuring medicinal trees existed and were preserved for use by future generations. During focus group discussions with prospective users, one participant in Singida went further and proposed that the role of the traditional healers in the management of IHHK was that:

“Traditional healers have a number of roles to play in the management of IHHK. The role is not limited to but they should play a role of preserver of their knowledge by transmitting their knowledge to others, they should be trustworthy in their provision of services, they should ensure that trees with medicinal values are preserved and if possible reforested. But training their off spring and others about their methods of providing traditional health services should be taken with high importance if we really want to give the IHHK long life”.

Based on these responses, traditional healers were aware of their roles in managing IHHK. The views of 60% of the respondents that traditional healers had the role of transferring their healing knowledge to the younger generation, especially to children, who are to be trained on the proper practice of traditional healing in order to preserve the knowledge was very crucial. This means that although traditional healers had not yet started documenting their healing knowledge, they still were aware that they were responsible for ensuring that the knowledge was well documented and preserved.

Traditional healers were also asked to state whether they belonged to any network of IHHK owners. The purpose of the question was to investigate whether or not their organisation had been playing any role in regard to the management of IHHK. Data showed that of 18 respondents, 61% affirmed that they belonged to a network, whereas 39% did not. Among those 11 respondents who stated that they belonged to a network, 46% belonged to the Organisation of Traditional Healers in Iringa Region in Kiswahili this means ‘*Chama cha Waganga wa Tiba Asilia Mkoani Iringa*’ (CWWI); 36% belonged to the network known the Organisation of Traditional Healers of Tanzania (Singida branch) in Kiswahili, called the ‘*Chama cha Waganga wa Tiba Asilia cha Tanzania, tawi la Singida*’ (CHAWATIATA, *Tawi la Singida*); while 9%

belonged to the Board of Traditional Healers, Nyanguge ward, and 9% were members of the Mangupe Traditional Healing Network, Tanga. It was further noted that most of the traditional healers who said they had their own network were from the Singida and Njombe districts, followed by those from Singida urban district. One traditional healer in Njombe commented that:

“We have a network of traditional healers, and I belonging to it. The name of the network is the Organisation of Traditional Healers in Iringa Region, in Kiswahili is *Chama cha Waganga wa Tiba Asilia Mkoani Iringa (CWWI)*. Our network is still using the name of Iringa region because after having a new Region of Njombe, we have not yet established a new network in a new Region we still served by our mother organisation which is based in Iringa region”.

This response reveals the advantages of having a network between and among the traditional healers influenced the readiness and willingness of the traditional healers to participate in the study. This is due to the fact that the traditional healers and the District Co-ordinator of TAHPC in the districts where traditional healers had their organisations extended effective co-operation with the study as compared to those in the districts where traditional healers did not have their own network.

5.3.5.1.1 The traditional healers’ network in the management of IHK

Respondents were also asked to state their perceptions of the importance of having a professional network/organisation. On the question of whether or not the network of traditional healers had benefits, 91% perceived that there were benefits in having a network of professionals, whereas 9% did not perceived any benefit of having a network. Those who thought that the professional organisation had benefits were asked to mention what the benefits were. As shown in Table 5.7, 91% were of the view that the network was important in building the capacity of health services providers, followed by 72% who perceived the importance of the network of the traditional healers in sharing knowledge through regular meetings (facilitation of knowledge flow and sharing). During the interview session, one traditional healer at Njombe maintained that:

“The organisation helps in building our capacity in terms of serving members of the community and sharing our knowledge through frequent meetings which are held on the 20th of each month. Thus, the organisation is very effective in managing of our knowledge. Personally, the organisation has made me become very popular in the community”.

Table 5.7: Benefits perceived for belonging to a network (N=11)

Benefits of the network	Frequency	Percentage
Create good working environment	1	09
Regulations formation and implementation	2	18
Useful in sharing knowledge through regular meetings (Facilitation of knowledge flow and sharing)	8	72
Build capacity in health services provision	10	91

Source: Field data, 2014.

NB: Data based on multiple responses

Similarly, another traditional healer in Magu district commented that:

“The organisation has helped in establishing an environment conducive to traditional healing services delivery. That means our organisation has also helped the traditional healers in building our capacity of serving members of the community in a healthy and clean environment. Thus, we are preserving our knowledge”.

Traditional healers in Singida also maintained that:

“The organisation helps in building our capacity in terms of giving us education on how the traditional healers should serve people. Also it gives us an opportunity to share our knowledge and challenges in service provision through our frequent meetings”.

These positive responses to the need for having a network are an indication that most respondents in the surveyed areas recognise collective power in the attainment of their goals and objectives. Sharing and updating knowledge through professional organisations was very important. This shows that professional organisations of traditional healers, as with other professional organisations in the country, have a central role to play in the management of the IHK. Those who argued there was no need to belong to a network were asked to state the manner in which they shared and updated their knowledge. Only one (4%) mentioned that they communicated using mobile phones with a colleague whereas 96% stated that they were not communicating. A respondent from Magu district, who was opposed to belonging to a network of traditional healers, commented as follows:

“We do not have a network in our district. When something happens and requires sharing of ideas between and among healers we do communicate through mobile phones because we almost all have contacts of the fellow traditional healers”.

This response reveals that respondents from either the category of traditional healers or from the institutions such as ITM and TAHPC perceived that in managing IHHK, traditional healers have a great role to play, as well as their organisations.

5.3.5.1.2 Traditional healers’ network and the perceived readiness to document and preserve IHHK

It was further perceived that a traditional healers’ network would have an influence on the members’ readiness to document their knowledge in a repository. Data showed that out of 11 traditional healers who had or belonged to a network of healers, 63.6% were ready to document their knowledge whereas the remaining 37.4% were not. However, among the seven traditional healers who did not belong to a network, 42.9% were ready to document while 57.1% rejected the idea. Therefore in order to test the relationship that exists between the traditional healers’ status of being in a profession network and the perceived readiness to document and preserve IHHK in a repository the Chi-square test of association was carried out. The alpha level of significance of 0.05 was adopted. The results of a Pearson Chi-square value of 0.748 and the significance value of 0.630 was observed. Table 5.8 summarises these findings.

Table 5.8: Chi-Square tests: membership of a network

Test	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.748 ^a	1	.387		
Continuity Correction ^b	.143	1	.705		
Likelihood Ratio	.749	1	.387		
Fisher's Exact Test				.630	.352
Linear-by-Linear Association	.706	1	.401		
N of Valid Cases ^b	18				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 3.11.

b. Computed only for a 2x2 table

Source: Field data, 2014.

Therefore, the finding shows that there were no statistically significant relationship between belonging to a network of traditional healers and the readiness in documenting and preserving IHHK. Hence, being in a network did not directly relate to and influence traditional healers’ readiness to document and preserve their healing knowledge.

5.3.5.1.3 The influence of traditional healer’s level of education in joining a network

It was then assumed that joining in or having a traditional healer’s professional networks was the result of or depended on ones highest level of education. Although data shows that 58.8% of traditional healers who attended primary education belonged to a network, 41.2% of them did not belong to any network. Further analysis reflected that 100% of those did not go to school also belonged to a network. Therefore in order to test the existing relationship between these two variables a cross-tabulation between the highest levels of education reached by traditional healers against the status of having a network was carried out. From the cross-tabulation as shown in Table 5.9, a Pearson Chi-square value of 0.674 with the significance value of 1.000 at the probability of alpha level of significance of 0.05 was observed.

Table 5.9: Chi-Square tests: level of education

Test	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.674 ^a	1	.412		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	1.022	1	.312		
Fisher's Exact Test				1.000	.611
Linear-by-Linear Association	.636	1	.425		
N of Valid Cases ^b	18				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .39.

b. Computed only for a 2x2 table

Source: Field data, 2014.

The result from Table 5.9 therefore illustrates that there were no direct relationships between the levels of education reached by a traditional healer against the interest to be in a network with colleagues in the profession.

5.3.5.2 The role of private and public organisations

In order to capture traditional healers’ opinion on what constituted the key roles of other organisations (private or public), traditional healers were asked to explain if they had been consulted by any organisations for their healing knowledge. Data showed that, out of 18 traditional healers, only 11% were consulted while 89% had not been consulted by any organisations. The respondents who had been consulted were further required to provide the name of the organisations that had visited them, and the purpose of the visitation. The first

organisation mentioned was the African Medical and Research Foundation (AMREF). The purpose for the visit was that AMREF wanted to establish the types of diseases that the traditional healers were capable of healing and curing. Another organisation which paid a visit to traditional healers was not remembered by the traditional healer, but the healer said it was a health organisation. The purpose for the visit was just to view the environment under which the traditional healers delivered services. While most of the traditional healers were of the opinion that they were not consulted by private or public organisations, one respondent commented that they were not consulted by any organisation but only received researchers/medical students for research purposes. The responses as presented in Figure 5.8 which indicates that among the surveyed districts, some traditional healers in Magu district were consulted as compared to those in the districts of Masasi, Singida urban and Njombe urban.

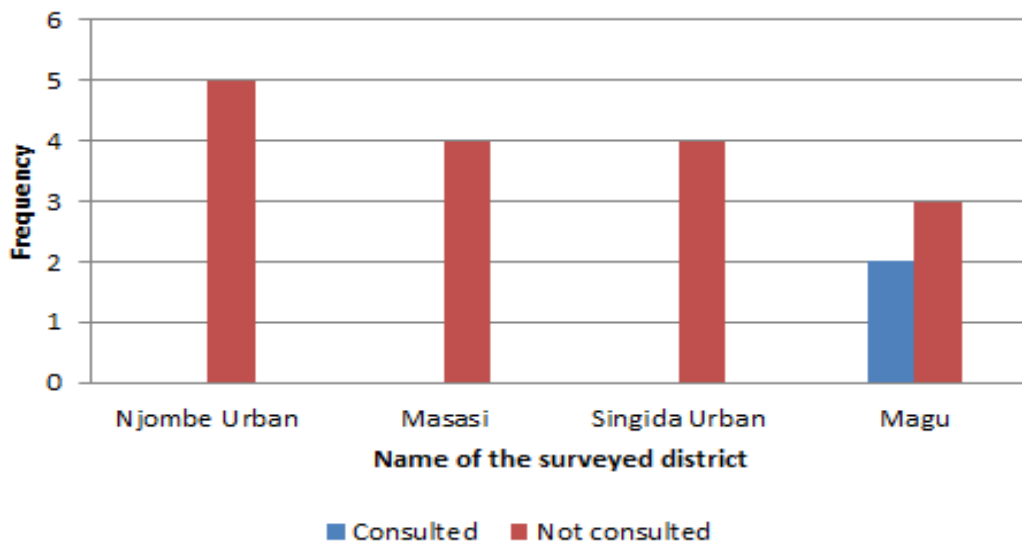
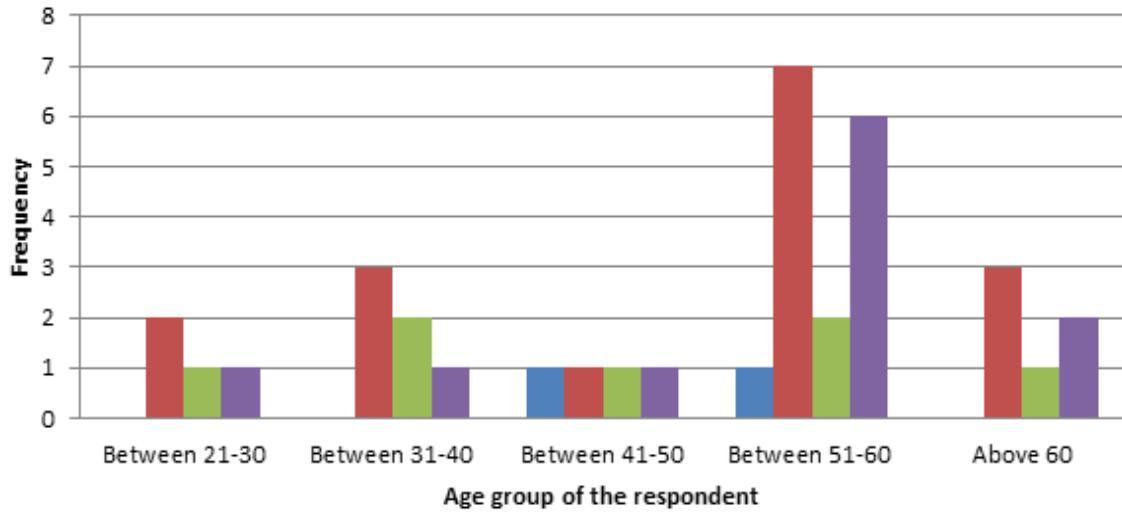


Figure 5.8: Traditional healers’ consultation status in the surveyed districts (N=18)
 Source: Field data, 2014.

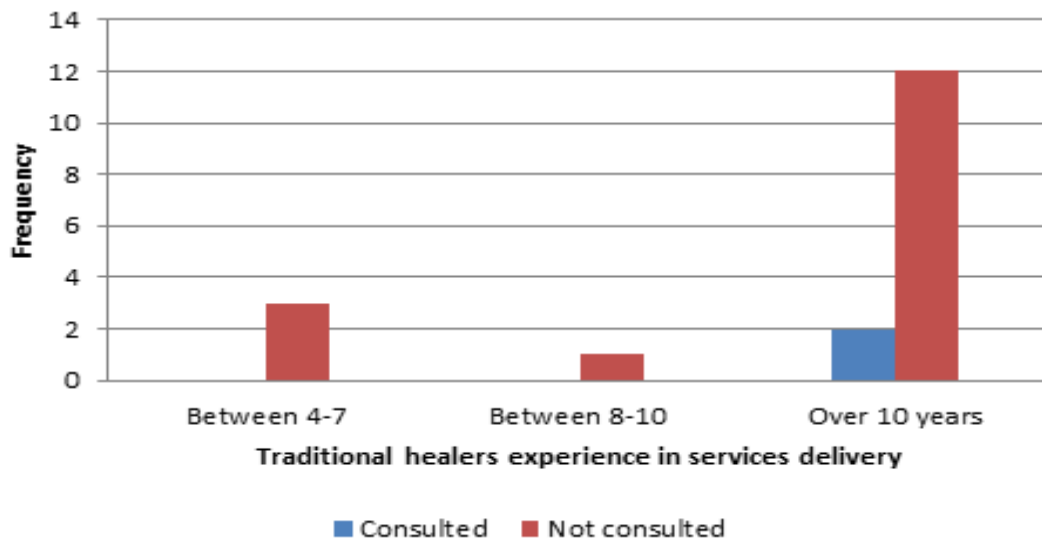
It was thought that there might be a relationship between longevity in terms of the age of traditional healer and the status accorded by the community to the traditional healer. Similarly experience based on the number of years a particular traditional healer has been in service and their consultation status, as compared to their conventional health practitioner counterparts. Figures 5.9 and 5.10 show the longevity of age of a traditional healer and provided a service, and the experience that a traditional healers had did not affect consultation status and likewise did not guarantee the same status as conventional health practitioners.



■ Consulted ■ Not consulted ■ According the same status ■ Not according the same status

Figure 5.9: Traditional healers' age and the perceived status (N=18)

Source: Field data, 2014.



■ Consulted ■ Not consulted

Figure 5.10: Traditional healers' experience in service and consultation status (N=18)

Source: Field data, 2014.

The 16 respondents who were not consulted were further asked to state the perceived reasons for not being consulted. Based on multiple responses 56% mentioned misconception of the religious doctrine that demonises traditional healers and medicine as the main reason, 44% stated colonial mentality of depressing local knowledge and praising western knowledge adopted by African educated people, and 67% were of the perception that improper attention paid by the independent government to manage IK was mentioned as among the reasons why they were not consulted.

5.3.5.3 The government's role in managing IHHK

In order to determine respondents' concerns on the government's role in managing IHHK, particularly in the documentation and preservation aspects, respondents were required to express their perceptions on the role of government in managing IHHK. Documentary review was conducted for the documents such as the Tanzania Development Vision 2025 of 1999, Education Policy of 2014, Education and Training Policy of 1995, the National Bio-technology Policy of 2010, the National Research and Development Policy of 2010, the National Health Policy of 1990, the National Tourism Policy of 1999, the National Strategy For Growth And Poverty Reduction of 2005 commonly abbreviated as *MKUKUTA* in Kiswahili, the Traditional and Alternative Medicines Act No. 23 of 2002, and the Traditional and Alternative Medicines Regulations of 2008. The country's vision and mission on issues related to the management of IHHK were studied in these documents.

Table 5.10 shows the assistance that traditional healers would like to receive from TAHPC and the government. Respondents were of the view that the roles of the government ranged from creation of health infrastructure (provision of working tools, materials and facilities for documentation and preservation); work premises (working house for traditional healers); frequently consult and train traditional healers on proper health services delivery (strategising healers on the management of IHHK); and dedicating land for growing medicinal trees as well. In order to justify issues on the government's role in the management of IHHK, all 18 traditional healers involved in the study were asked to state whether or not they received any assistance from the council or government in general. The responses show that 100% of traditional healers in the study received no assistance from either the government or specifically the TAHPC.

Respondents were further asked to identify the type of assistance they would like to receive from the TAHPC and the government in general where such support would provide for the sustainability of the IHHK and traditional healers' services. As shown in Table 5.10, the majority of the respondents (67%) would like see the government create good health infrastructure (working tools, materials and facilities for documentation and preservation). Although only 11% of all traditional healers indicated they would like to be consulted frequently and trained on proper health service provision (strategising healers on the management of IHHK), consultation

by the government was seen as being very important as it encouraged close supervision. It was therefore identified that government commitment to the management of IHHK was lacking.

Table 5.10: Type of assistance traditional healers would like to receive (N=18)

Assistance would like to receive	Frequency	Percentage
Frequently consult and train healers on proper health service provision (strategising healers on the management of IHHK)	2	11
Dedicate land for growing medicinal trees	8	44
Work premises for healers	8	44
Creation of health infrastructure (Working tools, materials and facilities for documentation and preservation)	12	67

Source: Field data, 2014.

NB: Data based on multiple responses

Traditional healers noted that they further would like to see the council or the government assist in their health service delivery through creation of health infrastructure such as the provision of an ambulance services to respond to patients in serious need of assistance or to transport them to conventional hospitals. One of the traditional healers at Masasi district noted that:

“The TAHPC should provide us with facilities to facilitate health service provision. Here in my place I do receive a lot of patients each day but I don’t have medical beds and wards to admit them. Therefore, they just come for treatment and after sometime they go back to their homes, something which is unacceptable in health services delivery”.

Together with helping traditional healers’ organisations to acquire their own offices, the traditional healers would also like to be consulted frequently by the council and government. With frequent consultation by government, traditional healers expect to be trained on the proper ways in which they should be providing health services to customers. During data collection it was observed that traditional healers delivered services without any clear vision and guidelines. They further wanted the government to provide them with a national centre of traditional healing knowledge where all traditional healers would be required to document and preserve their knowledge, and if possible provide their traditional healing services at the centre. One of the traditional healers commented that:

“I would like to recommend to the government to give the traditional healer an area where we can grow trees which have medicinal values. With the existing climate changes and increased population which has led to extensive cutting of and use of tree products, the forests where we used to extract the traditional medicine are diminishing. Thus, we need a place where we can re-forestate. Also the government

should make sure that through our organisations network we have an ambulance to assist or refer serious patients either to conventional hospitals or to another traditional healer”.

During focus group discussions with prospective users on the role of the government in the management of IHHK, the prospective users had different views. One participant during the focus group discussions conducted in Njombe district had the view that:

“The government should involve traditional healers in the health system. That means the government should strengthen collaboration between traditional healers and conventional health practitioners in the provision of health services. The system is very helpful especially in the places where there is no conventional health services delivery. We all know that most places in Tanzania still depend on the traditional health services delivery because of lack of conventional health services”.

The responses indicate that the government must play a role in strengthening collaboration between traditional healers and conventional health practitioners in the provision of health services. In addition, the government also has a role to control charlatan traditional healers from delivery of services. Participants in focus group discussions commented that, prior to the registration of traditional healers, there should be an extensive scrutiny by government officers to determine the ability of the persons requesting registration before granting her/him licences to deliver services as a traditional healer. One of the participants in Masasi commented that:

“The government should recognise the services and products of traditional healers. To enhance the recognition of the IHHK, the government should establish a college where training for traditional healers will be delivered just like the conventional medical colleges where conventional medical practitioners are being trained. The traditional healers are supposed to be trained in the proper way of managing their products”.

On the role of government in controlling the charlatans in the delivery of traditional healing services, the participant from Masasi was not the only person with this view. Another participant in focus group discussions held in Singida commented that:

“The government should recognise traditional healers in the provision of health services. The recognition of traditional healers goes together with the strengthening of collaboration between traditional healers and conventional health practitioners in the provision of health services. By recognising traditional healers’ services and products we would like to see to it that in every conventional hospital there is a unit for traditional healing. The unit should basically be under the headship of the traditional healers themselves. If possible there should be a ministry which would

deal directly with indigenous matters including matters related to traditional health service delivery”.

However, in the reviewed legal documents, it was discovered that in the policies relating to the management of IHHK, nothing was directly mentioned about managing IHHK. Thus, a person who would want to measure the country’s commitment on a specific issue would basically want to investigate how the particular issue is dealt with in various legal or government documents. From all the reviewed legal documents under this section (including policies and strategies as mentioned earlier), one would state Tanzania was not strongly committed to the management of IHHK. The reviewed documents show that there were limited links in such documents to the management of IHHK. This is an indication that the level of the country’s commitment (vision/mission) to the management of IHHK was still very limited. The URT (1999:13) in the Tanzania Development Vision 2025, Section 3.2, bullet four, states that:

“It is desired that the Tanzania society should be characterised by a learning society which is confident and learns from its own development experience and that of others and owns, and determines its own development agenda”.

The newly launched Education Policy of 2014 which promises much in terms of educational reform is silent on issues related to indigenous education. The new education policy says nothing on how Tanzania’s TK (including IHHK) will be instilled in the minds of people (the young generation especially). One would expect the policy to directly and openly say something on this in order to operationalise the implementation and follow-up of various existing plans. Although one of the objectives of the Tanzania Education and Training Policy of 1995 was to promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania, no mention was made of the management of IK, including IHHK. The review of some legal documents are explained in detail in Section 5.4.2 of this Chapter.

Since it was expected that the government would have played a major role through institutions involved in this study; during the interview sessions with head of departments from ITM and TAHPC, respondents were asked to provide their views on what was considered to be the responsibilities of respective institutions in the management of IHHK. The responses were as summarised in Table 5.11, that, as part of the government, institutions involved in this study had the role and responsibilities to participate in the policy formulation and creation of regulations

relating to the management of IHHK; registering traditional healers and providing licences for their services; supervising development of traditional and alternative health practice; ensuring biodiversity is achieved; teaching and conducting research in traditional medicine; and training Co-ordinators on how to manage the IHHK.

Table 5.11: The institutions/government’s role in the management of IHHK (N=7)

Role and responsibilities of the government	Frequency	Percentage
Train Co-ordinators on how to go through the management of the IHHK	1	14
Teaching and conducting research in traditional medicine	2	29
Supervising development of traditional and alternative health practice	5	71
Register traditional healers and provide licences for their services	5	71
Ensure biodiversity is achieved	5	71
Policy formulation and creation of regulations on management of IHHK	6	86

Source: Field data, 2014.

NB: Data based on multiple responses

The response of the Registrar regarding the government’s role was that:

“My office has the role of registering traditional healers and their services, and issuing licenses of service to the traditional healers on the basis of the requirement of Act No. 23 of 2002. Also we are responsible for making sure that people and specifically the traditional healers are sensitised on the importance of keeping IHHK records. And moreover, keeping biodiversity alive”.

One respondent from ITM commenting on the role of the ITM in managing IHHK noted that:

“For us, we are responsible of teaching, researching, improving policy and creation of regulations on traditional medicine. But more of our responsibilities can be sought from the office of the Director or the directorate bulletin”.

The response of the District Co-ordinator from Njombe on the role of the TAHPC stated that:

“The institution that I represent here has the role of registering traditional healers and issues licences for the services provision and providing health facilities to the traditional healers. I think we should also be training traditional healers on the importance of managing their knowledge and if possible, on the proper ways in which they can document their knowledge for future use and justification to the future generation”.

5.3.5.4 The role of religious organisations

Two questions from different tools were clustered together to yield the result in this section. The questions included firstly, what is the contribution of religious organisations towards access, documentation and preservation of IHHK? Secondly, what do you think is the role of religious organisations in managing IHHK? These two questions were presented to different categories of respondents to investigate the contribution or the role played by religious organisations in the management of IHHK. It also measured the respondents' understanding of the values attached by religious organisations to the management of IHHK. The religion of the respondents was a variable presented in Section 5.2.4 of this chapter. However, in order to determine whether there were religious influences on the management of IHHK, and the possibility of differences in perceptions among members of one religion from the other; the question on the contribution or the role of religious organisations towards access, documentation and preservation of IHHK was asked to all categories of respondents during the focus group discussions of prospective users of IHHK and interview sessions with participants from ITM and TAHPC.

As illustrated in Figure 5.11, out of 25 respondents who responded to the question during the interview sessions, 92% of them were of the view that religious organisations have not contributed in the management of IHHK. This response from the surveyed institutions and the traditional healers themselves is an indication that the religious organisations did not recognise the importance of IHHK for human well-being, research and future reference.

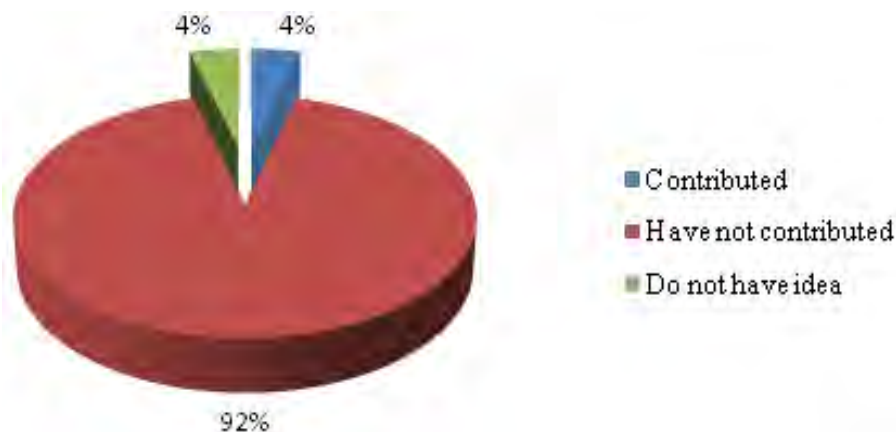


Figure 5.11: The role of religious organisations in the management of IHHK (N=25)
Source: Field data, 2014.

There were various responses to the question of the role of religious organisations. One of the traditional healers at Njombe district commented that:

“Religious organisations have done nothing with regard to the management of IHHK instead the religion organisations have been condemning our service provision. Although they later come secretly, most of the religious people come here and receive our services but when you meet them in the streets they see us as useless person, just like a demon. I don’t understand what’s wrong with the members of community especially the religious people. You know people don’t understand when God created Adam (human being) and put him in the Garden of Eden, then, he gave him everything but due to the idiotic nature of human beings he ignored to use the Garden of Eden resources and they died. Thus God with a passionate heart said my people die because they lack knowledge”.

With a similar view, another traditional healer at Singida added that:

“Religious organisations have done nothing with regard to the management of IHHK; the religious practitioners are not aware of traditional healing services as a result they have been preaching against our services and products. While they preach against traditional healing and that practicing traditional medicine is sinful and against the will of God, yet they are the ones who visit the traditional healers secretly seeking the service”.

During a focus group discussion with prospective users of IHHK, responses about the role of religious organisations, one participant commented that:

“The religious organisation especially the Muslim organisations and the Seventh Day Adventists have been contributing positively in the management of the IHHK because they have been encouraging people to use traditional medicine which is mostly free from a lot of chemicals. That conventional medicine is full of chemical substances”.

However, another participant in the focus group discussions at Magu commented that:

“In the Bible when God created the world He also created plants and trees and asked Adam to use them for his health and well-being of his children. Therefore, from that perspective, I believe that any TH who is against religious preaching, there may be a possibility that and it is obvious that such TH is a witch”.

These responses are an indication that some traditional healers and participants in other categories were of the view that there were variations in beliefs among religious organisations. Some religious organisations accepted traditional healing services whereas others did not. According to the findings by Chirangi (2013), colonialists made efforts to suppress services and

the role of traditional healers through their foreign religious teachings which were against the practice of traditional medicine as they associated it with witchcraft. However, during an informal conversation with one of the Lutheran reverends at Moshi, Kilimanjaro, Tanzania, the reverend declared that she had used traditional medicine several times. The reverend commented that:

“It may be seen that religious organisations have done nothing with regard to the management of IHHK; and this may seem damaging to the traditional healers focus but that is not true. There might be some confusion somewhere, we don’t preach against traditional healing services and products but we do preach against witchcraft actions in traditional healing service delivery. We are among the users of traditional medicine and I personally have used it several times”.

The Lutheran priest went further by quoting from the Bible that allows Christians to use traditional medicine from medicinal trees. The biblical quotations given were from the book of Ezekiel 47:12 that:

“And by the river upon the bank thereof on this side, and on that side, shall grow all trees for meat, whose leaf shall not fade, neither shall the fruit thereof be consumed: it shall bring forth new fruit, according to his months, because their waters they issued out of the Sanctuary, and the fruit thereof shall be for meat, and the leaf thereof for medicine”.

And the book of Revelation 22:2 that:

“In the midst of the street of it, and on either side of the river, was there the tree of life, which bare twelve manner of fruits, and yielded her fruit every month: and the leaves of the tree were for the healing of the nations”.

The Lutheran reverend used these two quotations to justify the statement that Christians do accept traditional medicine. With regard to the management of IHHK, the Lutheran priest stated that her denomination had not invested in traditional medicine, but that did not mean the religion was against traditional healers’ services and products. The priest response is in line with the 4% of those who had the view that religious organisations had been contributing to the management of IHHK as shown in Figure 5.11. These 4% were of the view that since religious people were among those who received and enjoyed the traditional healers’ services, then, for that matter they do contribute to the management of such knowledge. However, this shows that the contribution of religious organisations in the management of IHHK is very minimal and probably lacking.

5.3.5.5 The role of ICTs in the management of IHHK

Three questions were asked including how do you think ICTs could assist in the management of IHHK. How can ICTs such as computers and phones be used in the management of IHHK? How could ICTs be used to facilitate the management of IHHK? Responses from the three different categories of respondents were clustered together to yield the result of this section. All these questions aimed at testing the assumption that access to, codification and preservation of IHHK can be performed well only if ICTs is properly used. Thus, during the interview with traditional healers, respondents were asked to give their opinions on the ways in which ICTs in its broader sense could assist in the management of IHHK. The purpose of the question was to find out how traditional healers felt about the use of ICTs in the management of IHHK. As shown in Figure 5.12, out of 27 respondents a majority of them (64%) preferred the use of ICTs in the management of IHHK.

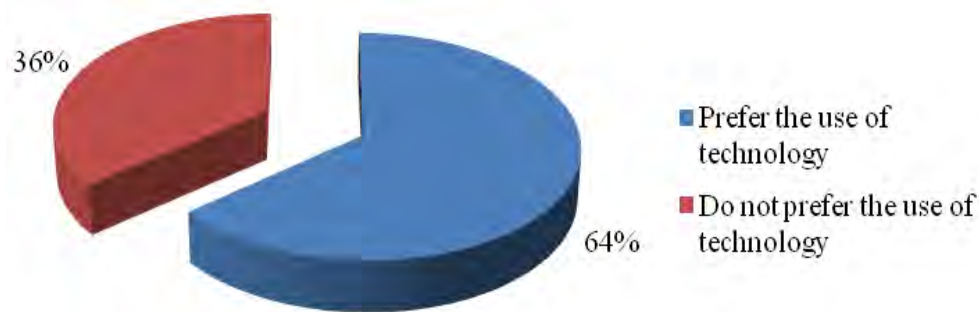


Figure 5.12: The role of ICTs in the management of IHHK (N=27)

Source: Field data, 2014.

During the face-to-face interviews and focus group discussions, respondents who were of the opinion that ICTs are preferred and could be used in managing IHHK, provided a wide range of effectiveness concerns from storage and preservation of records to communication and access of IHHK (bringing together users and owners). During face-to-face interviews with District Coordinators of TAHPC, the Co-ordinators had various comments. One of the District Co-ordinator of TAHPC commented that:

“ICTs would help in education delivery where we can learn from other experts from other countries on how they document at and preserve IHHK. With technologies we can learn from the Chinese who are considered to have done a lot on the management of IHHK without going to China. Just through technologies. Thus, ICTs can help us and our traditional healers on how we can also improve”.

Another Co-ordinator held the view that:

“ICTs would help in many ways including access to information on IHHK, documentation and preservation of such knowledge for future use and reference, but the problem with our traditional healers is that most of them are not capable of using various technologies because of their low level of education”.

The Registrar of TAHPC added that:

“ICTs especially phones could facilitate communication between traditional healers and the prospective users as well as the storage of information on IHHK. We paid a visit to the ITM. The information in their herbarium is very informative we actually wish to start documenting our information in that way, after having registered the traditional healers”.

A respondent from among the visited institutions maintained that:

“ICTs could simplify communication and sharing of knowledge among the traditional healers themselves and sometimes with their prospective users whereby patients will receive instruction on the dosage and use of some traditional medicines”.

While all the aforementioned interviewees held the view that ICTs could help in the management of IHHK, traditional healers also provided views regarding the use of ICTs. According to a traditional healer from Masasi, ICTs could assist in the management of healing knowledge through communicating with prospective users of IHHK. It was also noted that ICTs would simplify prospective users’ access to the traditional healer. Therefore, before prospective users unknowingly go to healers, they would establish the capability of healers in healing some diseases. However, the traditional healers in the country still had limited knowledge of the use of ICTs as most of the traditional healers had a lower standard of education and were not capable of applying ICTs in their daily activities. One of the traditional healers at Njombe district argued that:

“With regard to the management of IHHK, ICTs could assist in many ways including the preservation of records for future generation. It also simplifies communication with our users because with technology it is possible that a patient can ask anything related to the services that we provide. By doing so it reduces the cost that a patient may incur by travelling from very far to seek treatment while a traditional healer cannot provide such treatment”.

However, the traditional healers views concurred with those provided by participants in the focus group discussions. One of the respondents during a focus group discussion asserted that:

“ICTs helps in keeping records of traditional healers. The records may consist of the information about the founder of the traditional medicine, the trees and ailments that a particular healer used at a certain period of time”.

Based on these responses it is clear that a majority of the respondents have a positive attitude towards the application of ICTs in the management of IHHK. Respondents thought that ICTs could assist in performing various functions. These included education delivery; documentation and preservation of IHHK; simplification of access to information on IHHK; preservation of records for future generations; and the simplification of communication between traditional healers and their prospective users which could reduce the cost that a patient may incur by travelling long distances to seek treatment.

The 36% of the respondents who opposed the idea of using ICTs in the management of IHHK as shown in Figure 5.12 were requested to provide reasons for their answers. Based on multiple responses, the main reason for why nine respondents rejected the use of ICTs, showed that 88% of them noted that traditional healers lacked ICTs skills; 44% were of the view that ICT systems lack data security; and 33% stated that technology needed electricity for it to operate which was a serious problem in their environment. A traditional healer in Singida commented that:

“I don’t think so because most of the ICTs need availability of electricity and knowledge of using such ICTs. That means that because most traditional healers live in areas where there is no electricity and we don’t have the knowledge of using such Technology it is difficult to use it”.

A traditional healer at Njombe district, while acknowledging the importance of using ICTs in managing IHHK, stated that:

“With regard to the management of IHHK, ICTs could assist in many ways including simplification of communication between traditional healers and their users and for preservation of such knowledge. But the problem with ICTs is that there is lack of security as we hear every day that there is a lot of cyber theft and fraud. Thus, for the time being ICTs are not a safe technique in the management of IHHK”.

In addition to that, a traditional healer in Magu district was of the view that:

“Technologies have nothing to do with the management of IHHK, because as you can see most of traditional healers are not good in using ICTs. Most of us cannot use computers and other technologies. May be we can only use our mobile phones just to communicate with our users”.

5.4 Administrative and legal issues regarding the management of IHHK

This section sought to reveal the respondents' awareness before addressing various issues on the existence and implementation of the legal framework in Tanzania. The legal framework sought was the IPRs such as the existence of law/Acts, policies and strategies on the management of IHHK. This section also aimed at determining the ways in which law, policies and strategies are featured with regard to the management of IHHK. Moreover, the responses from legal practitioners at the University of Dar es Salaam were sought to contribute to the awareness of efforts in the formulation of proper IPRs, policies and strategies on KM especially the managing of IK. Therefore, this section aimed at measuring the assumption that those traditional healers would be willing to document their IHHK only if security of such knowledge was granted through the existing legal framework.

5.4.1 Awareness of the availability of IPRs

In order to understand the respondents' awareness of the existence of a legal framework for the management of IHHK in Tanzania, three questions from different categories of respondents were clustered. The questions included: What IPRs, national policies and strategies for the management of IHHK exist that you are aware of? What policies exist regarding the management of IHHK in Tanzania? What policies/strategies exist for the management of IHHK in Tanzania? As shown in Figure 5.13, of the 27 respondents involved in the study through interviews, 48% had no knowledge of the existence of any strategies, policies or law while 52% were aware of the existence of such legal documents. Among the 52% (those who were aware of the existence of such legal documents in Tanzania), 19% were 100% sure that no IPRs existed while 33% were of the view that IPRs existed. The point to note here is that the view that IPRs existed came from nine participants (33% of the respondents) of which seven participants were from the surveyed institutions whereas the other two were traditional healers. Thus, if only two traditional healers (which is equal to 11%) out of all 18 traditional healers involved in this study were aware of the status of IPRs existence in Tanzania, then 89% of traditional healers lacked awareness of the existence of IPRs that protected their knowledge. Hence, these traditional healers lacked confidence and assurance that their knowledge would be documented and preserved.

Furthermore, respondents who were of the view that the IPRs existed were further requested to mention the category of IPRs and to name them (for example, the Traditional and Alternative Health Practice Act No 23 of 2002). Based on multiple responses, of nine respondents who held the view that IPRs existed in Tanzania, 78% were aware of the existence of Act, No. 23 of 2002; 15% were just aware of the existence of the IPRs but without knowledge of whether it was an Act, policy or strategy; and the other 15% were aware of the existence of the policy but failed to exactly mention the name of the policy. One of the respondents from the visited institutions who held a very high position affirmed that “there is a policy on preserving medicinal trees, but we are not sure whether it directly speaks to the management of IHHK”.

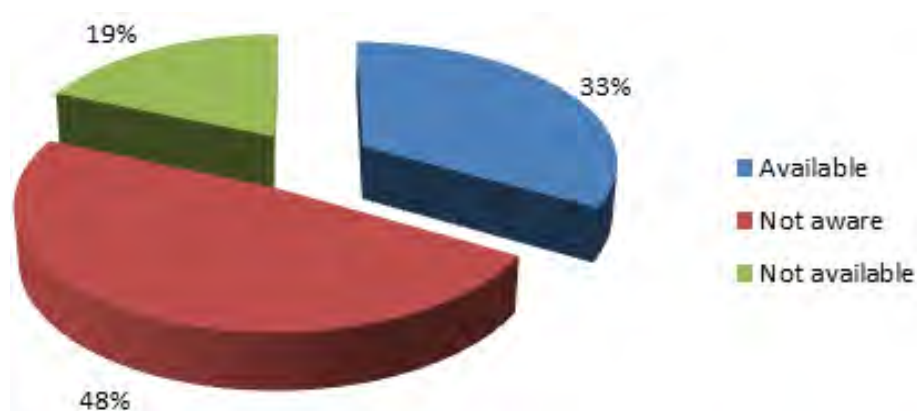


Figure 5.13: Respondents’ awareness of the availability of IPRs (N=27)
 Source: Field data, 2014.

With the assumption that policy precedes an Act, one of the District Co-ordinator of TAHPC was of the view that “with the introduction of the Parliamentary Act No. 23 of 2002, I believe that there is a policy in the country which focuses on the management of IHHK”. This response is an indication that the District Co-ordinator of TAHPC was not 100% sure of the existence of either policy or strategies that focus on the management of IHHK. Another District Co-ordinator of TAHPC in one of the visited districts had the view that:

“According to my understanding I don’t think we have a policy or strategy which is directly focusing on management of IHHK. But what I can say right now is that, traditional healers in Tanzania are granted right of registration through the government Act number 23 of 2002. Also, when I was reading a document on government budget for health services I found that provision number 12 is focusing on traditional healing services although it is not openly stated”.

These views were also confirmed by a District Co-ordinator of TAHPC in another visited district who asserted that:

“According to my understanding I don’t think we have a written policy or clear strategy but what I know is that in some conventional hospitals there are units which deal directly with IHHK. In those units the traditional healers are expected to go and deliver their services to patients who need their attention”.

The responses from professionals in the institutions visited and involved in this study is an indication that there were neither policy nor strategies which specifically dealt with the management of IHHK but there was a government Act No. 23 of 2002. However, respondents were not sure as to whether the Traditional and Alternative Health Practices Act No. 23 of 2002 dealt with the management of IHHK or not. These views were supported by a respondent from ITM who admitted this by saying “maybe I am not aware, but I don’t think we have such a policy and strategy”. These views suggest a lack of awareness of the existence of IPRs which was confirmed by one of the traditional healers who participated in the study as she added, “I am really not aware of any existing legal document regarding management of our traditional healing knowledge”.

This is an indication that very few respondents were aware of the existence of Act No. 23 of 2002, and they had no knowledge of the existence of a policy or strategy which was directly linked to the management of IHHK in Tanzania. An observation by a lecturer at the UDSM-SoL noted that, “currently there is no formal policy for protection of IHHK” serves as a conclusion that the current framework on the protection of IPRs was not best suited to protect and manage IHHK. This observation is in line with Chirangi’s (2013) findings that there is weak protection of traditional property rights in Tanzania. Since data showed that among 17 traditional healers who had attended primary education, 5.9% were a hundred percent sure that IPRs did not exist in Tanzania, and 94.1% were not sure (they were neutral). On the other hand, while 14.3% of the respondents who attended post-secondary education were aware that the IPRs existed; the other 14.3% were of the view that the IPRs did not exist; and 71.4% were not sure of whether the IPRs existed or not. For those who did not go to school, 4% were of the view that IPRs existed; 12% were of the view that they did not exist; and 84% were not aware if they existed.

The level of education reached by respondents was cross-tabulated with the awareness of the participants on the existence of the IPRs. The results from the cross-tabulation of these two variables as shown in Table 5.12 produced a Pearson Chi-square value of 10.764, with a significance value of 0.029 at a 0.05 probability level of significance. Thus, the result reveals some association between the variables. The result suggests that there is some direct relationship between education of a participant and the awareness of the existence of the IPRs.

Table 5.12: Chi-Square tests: existence of IPRs

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.764 ^a	4	.029
Likelihood Ratio	7.727	4	.102
Linear-by-Linear Association	4.931	1	.026
N of Valid Cases	25		

a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .04.

Source: Field data, 2014.

5.4.2 IHHK management issues in legal documents

In anticipation that there may be other legal documents related to the management of the IHHK, various documents were reviewed as stated in Section 5.3.5.3. The focus of the review was to extract and reveal if the IHHK management issues were featured in other legal documents. This was in order to help in the understanding of the country’s level of commitment to the management of IHHK.

5.4.2.1 The Tanzania Development Vision 2025

According to the URT (1999^a:13) in the Tanzania Development Vision 2025 of 1999, Section 3.2 bullet four it is stated that:

“It is desired that the Tanzania society should be characterised by a learning society which is confident and learns from its own development experience and that of others and owns, and determines its own development agenda”.

This means the Tanzania Development Vision 2025 envisages and directs people to acquire particular learning from their own development and experience, and among other societies out of the localities. This means learning from local experience first. In this context, IK should have been given priority and emphasis in all the country’s plans, policies and strategies.

5.4.2.2 The National Bio-technology Policy

The URT (2010^a) in the National Bio-technology Policy of 2010, vision of the country was to achieve significant investment in bio-technological tools for generation of products, processes and technologies that shall enhance efficiency and productivity in food and agriculture, nutrition and health, being also cost effective and environmentally friendly in conservation of biodiversity. The URT (2010^a:4) states that, “Tanzania will promote bio-technology development and utilisation at various levels including commercialisation and marketing of bio-technology products”. Bio-technology products may include products such as traditional medicine. However, the policy statement on this matter is still silent on the management of IHHK. Therefore, there is no policy provision on the matter, although the efficiency and productivity in health aspect was mentioned as the by-product of significant investing in bio-technological tools. The URT (2010^a:6) states that:

“In order to encourage and promote bio-technology, IPR policy has to be in place. The need for IPR policy is to provide the nation with clear visionary directions towards IPR future development in the context of globalisation. However, Tanzania has yet to have policy guidelines on access to and on exchange of genetic resources”.

Therefore, the existed National Bio-technology Policy of 2010 recognises the importance of IPRs policy guidelines and the need to exchange genetic resources. Although the policy makes it clear that the country has not yet put in place guidelines on access to and on exchange of genetic resources this does not include IHHK. This shows that IPRs regimes on bio-technology were not well established in the country to enable it to cater for the management of IK especially IHHK.

The URT (2010^a:7) Section 4.4 which deals with the issue of conservation and utilisation of genetic resources states that the conservation and utilisation of plant, animal and microorganism genetic resources is of great economic importance for a number of reasons as these resources comprise a significant sector in economic terms in a country. Secondly, relatively few varieties or species have been utilised over the centuries for production. Thirdly, modern utilisation practices have tended to concentrate on the development of a very small portion of the available genetic resources. Accordingly, the limited pool of biodiversity is under constant threat of extinction due to various human activities leading to environmental pollution and climate change. Therefore, the need to sustainably conserve and utilise national genetic resources is

important and urgent. In order to sustainably conserve and utilise genetic resources, the URT (2010^a) through the policy statements of the National Bio-technology Policy of 2010 gives directions that laws on conservation of genetic resources both in-situ and ex-situ (on-site and off-site conservation) should be enacted. Although the policy is also specific on the management of IK, Dlamini (2005) has argued that the IK of the world's biodiversity is not only beneficial to just poor countries and poor people. Such IK has helped and indeed continues to help to fuel innovation and development in multi-billion dollar industries, ranging from agriculture and pharmaceuticals to chemicals, paper products, energy, and others; this justifies the continued conservation of medicinal trees in Tanzania. There should therefore be provision in the National Bio-technology Policy that is directly linked to the management of IHHK, which is currently lacking in this policy.

5.4.2.3 The National Research and Development Policy

According to the URT (2010^b) as stated in the National Research and Development Policy of 2010, the country's vision on research and development is to be a nation with a strong, dynamic, resilient and competitive economy that is both knowledge-based and innovation-driven. The policy in its broader sense introduces the idea of how economic development depends on knowledge and innovation. It does not however directly state whether or not the referred knowledge includes IHHK. The policy also lacks provision for the management of IK, specifically IHHK.

5.4.2.4 The National Health policies

The URT (1990) in the National Health Policy of 1990 states that, among other areas, the research shall be directed towards traditional healers' services. The policy states that the traditional healers' services should be researched. This is an indication that the country of Tanzania recognises traditional healers and their services. The URT (1990) observed that regardless of the various changes and establishment of conventional health services, traditional healers in the country are still very much respected among the people. The policy acknowledges that it was common for most people in Tanzania to first consult the traditional healers for their various ailments, and that they only visit hospitals in case of complications. Therefore, the Ministry of Health prepared a policy on the operation of traditional healers in the country. It was

thought that establishing the policy of such nature would encourage use and control of traditional medicine services delivery, thus it was expected that having this policy in operation would strengthen co-operation already established between the government and traditional healers. However, the policy did not set sufficient provisions and conditions for the management of IHHK.

According to the URT (2003:5), among the objectives of the National Health Policy of 2003 as stated in Section 2.4.9, was to promote traditional medicine and an alternative healing system and regulate the practice. However, on the aspect of research, the URT (2003:17) Section 3.9.3 of the policy states that:

“Research in traditional medicines will focus on the identification of traditional remedies, screening of traditional herbal and medicinal materials and assessing the efficacy and safety of the products”.

The policy focused on promoting and regulating the practice of traditional medicine as well as researching the efficacy and safety of the product. On the other hand, the URT (2003:23) states that the role of traditional and alternative health care for Tanzanian people is significant. It is estimated that about 60% of the population of Tanzania still use the traditional and alternative system for their day-to-day health care. Traditional and alternative healing services and conventional health services are complementary to each other. In Section 4.2.1 of the Health Policy of 2003, the Ministry of Health sought to recognise the role and contribution of traditional health care as it states that:

“The Ministry of Health recognises the role and contribution of traditional and alternative health care in the health status of people. The Ministry of Health will ensure that:

- The traditional and alternative health practitioners will be accountable to their own prescriptions, remedies and therapies;
- The Village Community Government will appraise, assess and recommend in a particular locality traditional practitioners for registration by an approved authority;
- Legislation to provide for regulation of practitioners, therapies and remedies and other related treatments” (URT 2003:23).

However, the entire policy document makes no mention of the management (documentation and preservation) of the available knowledge of healing human physical ailments traditionally as

practiced in most Tanzanian communities. This was also reflected in the National Health Policy of 2007. In this policy, the URT (2007:34) also noted that about 60% of the people of Tanzania used traditional medicine for their various ailments before they consulted conventional health centres. According to the URT (2007), among the National Health Policy of 2007 objectives on traditional medicine was to develop, sustain, co-ordinate and improve the delivery of traditional health services in the country. According to the policy, the government was supposed to prepare regulations and guidelines for traditional healing service delivery. The government in collaboration with stakeholders was also supposed to strengthen develop and co-ordinate research on traditional healing and medicine (URT, 2007:35).

These policies reveal that Tanzania recognises the role and contribution of traditional healing knowledge in improving human health. Thus, Stangeland *et al.* (2008) found that traditional medicine was often the first choice for providing primary health care among many people in Tanzania. Therefore, the country has established various institutions and has implemented various plans that justify the country's recognisance of IHHK. The establishment of ITM as stated in Chapter One, Section 1.2 of this study aimed at seeking materials of plant and animal origin that might be of medicinal value, and to establish a record of cultural significance (Stangeland, *et al.* 2008). From reviewing the previous and current health policy, the results show that no provision for the management (documentation and preservation) of the IHHK in any of the reviewed health policy documents was found.

5.4.2.5 The National Tourism Policy

IHHK is considered to be a part of the culture and traditions of the people of Tanzania. The URT (1999^b:3) through the National Tourism Policy of 1999 on the culture and traditions of Tanzania, states that “the culture and traditions have significant tourist appeal”. The policy mentions the country as having about 126 major ethnic communities with Bantu, Nilotic and Hamitic vernacular languages. The policy further advocates that this diversity manifests itself in the unique dances and in the paintings such as the *Tingatinga* painting, sculptures such as the *Makonde* wood carvings, hand crafts such as baskets, and other weaving and pottery displays. Although not specifically mentioned in the policy, traditional healing knowledge is part of the Tanzania culture and traditions of most societies that appeal to tourists.

According to the URT (1999^b:11) in the National Tourism Policy of 1999, Section 5.3 on the cultural aspects of tourism, policy strategy encourages individuals, local authorities and other organisations to support and promote the tourism industry. According to the policy, the strategy is possible by documenting, publicising and disseminating information on cultural attractions, which is also true for the IHHK. Another strategy encouraged by the policy is to incorporate, develop and market villages, local cultural performances and the products manufactured by local industries as tourist products. Although, the IHHK could have been inclusively mentioned in the policy that encourages individuals, local authorities and other organisations to support and promote the tourism industry by documenting and publicising and disseminating information on cultural attractions, it is not specifically mentioned. Since IHHK of Tanzania has a long history with the culture and customs as the history of Tanzania's societies itself, one would expect the National Tourism Policy of 1999 to openly mention the strategies to manage the IHHK for tourists' attraction.

5.4.2.6 The Traditional and Alternative Medicine Act, No. 23 of 2002

The URT (2002) in this Act make provisions for promotion, control and regulation of traditional and alternative medicines practice, to establish the TAHPC and to provide guidelines and regulations for related matters. With the establishment of the TAHPC, the Act provides sections for the functions of the council as stated in Section 6(1) that among other functions the council shall generally be responsible for monitoring, regulating, promoting, supporting the development of traditional medicine and to implement the provisions of the Act. The Act's intention is to supervise, control and provide guidelines and regulations on how traditional and alternative health practices should be practiced in Tanzania. The Act sets the basis for codes of ethics, conduct and practice. In the same section, Section 6(1), sub-section (n) of the Act, another function of the council is to provide for the protection of Tanzanian medicinal plants, and other natural resources of medicinal value, such as animals, minerals, aquatic and marine products.

Although the Act specifically mentions the management of IHHK and preservation of biodiversity, however, the Act is silent on the issue of documenting and preserving IHHK. The Act rather ensures service providers are registered and their working environment is known to the TAHPC.

5.4.2.7 The Traditional and Alternative Medicine Regulations of 2008

These are the regulations for traditional and alternative medicine medical material. The regulations specify the ways in which traditional and alternative medicine should be prepared and researched, based on the code of ethics, conduct and practice. In the URT (2008:16) Section 4(1), the provision on protection of medicinal plants and other natural resources with medicinal values states that:

“The council shall establish and maintain a national data bank or compendium and prepare, keep and maintain a list of all medicinal plants and other natural resources of medicinal value”.

Although the focus is on listing plants with medicinal value, this still has not yet been done. Furthermore, the URT (2008:19) Section 7 (10) on documentation, states that:

“For the purposes of ensuring consistency and quality of the final product, all the processes of preparations and production of materia medica shall be documented by the producer”.

The regulation advocates for the knowledge owners (traditional healers) to document processes of preparation and production of their products. However, the question on how the traditional healers benefit from documenting such processes is not clearly stated either in the Act or Regulations. This inhibits traditional healers to document their healing knowledge. The URT (2008:23) statement on the protection of information in terms of confidentiality of the council, and the protection of IPRs states in Section 26 that:

“The council shall, unless agreed by the owner of the registered materia medica or for public interest, not disclose to a third part any information related to:

- a) Botanical and biological composition of the materia medica and related products;
- b) Efficacy and active components;
- c) Chemical composition;
- d) Methodology of preparation and processing of material medica;
- e) Purity tests and clinical evaluation; and
- f) Information related to methods of healing and treatment”.

However, on the protection of IPRs, the Regulation document states that:

“The council shall ensure that:

- a) No person other than the owner, shall prepare, process, sell and or advertise for sale any registered materia medica unless he is authorised in writing by the owner; and

- b) No person conducts research on any processed materia medica without prior written consent of the owners” (URT 2008:23).

Therefore, if the Traditional and Alternative Medicine (code of ethics, conduct and practice) Regulations of 2008 were well-implemented, Msuya (2007) and Chirangi (2013) would have not found that when the modified or adapted scientific explanation and dosage from large companies is well packaged and protected by patents of such companies, the primary knowledge owners should not have been left without any compensation. Although the context for the registration of practitioners and health facilities has been created by the Traditional and Alternative Medicine Act, No. 23 of 2002 and the Traditional and Alternative Medicine (code of ethics, conduct and practice) Regulations of 2008, there still are insufficient conditions to ensure security for the documented and preserved IHHK in a repository. Stangeland *et al.* (2008) observed that the Act, No. 23 of 2002 aimed at integrating traditional medicine in the national healthcare system, and encouraged co-operation between traditional healers and physicians, and not otherwise. For the legislation to provide protection against piracy of traditional healers’ products, there still is a need to enact laws and policies that will serve this purpose.

5.4.3 Plans for the formulation of policies/strategies

Respondents who mentioned that policies and strategies on the management of IHHK did not exist (as stated in Section 5.4.1 of this chapter) were further asked their opinions of the plans for the formulation of such policies and strategies. Answers from two similar questions but with responses from different category of respondents (respondents who were also experts in law, and head of departments from other institutions) produced the results of this section. The questions included: If no policies exist, what plans are in place to develop such policies relating to the management of IHHK in Tanzania? If the policies/strategies do not exist, what plans are been made for the formulation of such policies/strategies?

Out of nine respondents targeted for this question, only 33% of them were of the view that some people were involved in the formulation of policy. A research fellow from ITM pointed out that; “we have started and we are more than willing to wait until we came up with a policy which acknowledges the value of IHHK”. The law expert from the UDSM-SoL added that, “there are ongoing efforts and dialogue with the World Intellectual Property Organisation (WIPO) to enact

effective laws and policies to achieve this”. However, the remaining 67% stated they had no knowledge of what the process was regarding the formulation of policies/strategies. This shows that people (including policy implementers) were not aware of the stages regarding the formulation of the policy and strategies related to the management of IHHK. One District Co-ordinator of TAHPC commented that:

“I am not sure of other plans regarding the formulation of the policies/strategies but I think it would be better to have policies that state clearly the management of the IHHK”.

Another District Co-ordinator of TAHPC stated that:

“Since, I know the traditional healers relate to pharmacists because they concentrate on traditional medicine; I think the pharmacy policy should also apply to traditional healers because they are medical practitioners as well. But there is a need to have policies and strategies that focus on the management of IHHK in order to preserve such knowledge”.

From these responses, it is clear that during the period of data collection for this study, there were no policies regarding the management of IHHK in Tanzania. However, the government was in the process of formulating policies and laws expected to cover issues on the management of IHHK.

5.4.4 Functions of IPRs in protecting indigenous human health knowledge

Since it was discovered that the existing regime on the protection of IPRs was not best suited to protect and manage IHHK, because the existing regime was premised on the classical approach developed in the western capitalist system and did not recognise communal ownership; during interview sessions with legal practitioners, in the School of Law of the University of Dar es Salaam, respondents were asked to state their opinions on what would be the roles of IPRs in protecting IHHK in Tanzania. The responses were categorised as the roles linked to the community and the country of the knowledge owner, to the knowledge owner him/herself, to the researchers and research institutions, and to the prospective users of IHHK. The responses show that the community and the country at large would benefit from the existence of IPRs focusing on the management of IHHK. One of the respondents reported that, “the community and the country at large would collect revenue when IPRs for IHHK are marketed”.

From the knowledge owners' side, it was noted that if the knowledge owners were granted patents, the IPRs would not only provide security to their inventions and creativity but it would help to boost their economic and moral status. They would be rewarded financially especially when other people wanted to make use of the traditional healers' creativity and inventions. The IPRs would regulate the use and protect rights of ownership from theft and exploitation by companies. A traditional healer commented that:

“They were not aware of any existing legal document regarding the management of our traditional healing knowledge. But I think it would be very nice to have such rights in our country for the security of our knowledge”.

The functions of IPRs were also stated from the perspective of the researchers and research institutions. It was discovered that IPRs would facilitate knowledge dissemination and technological transfer from one generation to another and from one jurisdiction to another. However, from the perspective of the prospective users of IHHK, it was observed that with IPRs in place, prospective users would have access to improved products and services (legal experts at the UDSM-SoL).

5.4.5 The IPRs and the readiness to document and preserve IHHK

The respondents were asked to state the level of influence and the way in which IPRs, national policies and strategies could influence knowledge owners' readiness towards documentation and preservation of IHHK. On the level of influence of IPRs in documentation and preservation of IHHK, the result show that of the 27 respondents, 70% were unaware of the level of influence of the IPRs on the management of IHHK whereas 30% stated the influence was fairly known. During the face-to-face interview sessions with legal practitioners at the UDSM-SoL, one of the respondents mentioned that IPRs had an influence on the knowledge owners' readiness to document and preserve IHHK. One respondent commented that:

“If there would be clear policies it is likely that responsible persons and institutions will be obliged to document such knowledge. Because the existence of policy leads to the enactment of the law, and law must be enforced as it is”.

5.5 Perceptions of traditional healers of documentation and preservation of IHHK

In order to determine whether the respondents perceived the need and necessity of having IHHK documented and preserved, the respondents were asked to give their opinions on the necessity of

documenting and preserving Tanzania's IHHK. The respondents were then asked to explain the readiness of the traditional healers in documenting their knowledge. Answers from three questions were combined to yield the results on the importance of documenting IHHK. The questions included: Do you think it is necessary to document and preserve Tanzania's IHHK? What is the importance of documenting and preserving IHHK? Why is it important to manage IHHK? The question on the likeness/readiness of the traditional healers for the documentation and preservation of their traditional healing knowledge followed. This meant testing the assumption that knowledgeable community members were willing to document their IHHK only if security for their knowledge was assured are presented in this section.

5.5.1 The necessity of documenting and preserving Tanzania's IHHK

Data shows that among 18 traditional healers, 83% perceived the need to have IHHK documented and preserved whereas only 17% did not perceive the need for the documenting and preserving IHHK. The traditional healers' responses concur with the responses of head of departments who of nine respondents, all 100% perceived the necessity of documenting and preserving IHHK. During an interview session with an experienced lawyer and lecturer at the UDSM-SoL on the importance of documenting and preserving IHHK, they argued that:

“It is very important to document and preserve IHHK; because that is the only way it can gain formal recognition. But documentation and preservation alone is not enough, there must be adequate legislation, policies and enforcement mechanisms to ensure the protection of the IHHK”.

From all the categories of respondents who were involved during the interview sessions, a total of 89% of respondents (15 traditional healers and nine head of departments) perceived the necessity of documenting and preserving IHHK. Therefore, the general opinion of all respondents who participated in the interview during the data collection for this study perceived the need to document and preserve IHHK. The positive responses can be attributed to the awareness of the importance and necessity of documenting and preserving IHHK. Therefore the responses showed that the reasons for perceiving the necessity of documenting and preserving IHHK exceeded the perceptions that it was not necessary. This means that most respondents in Tanzania consider the need to have IHHK documented and preserved. It can therefore be argued

that respondents were aware of the values attached to such knowledge for historical, future generations, research and development.

5.5.2 Traditional healer’s age and the attitude on documenting and preserving IHHK

Data in Figure 5.14 shows that the perception on the necessity for documenting IHHK among traditional healers was very high. However, it was further assumed that the age group of the traditional healers could have an impact on the perception of whether or not to document and preserve IHHK. As illustrated in Figure 5.14, none of the traditional healers in the age groups ranging between 21 to 50 years were against the idea of documenting and preserving IHHK except some of those in the ages ranging between 51 and above. The rejection of the idea of documenting and preserving IHHK in a repository among the respondents in the ages ranging between 51 and above, may be due to lack of writing skills and use of modern technologies as well.

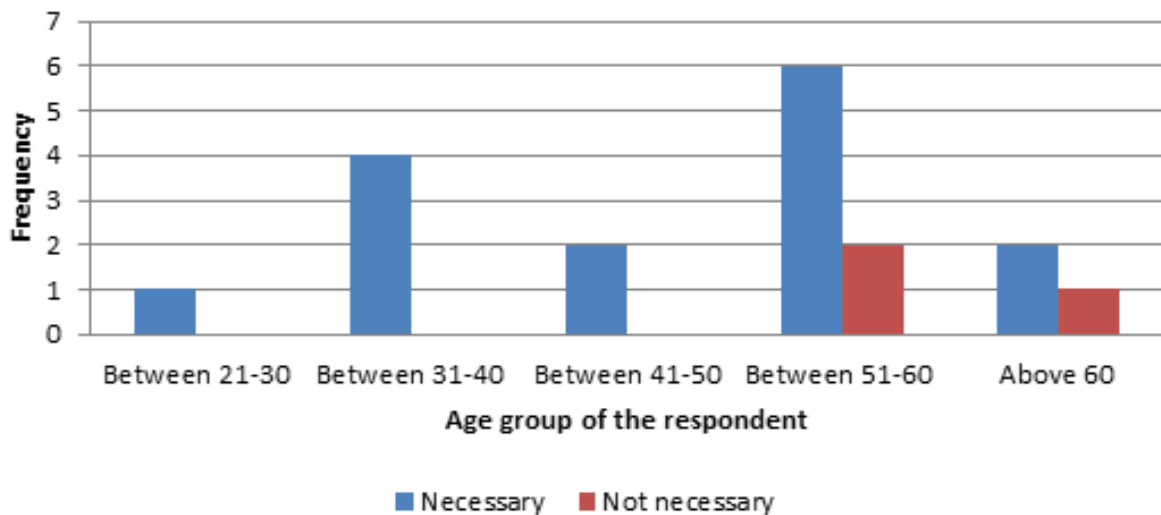


Figure 5.14: Traditional healers’ age group and the perception of documenting IHHK (N=18)

Source: Field data, 2014.

As shown in Figure 5.14, age seemed to have no influence on the attitudes towards documentation and preservation of IHHK. Only less than half of traditional healers in the age group of 51 to 60 years (equivalent to 25%) perceived no need for documenting and preserving IHHK. Less than half of those in the age group above 60 years (33%) were not in favour of

documentation and preservation of IHHK. The reason for those who had a negative attitude towards the documentation and preservation of IHHK, may be because of their low level of technological application and documentation skills; lack of awareness of the importance of documenting and preserving knowledge; or due to lack of trust resulted from the absence of IPRs to protect traditional healers' knowledge and inventions. In addition, the traditional approach which resulted from a lack of writing and reading skills among older people was the reason that the IHHK was deemed not to be able at present to be put in writing. Hence, there was no relationship between the age of the traditional healers against their attitude on the necessity of documenting and preserving IHHK.

Data shows that 100% of respondents who had experience of between four to seven years in providing their traditional healing services, supported the necessity of documenting and preserving their healing knowledge. Likewise, 100% of the respondents with eight to ten years of providing healing services observed the necessity of documenting and preserving IHHK, whereas of those with experience of over 10 years, (78.6%) perceived the necessity of documenting and preserving IHHK. However 21.4% did not support the documentation and preservation of IHHK. This shows that attitudes towards the necessity of documenting and preserving IHHK is not influenced by the number of years or experience a traditional healer has in service delivery because traditional healers with diverse experience in healing services had similar views on the documentation and preservation of IHHK.

A cross-tabulation between number of years since a traditional healer started to provide traditional health services against the attitude towards necessity of documenting and preserving IHHK, did not ascertain any direct association between these two variables. The findings from the cross-tabulation show a Pearson Chi-square value of 1.029, with a significance value of 0.598 at a 0.05 alpha level of significance. Therefore, this result as shown in Table 5.13 admits that there is no direct relationship between the experience of traditional healers in delivering services against the attitude towards the necessity of documenting and preserving IHHK.

Table 5.13: Chi-Square tests: experience of traditional healers

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.029 ^a	2	.598
Likelihood Ratio	1.672	2	.433
Linear-by-Linear Association	.901	1	.343
N of Valid Cases	18		

5 cells (83.3%) have expected count less than 5. The minimum expected count is .17.

Source: Field data, 2014.

Data shows that 100% of traditional healers between 20 to 30 years of age perceived the need to document and preserve IHHK, 100% of those in the age ranging between 31 to 40 years perceived the need, so did those in the age range of between 41 to 50 years as all (100%) perceived the need to document and preserve IHHK. On the other hand, while 75% of those ranging between 51 to 60 years favoured the necessity of documenting and preserving IHHK; 25% of them (those who ranges between 51 to 60 years) perceived documentation and preservation as not necessary; of the respondents over 60 years old, 66.7% deemed it necessary to document and preserve IHHK; and 33.3% perceived it as not necessary. In this case, out of 18 traditional healers, 83.3% were of the perception that it was necessary to document IHHK; while 16.7% perceived documentation and preservation of IHHK as not necessary. A Chi-squared analysis through cross-tabulation was done. The variables involved were age of the traditional healer and his/her attitude towards the necessity of documenting and preserving IHHK. Basing on the results presented in Table 5.14 which shows a Pearson Chi-square value of 2.400 and the significance value of 0.663 at the probability level of significance of 0.05.

Table 5.14: Chi-Square tests: age of traditional healers

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.400 ^a	4	.663
Likelihood Ratio	3.404	4	.493
Linear-by-Linear Association	1.978	1	.160
N of Valid Cases	18		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .17.

Source: Field data, 2014.

This finding shows that the cross-tabulation did not ascertain any direct relationship between the two mentioned variables. To say the statistical tests as presented in Table 5.14 showed no relation between the age of the traditional healer against the perceived necessity of documenting and preserving IHHK showed that the traditional healers irrespective of their age variations perceived documentation and preservation of such knowledge as necessary.

5.5.3 Readiness of traditional healers to document their IHHK

In order to determine the respondents' general opinion on the perception and readiness of traditional healers towards documentation and preservation of IHHK, the respondents were asked to state whether or not the traditional healers would like to document their traditional healing knowledge. Responses to questions in this section sought to obtain responses on the views of the traditional healers on their readiness towards documentation of their knowledge on traditional healing and those of respondents from the head of departments. The responses from these questions were expected to add weight to the level of emphasis that should be placed on the management of IHHK in Tanzania. The responses also provided an opportunity to identify existing gaps in the process of documentation and preservation of IHHK. While data shows that 56% of the traditional healers involved in the study were ready to document and preserve their knowledge, 44% were not ready. These responses concur with the responses of head of departments who, out of seven respondents, 71% perceived that traditional healers were ready to document and preserve their knowledge and 29% perceived traditional healers were not ready. Thus, data showed that from all categories of respondents involved in the study through face-to-face interviews, a total of 60% of respondents perceived the traditional healers readiness to document and preserve their IHHK while 40% did not. Therefore, the opinions of many respondents who participated through interviews were positive towards the documentation and preservation of IHHK.

In order to establish the strength of their answers, the respondents with negative perceptions towards traditional healers' readiness to document and preserve their knowledge were further asked to provide reason(s) for their answers. Based on multiple responses out of six respondents who had a negative perception on the readiness of traditional healers to document their IHHK, 100% thought it was because there were no legal provisions providing security to the traditional

healers' knowledge whereas 17% were of the opinion that it would be very difficult for people to understand. It is however also possible that some of the respondents were ignorant of the role which documenting and preserving IHHK would play in the country. One of the District Co-ordinator of TAHPC argued that:

“Some may be ready but others are not ready because they are selfish. Their selfishness is basically because of lack of trust of others. Lack of trust may be attributed to the fact that the country does not have proper policies that encourages them to put their knowledge in writing”.

Another District Co-ordinator of TAHPC added that:

“Some are ready especially those who have higher education. But for the time being when the sector is dominated by the people with a very low level of education, they would not accept because they think that you want to take away their knowledge”.

These were not the only two respondents with similar responses, another District Co-ordinator of TAHPC who was in favour of the idea commented that:

“Because they lack knowledge about the matter, I don't think they would accept documenting their knowledge. Also lack of understanding about the existence of any policy that grants security of their knowledge from being stolen by others might be the factor that hinders them from documenting their IHHK”.

Respondents with views that traditional healers were ready to document and preserve IHHK were further asked to mention the knowledge metadata that they thought traditional healers would be ready to disclose. The respondents mentioned various types of data that traditional healers would be ready to document and preserve. The metadata/information varied from local names of plants, parts of medicinal plants, medicine preparation process, location of the plants/materials, medicinal values, dosage forms/use and method of application to the knowledge owner. Table 5.15 shows the details of metadata that traditional healers were perceived to be ready to document and preserve in a repository.

Table 5.15: Types of information traditional healer would be ready to document (N=15)

Information ready to document	Frequency	Percentage
Founder/knowledge owner	7	45
Location of the plants/materials	9	60
Local names of the medicinal plants	11	73
Parts of medicinal plants	12	80
Medicine preparation process	12	80
The medicinal values of the trees	12	80
Dosage forms/use and method of application	12	80

Source: Field data, 2014.

NB: Data based on multiple responses

Based on the results shown in Table 5.15, it is clear that a majority of the respondents including traditional healers felt the need for documenting and preserving IHHK. Therefore, they were ready to disclose information for codification and preservation. One of the respondents from ITM confirmed that “traditional healers were really ready and actually more than willing to document their knowledge but they further needed IPRs to make them acknowledge the value of their knowledge”. According to the District Co-ordinator of TAHPC at Masasi, in his district traditional healers were provided with education on the importance of managing IHHK. Thus, in their various ways, they would be ready to document their know-how. The Co-ordinator cautioned that the traditional healers would like to document their healing knowledge only if they understand and fully trusted people who want such knowledge to be documented. However, traditional healers themselves had different views. One of the traditional healers at Njombe stated that:

“I would like to document the knowledge in order to give an opportunity to the wider community to use my knowledge for their welfare. I have medicine which cures a person with malaria and many other diseases in a very short period of time. But in order to document it for the wide community, there should be a contract that clearly states the benefit of each party”.

A traditional healer from Magu argued that:

“I would like to document the knowledge for future reference and for future generations. But the problem is that in our country there are no legal provisions that protect our knowledge after it has been documented. But if we could have good policies and strategies I could really allow my knowledge to be documented and preserved in IHHK national centre after it has been established”.

Based on these responses, a conclusion can be drawn that traditional healers would like and indeed were ready to document and preserve their healing knowledge in a repository. However, law, policies and strategies that ensure security of their knowledge needed to be enacted and put in place for implementation. Data showed that out of six female traditional healers who participated in the study, 33.3% were ready to document their healing knowledge while 66.7% were not. On the other hand, out of 12 male traditional healers, 66.7% stated they were ready to document their healing knowledge whereas 33.3% were not ready to document their knowledge therefore, 55.6% of traditional healers were ready to document IHHK, and 44.4% were not ready. When the variables of gender and readiness to documenting IHHK were cross-tabulated, the result did not ascertain a direct relationship between gender of the knowledge owners and the readiness to document and preserve IHHK. The Pearson Chi-square analysis as shown in Table 5.16 shows the value of 1.800, and the significance value of 0.321, at the 0.05 probability level of significance.

Table 5.16: Chi-Square tests: gender of traditional healers

Test	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.800 ^a	1	.180		
Continuity Correction ^b	.703	1	.402		
Likelihood Ratio	1.816	1	.178		
Fisher's Exact Test				.321	.201
Linear-by-Linear Association	1.700	1	.192		
N of Valid Cases ^b	18				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.67.

b. Computed only for a 2x2 table

Source: Field data, 2014.

The designations of head of departments were compared to their perception of the readiness of the traditional healers to document their IHHK. Figure 5.15 shows that most of the traditional healers and head of departments at TAHPC and ITM felt that the traditional healers were ready to document their knowledge. The reason provided was that the traditional healers had for a long time co-operated in various projects. In addition, regardless of their designations, respondents, as mentioned earlier stated that documentation and preservation of IHHK had historical value for future generations, and influenced research and development.

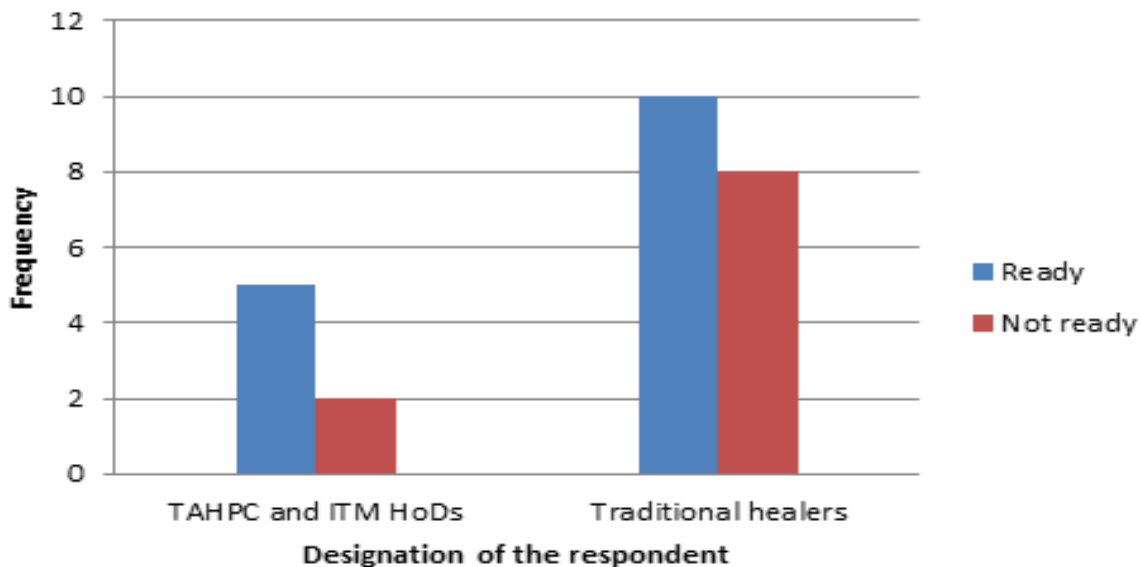


Figure 5.15: Respondents' designation and the healers' readiness to document IHHK (N=27)

Source: Field data, 2014.

5.5.4 Traditional healer's religion and the management of IHHK

Data shows that 60% of the Christian traditional healers were ready to document and preserve their knowledge in a repository, and 40% were not. This was followed by 42.9% of the Muslim traditional healers who stated that they were ready to document their knowledge, while 57.1% rejected the idea. However, 100% of traditional healers who belonged to traditional religions agreed to the idea of documenting and preserving IHHK, and were ready to extend their co-operation to the documentation project. Thus, 55.6% of traditional healers agreed and were ready to document their healing knowledge. From a cross-tabulation between the variables of traditional healers' religion and their perceptions towards documentation and preservation of IHHK, a Chi-square test of correlation indicates a Pearson Chi-square of 1.337 and a significance value of 0.512, at the 0.05 probability significance level. Hence, traditional healers' readiness to document and preserve their IHHK was not directly linked to their religious affiliations. Table 5.17 summarises this finding.

Table 5.17: Chi-Square tests: religion of the traditional healers

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.337 ^a	2	.512
Likelihood Ratio	1.710	2	.425
Linear-by-Linear Association	.000	1	1.000
N of Valid Cases	18		

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .44.

Source: Field data, 2014.

The comparison of the responses on the religious affiliation of the traditional healers through chart representation is shown in Figure 5.16. Christian traditional healers had a larger frequency compared to Muslims traditional healers of who had the largest number of traditional healers who were not ready to document and preserve their IHHK.

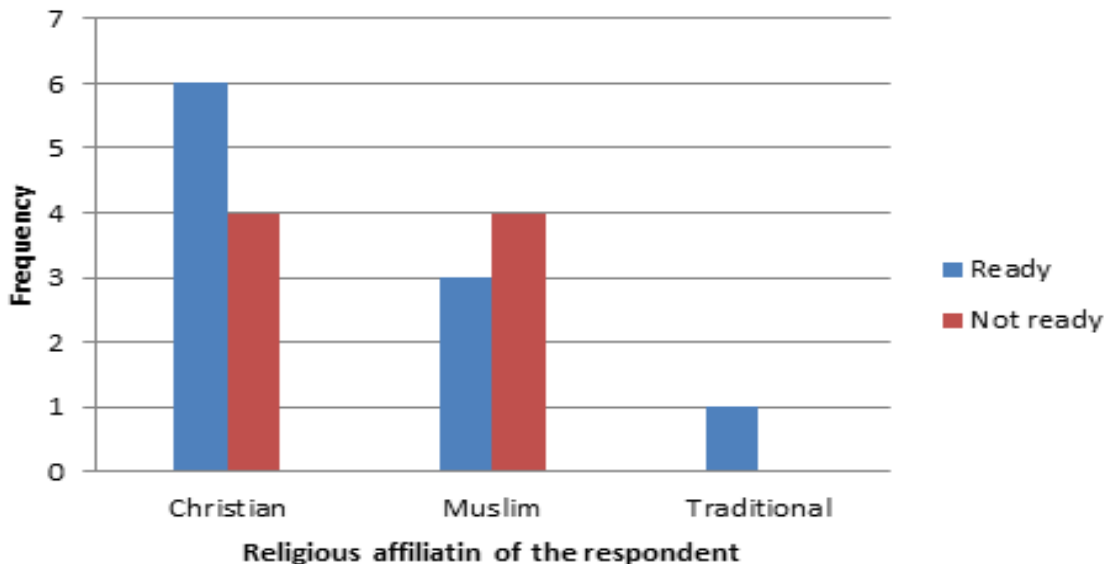


Figure 5.16: Religious affiliation and the readiness to document IHHK (N=18)

Source: Field data, 2014.

Figure 5.17 shows the age of traditional healers and their willingness to document their healing knowledge. Since, the finding in the figure show that there were no significant variation of the perceptions between the age groups; the frequency for each age group on their readiness to document IHHK depended on the awareness and sensitisation on the importance of documenting and preserving IHHK. However, the frequency of respondents who stated they were not ready to

document their knowledge was low compared to those who were ready to document such knowledge.

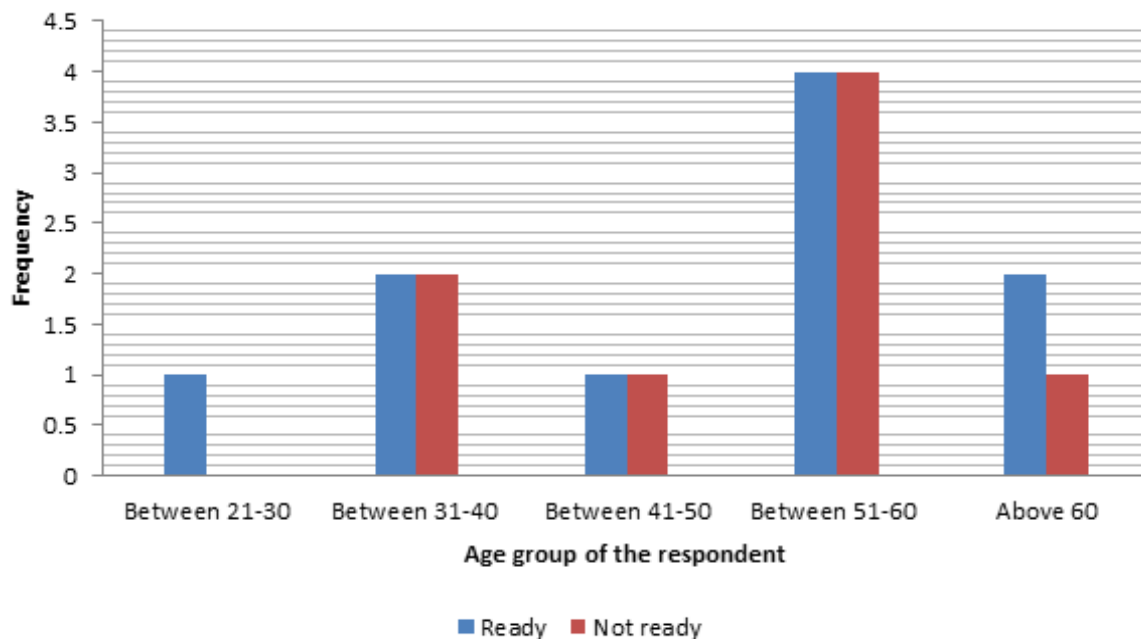


Figure 5.17: Traditional healers' age and the readiness to document IHHK (N=18)
Source: Field data, 2014.

Data shows that 100% in the age ranging between 20 to 31 years were ready to document their knowledge. The findings also show that the respondents in the age groups of 31 to 40, 41 to 50 and 51 to 60 experienced 50% of the positive and negative responses each. Hence, a total of 55.6% of traditional healers from all age groups were ready to document their IHHK whereas 44.4% were not ready. Results from the Chi-square test show the Pearson Chi-square value of 1.125, a significance value of 0.890 at a probability level of significance of 0.05. Table 5.18 summarises this finding. Therefore, the Chi-square test indicates that age of the traditional healer does not necessarily impact on their readiness to document and preserve IHHK in a repository.

Table 5.18: Chi-Square tests: traditional healers' age and readiness to document

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.125 ^a	4	.890
Likelihood Ratio	1.503	4	.826
Linear-by-Linear Association	.031	1	.860
N of Valid Cases	18		

a. 10 cells (100.0%) have expected count less than 5. The minimum expected count is .44.

Source: Field data, 2014.

5.5.5 Traditional healers' level of education and the readiness to document IHHK

Figure 5.18 shows that the traditional healers who attended primary education were more than those who did not go to school. The finding also shows that among those who received primary education, a large numbers of them were ready to document their healing knowledge as compared to those who were not ready.

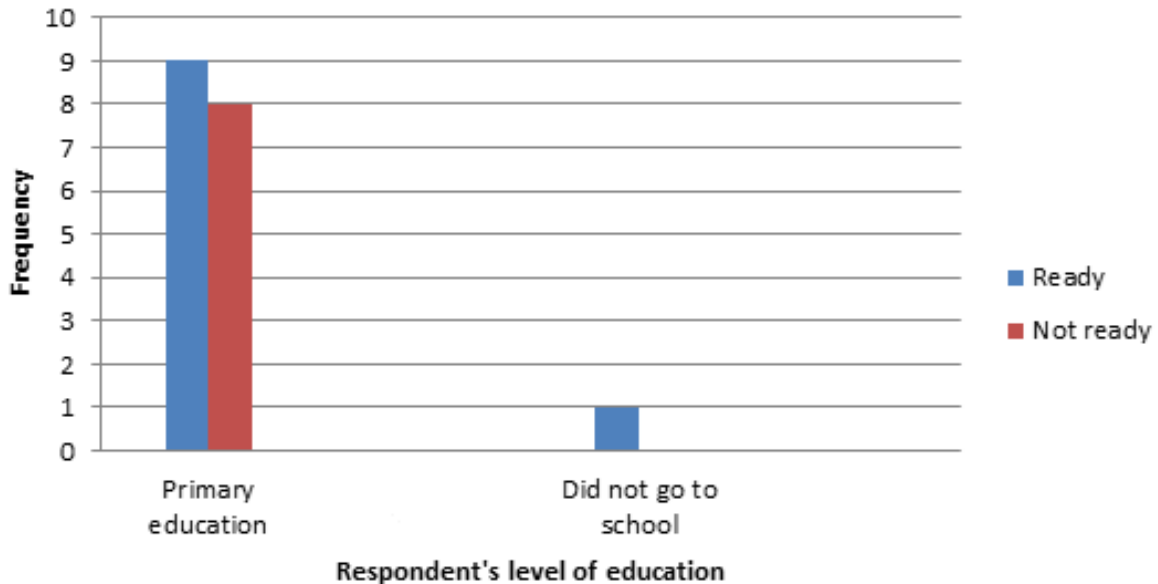


Figure 5.18: Traditional healer's level of education and their readiness to document IHHK (N=18)

Source: Field data, 2014.

Data indicates that out of 17 respondents, 52.9% of the traditional healers who had received primary education were of the view that they were ready to document their knowledge while 47.1% perceived that they were not ready. For the seven who had post-secondary education, 71.4% of them had the view that they were ready to document their IHHK but 28.6% were not, while 100% of those who did not go to school were ready to document their knowledge and preserve such metadata in a repository. The Chi-square test as shown in Table 5.19 indicates that there was no significant correlation between the education level of the traditional healers and their perceived readiness to document and preserve IHHK. The findings from a cross-tabulation indicated a Pearson Chi-square value of 1.401, a significance value of 0.496 at the probability level of significance of 0.05. This means that the level of education of the traditional healers is not significantly different from their perceived readiness to document and preserve IHHK.

Therefore there is no association between education level and the perceived readiness of traditional healers.

Table 5.19: Chi-Square tests: education level of traditional healers and readiness to document IHHK

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.401 ^a	2	.496
Likelihood Ratio	1.767	2	.413
Linear-by-Linear Association	1.233	1	.267
N of Valid Cases	25		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .40.

Source: Field data, 2014.

5.5.5.1 The preferred format for documenting IHHK

In order to determine which of the two (electronic or print) would be the more efficient and preferred form for the documentation of IHHK, a question was asked which was intended to capture respondents' concerns for the preferred format. Out of 15 respondents who responded to the question during the interview sessions, 42% preferred the information to be stored in print format while 33% preferred the information to be stored in both print and electronic, and 25% preferred the electronic form. However, when the respondents were required to provide reasons for their preferred format, the respondents who preferred the print form gave the reasons that it was easy to preserve information in print form, the print form simplified access for many people even for those who lack the skills of using ICTs and because traditional healers lack the skills of using electronic devices. One traditional healer reasoned that:

“I would prefer the information to be stored in print format because it is very easy to preserve information in print form than in any other form. In our environment we still don't have the ability to use electronic devices. Thus, it is difficult to preserve electronically. Actually we don't have the skills to use these electronic devices”.

Respondents who were of view that metadata on IHHK should be documented and preserved in both print and electronic form had almost the same reasons as those who wanted a particular format. Firstly, they mentioned that information presented both in electronic and print form simplified access by either of the means for any person. It is also easy to preserve. Only one reason was provided for preferring the electronic format. The reason was that preserving

information in electronic form would make the information last longer because it would not be easily lost. Therefore, from the data of this study it appears that information on IHHK would be better managed if it was stored in both print and electronic format because it would simplify access for any person who can use either use print or electronic technology.

5.5.5.2 Strategies to encourage readiness to document and preserve IHHK

This section presents the finding based on the question that was meant for the respondents in the category of head of departments who had a negative attitude towards the traditional healers' readiness to document and preserve their knowledge as stated in Section 5.5.2. The question was: If the answer was NO, for the readiness of traditional healers to document and preserve their knowledge of healing, what strategies were or supposed to be in place to encourage traditional healers to document their IHHK. Out of seven respondents only two (29%) had a negative attitude towards traditional healers' readiness. Based on the multiple responses, both of the two respondents mentioned registering healers as one of the strategies, whereas sensitisation and capacity-building through seminars was also mentioned by both of the respondents. One respondent who was a District Co-ordinator of TAHPC commented that "the government under the Ministry of Health is now sensitising the traditional healers to document and preserve their healing knowledge for quick reference and for future generation". Another District Co-ordinator of TAHPC went further by pointing out that:

"The first strategy that is in existence is the registration of the traditional healers but there should be financial support by the government. The government should allocate a budget to facilitate provision of education through which traditional healers will be educated on the importance of documenting and preserving their knowledge".

Registration of the traditional healers by TAHPC was seen as having less impact on the management of IHHK in Tanzania because in reality what was registered were the service providers (traditional healers) but their products were not registered and protected. However, the process was seen as the first step in the recognition of the usefulness of traditional healers' services and products.

5.6 Factors affecting management of IHHK

Factors affecting management of IHHK in this study was another theme investigated. This theme was basically contained in both closed and open-ended questions which aimed at determining the factors which affected the management of IHHK, including the challenges in the process. It was thought that the theme would reveal the constraining factors that impacted or would negatively impact on the management process of IHHK. The questions included were: What in your opinion are the factors affecting the management of IHHK? What challenges do you face in managing your IHHK? What are the challenges in the management of IHHK? What challenges do you face in accessing IHHK? What challenges does the government encounter in formulating and implementing various policies and strategies related to the management of IHHK in Tanzania? What are the legal challenges facing the accessibility, documentation and preservation of IHHK information through printed materials? What are the legal challenges facing the accessibility, documentation and preservation of IHHK information through electronic form? The results of these seven questions as posed to various participants were clustered to yield the results for this section. Although the questions differed in the focus of the challenges sought, it was thought necessary to cluster all the questions in this section because they all dealt with the same issue (challenges). Therefore, the questions were meant to test the assumption that ICTs, administration and legal factors affect the documentation and preservation of IHHK.

The key constraining factors affecting the management of IHHK are shown in Table 5.20. They include stereotyping and stigmatisation of IHHK (attitude of community members towards IHHK and its uses), education and technological application skills, infrastructure, mistrust between the two health systems, and financial problems. Others included formulation, implementation and review of policies and strategies, legal and political commitment, and loss of memory due to the death of knowledgeable people. Many of these challenges were highlighted in the earlier discussion. The findings concur with Davenport and Prusak's (2000) model which identified seven barriers in knowledge sharing/transfer including the factors just mentioned.

Table 5.20: Factors constraining the management of IHHK in Tanzania (N=25)

Types of challenge	Frequency	Percentage
Formulation, implementation, and review of policies and strategies	2	8
Memory loss (human resources) through death	3	12
Legal and political commitment	4	16
Financial (funding and budget allocation)	6	24
Infrastructure	8	32
Mistrust among the two health systems	8	32
Education and technological application skills	12	48
Stereotyping of the IHHK	19	76

Source: Field data, 2014.

NB: Data based on multiple responses

5.6.1 Lack of proper education and technological application skills

Education and technological application skills were also mentioned as the factors affecting the management of IHHK. This means that most of the traditional healers in Tanzania had a very low level of education. Also, the country faced the problem of lack of or shortage of trained personnel with expertise in the management of IHHK. Although the country experienced the problem of lack of proper ICTs for the management of IHHK, the application skills for the available ICTs for the management of such knowledge was a further problem. It was discovered during focus group discussions that lack of sufficient education on the use of various current technologies was a challenge. Thus, it was very difficult to move forward in the delivery of health services especially in a world where nothing is possible without ICTs. However as most of the traditional healers can read and write, it was possible to train them on the use of ICTs. In support of the idea on lack of education and professional expertise, a District Co-ordinator of TAHPC was of the views that:

“We are actually ready to document it but we face the challenge of lack of professional expertise and institutional capability to document IHHK. This means in our country we don’t have persons who are knowledgeable in the preservation of IHHK, as well as we don’t have professional expertise to document information related to our healing knowledge”.

This means that lack of education and subsequently lack of technological application skills among the traditional healers themselves is a major challenge to the management of IHHK, especially when the issues of documentation and preservation are concerned.

5.6.2 Stereotyping and stigmatisation of IHHK

The first challenge was stereotyping and stigmatisation of IHHK by community members, including religious people. During interviews with traditional healers, one of the traditional healers affirmed that:

“The attitude of the religious people especially the Christians towards our services and product is also another problem. There are some cases where a person can just pass at our places just asking for a road or a certain location, if that person is seen by Christians they start asking the person curiously why they are going there? Don’t you know that, that person is a traditional healer? But for sure I am a traditional healer but I am not against Christianity I have grown up in a Christian family and I am a Christian. We are really feeling bad because these people have been coming for our services, ask for secrecy and we maintain that but I don’t know why they still disregard us”.

Another traditional healer emphasising the negative attitude of religious people towards the use, documentation and preservation of IHHK went even further by pointing out that:

“The biggest problem is how to change the attitude of the religious people towards our services and product because they still don’t like it. They consider us and our services as devils while they perceive themselves like gods. You know the religious people have been treating us like witches but we are not. They don’t simply like it by just speaking but in their heart they like and do use it. For example, a religious preacher can preach against traditional healing but at night they are the ones who come secretly to our offices seeking for our services and products. So I feel like we need to educate them”.

During focus group discussions with prospective users, one participant commented that:

“Actually some people may mention religious organisations as one of the challenges. But according to my understanding of religious matters, what the religious people don’t like with regard to the traditional healers is the habit of the traditional healers to combine witchcraft and divination in their delivery of health services. Thus, the traditional healers themselves are the persons to be blamed, and if possible they have to change. Combining divination and witchcraft in health services delivery is against religious believe and the will of God. I believe if the traditional healers would have been using medicinal trees only without combining witchcraft and divination religious people would not oppose traditional healing”.

One of the participants from UDSM-SoL blamed the community for their poor understanding of the issues related to IHHK, as he argued that:

“Community’s poor understand of traditional healing services is a challenging factor to the management of IHHK. Members of the community have been regarding

people who use traditional medicine as primitive or people who are seeking for witchcraft, something which is wrong. The traditional healing services should be considered a health service just like any other health maintenance services. But the notion that traditional healers are witches may hinder access to their services and products”.

This idea was supported by a respondent from ITM that:

“Negatives attitudes of community members on IHHK are also a challenge to its management. The community has not given due values to such knowledge especially when members of the community fail to differentiate between traditional healers and witches. Lack of awareness on the value of IHHK can also be observed among policy makers, most of them fail to differentiate between the traditional and alternative medicine”.

5.6.3 Lack of financial support and budgetary allocation for the management of IHHK

Funding and budgetary allocation for the management of IHHK was found to be another challenge constraining the management of IHHK. The District Co-ordinator of TAHPC commenting on the budgetary constraint facing the management of IHHK argued that:

“There is not enough money to buy medical facilities that could be used in managing IHHK. There is also lack of co-ordination in the management of IHHK. In our country there is no proper co-ordination mechanism of the institutes that could spell out the roles of the different players, platform for best practices and lessons and outcomes of the different approaches to be undertaken in the management of IHHK”.

There were also complaints from traditional healers that they did not have sufficient funding and budgets to purchase medical facilities such as thermometers, groves, machines for grinding medicinal trees, patients’ beds and mosquito nets. Thus, lack of money was also another challenge which they faced in the management of their knowledge as with inadequate funds they could not purchase the equipment necessary for managing IHHK.

5.6.4 Lack of or poor medical infrastructure

The availability or satisfaction with the available medical infrastructure was mentioned as another challenge in the management of IHHK. Based on the respondents’ views, medical infrastructure such as tools and materials should be well-designed and structured to facilitate the management of the available IHHK. However, during the time of data collection of this study, the infrastructures were not well-structured. One traditional healer commented that:

“We are actually facing a problem of lack of suitable equipment that could allow us to properly manage our human health knowledge. We also face the challenge of IHHK memory loss especially on the part of human resources. As stated earlier our knowledge is still orally passed from one generation to another and stored in the minds of people. Therefore, it is lost with the death of the person who possesses it”.

This shows that the available infrastructure does not provide traditional healers with the possibility of providing their traditional healing services in an environment conducive to such services and also for proper management of the IHHK. Deaths of human resources (traditional healers) was part of their challenges. During a focus group discussions with prospective users, one of the participants who commented on the medical infrastructure, asserted that:

“The available infrastructure does not give the traditional healers an environment conducive for delivering health services and managing the knowledge of healing. Sometimes death of potential figures in traditional healing is another challenge we face”.

5.6.5 Lack of appropriate intellectual property rights

Lack of workable IPRs was found to be the main source of mistrust. One of the traditional healers argued that:

“Lack of awareness on the existing IPRs for our knowledge is a challenge for documentation and its preservation. This results in lack of security of our indigenous healing knowledge. That is why regardless of the fact that we know much on healing humans yet when the government calls and asks us to mention how we heal the patients we actually don't tell the truth because of lack of security of our knowledge”.

5.6.6 Improper legal and political commitment

Another challenge facing the management of IHHK was lack of legal and political commitment in Tanzania. It was found that there were no strong legal and political commitments. From the earlier documentary reviews of policies and strategies related to KM, it was observed and noted that there were no documents speaking directly to KM and IHHK. Thus, even the functioning of the TAHPC in terms of co-ordinating, inspecting and reinforcing the documentation and preservation of IHHK was somewhat difficult. The silence of most of the legal documents on the management of IHHK may be a result of lack of a national KM policy and strategy that focuses on IK.

5.6.7 Mistrust between the two health systems

Another factor discussed by the respondents as a constraining factor was the existing mistrust between the two health care systems. The mistrust can be seen in the poor collaboration between traditional healers and conventional health practitioners, and through researchers and the owners of IHHK. On the first perspective of mistrust, a participant in a focus group discussion commented that:

“Unfair treatment between health practitioners by the Tanzania health system is a challenge in keeping the IHHK alive. The government has been treating traditional healers differently from conventional medical practitioners especially after the patient’s death in either of the health systems. The users and all members of the community have experiencing that when a patient dies while attending treatment the traditional healer finds himself or herself in trouble with the government”.

The traditional healers’ complaints to the government raised a lot of questions. This was not only that the country recognises traditional healers’ services, the National Health Policy of 1990 states that “traditional healers were still very much respected among the people. Most people first consult the traditional healers and only visit hospitals in case of complications” (URT 1990:33). However, there were several evidences in the country where the patient dies while attending treatment at a traditional healer, such traditional healer is remanded until the investigation by the police is complete but when the death happens with a conventional medical practitioner providing a service to a patient; the medical doctors does not find themselves in trouble with the government.

The unfair treatment by the government among these two health services providers has also created poor collaboration between the two health systems in Tanzania. Thus, the government should strengthen collaboration between conventional medical hospitals and traditional healers by practising fairness in each of the systems. The collaboration between conventional medical hospitals and traditional healers during the time of data collection for this study was discouraging. It was discovered that traditional healers did not trust their counterparts in the medical health services delivery system. One of the traditional healers during the interview commented that, “the conventional medical practitioners have been ignoring our patients when they first come to us before the conventional medical hospitals for their ailments”. Another

perspective of mistrust was the mistrust between researchers and the custodians of the IHHK. A researcher from ITM who was also among the respondents pointed out that:

“It is true that there is mistrust between the two health systems namely the traditional healers and the conventional medical practitioners. But another aspect of mistrust can be observed between researchers and the custodian of the IHHK. Although the mistrust is very important because the knowledge itself has values, therefore there should be a modality of creating trust between traditional healers and researchers. Trust should be created from higher levels of the government to the traditional healers where they should be given the upfront benefits to their knowledge”.

The existence of mistrust was supported by researchers from ITM and other participants in the study. The secrecy of the traditional healers themselves was a challenge in the IHHK management efforts. It was observed that the traditional healers were not open about their knowledge because of the fear that their knowledge would be stolen and sometimes misused. Thus the traditional healers tended to maintain secrecy in the way in which they prepare medicine and the use of some medicinal trees in healing illnesses. Respondents from ITM were not the only respondents with the views that there was mistrust between the two health systems. One of the District Co-ordinator of TAHPC was also of the view that mistrust constrained the management of IHHK, thus, pointed out that:

“Selfishness of traditional healers is one of the biggest challenges in the management of IHHK. The traditional healers in most cases don’t like to teach others about what they know in relation to the healing although most of them have a very good knowledge of traditional medicine and healing services. In short the traditional healers don’t like their IHHK to be popularised”.

5.6.8 Poor stakeholder involvement and participation in the management of IHHK

Another challenge in the management of IHHK was the problem of poor or lack of stakeholders’ involvement and participation in the formulation, implementation, and review of various policies and strategies related to the management of IK. This resulted in poor participation of other stakeholders in the process. Hence the failure of various government projects because they lacked stakeholders’ support. This result concurs with the Cetinkaya’s (2009) social and behavioural response attribute of the model. According to Cetinkaya’s (2009) model, social and behavioural response occurs when the local community members are empowered to actively participate in decision-making, in this case issues related to the management of IHHK.

5.7 Proposed strategies to assist in the management of IHHK in Tanzania

Responses from three questions were combined together in this section to produce the result of the section. The questions were: How can these challenges be resolved? What strategies can assist in the documentation and preservation of IHHK in Tanzania? What do you think should be done to improve the management of IHHK? All these questions sought the respondents' suggestions on the ways forward towards improving the management of IHHK in Tanzania and their opinions on how to resolve the challenges identified.

5.7.1 Strategies and solutions

Respondents provided a wide range of suggestions that could assist in the documentation and preservation of IHHK. The suggestions ranged from political commitments, increasing the required number of human resources, strengthening collaboration between traditional healers and conventional health practitioners and the creation of a national institute of IK.

5.7.1.1 Stereotyping and stigmatisation of IHHK

To remove the stereotyping and stigmatisation of IHHK requires change of attitude from community members towards the practice of IHHK and its uses. This may be possible only when collaboration between the two health systems is strengthened. One traditional healer suggested that:

“There should be a reserved place within the conventional hospitals that can be used by traditional healers. This means the conventional medical doctors will be working in collaboration with traditional healers in treating some human illness especially the ailments that cannot be healed by conventional medical practitioners”.

5.7.1.2 Education and technological application skills

Stakeholders of IHHK should be educated on the importance of traditional medicine in healing various human illnesses and in the improvement of medical infrastructure. However, training is required on how the traditional healers and other stakeholders can use technologies in managing IHHK. One traditional healer argued that:

“There is need to educate the religious people on the importance of IHHK. They forget and ignore traditional healing knowledge which is the mother of all healing knowledge. Our healing knowledge is the source and mother of all kind of healing because the pharmaceutical industries also uses this knowledge to prepare their drugs and other types of medicine which the religious people who consider us witches also

use. Thus religious people have to know that we are not witches or devils, we all belongs to God, and that God is the only one who gave us the knowledge of healing”.

According to these responses, there is a need to educate religious people on the importance of IHHK. Religious people needed to be taught the differences between traditional healing and witchcraft or divination. The idea of education provision as the solution to the challenges was also emphasised during the focus group discussions. One of the respondents proposed that:

“The government should introduce a topic on IHHK in the existing formal school curriculum in order to instil a sense of understanding of our traditional ways of providing TK related to healing services and other IK. Also the community at large should be educated on the importance of IHHK and if possible the training should also focus on creating awareness on the differences between traditional healing, divination and witchcraft”.

This shows that there was also a need to prepare a training programme that would change communities’ perceptions of IHHK. Because government and people tended to prioritise sectors with economic values, therefore IHHK should be considered as a new entrepreneurial sector that can provide employment to the youth and help the government to solve the problem of employment. What is needed is government initiatives and support on the matter. Knowing that African governments were not regarding and prioritising IHHK as an important sector for development, the governments are urged to allocate budgets for such support and subsequently for the documentation and preservation of IHHK.

The issue of education and technological skills is very important. Creation of awareness among traditional healers was important too. Awareness occurs at two levels. The first is on the available IPRs and the second is on the importance of documenting and preserving IHHK. However, traditional healers should make sure that they train their children about their knowledge and send them to formal education in order to prepare them to assist their parents in documenting IHHK. Also, traditional healers need to be sensitised to the importance of documenting and preserving IHHK for research, development and future reference. Data shows that among the respondents with a primary level of education, 47.1% preferred the use of ICTs in managing IHHK, and 52.9% did not; 100% of respondents with post-secondary education preferred the use of ICTs in managing IHHK; 100% of the respondent who did not go to school preferred the use of ICTs. As shown in Table 5.21, the Chi-square test calculated a Pearson Chi-

square value of 6.618 and significance value of 0.037 at the probability level of significance of 0.05. This finding therefore advocates that the level of education reached by the respondents was not significantly different from the proportion of respondents' preference on using ICTs for managing IHHK.

Table 5.21: Chi-Square tests: ICTs for managing IHHK

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.618 ^a	2	.037
Likelihood Ratio	9.163	2	.010
Linear-by-Linear Association	6.134	1	.013
N of Valid Cases	25		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .36.

Source: Field data, 2014.

Since there was also a problem of inadequate staff in some institutions to work towards the management of IHHK, the government should retrain KM staff on how they can manage IHHK properly; improve the working conditions of the traditional healers, develop succession plans for documentation and preservation of IHHK; support continuous training of knowledge managers who are the traditional healers and the trained managers through short courses and workshops; and promote teamwork amongst them. According to a respondent at ITM, there should be a capacity building strategy to empower traditional healers in terms of record keeping and financial management, educating patients, and making them understand the global outlook on traditional medicine and healing services. There should also be a forum to train healers, policy makers and scientists on how the IHHK should be documented. This should be initiated as soon as possible in order to conform to the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). A TRIPS agreement is an international agreement administered by the World Trade Organisation (WTO) that sets down minimum standards for many forms of intellectual property (IP) regulation as applied to nationals of other WTO members. The TRIPS requires medical material to be documented otherwise some medicinal trees and knowledge will be made a common heritage. This will also help avoid bio-piracy.

Respondents were asked to state the type of training they would like to undertake in order to improve the management of IHHK. The question was purposively designed to determine the

individual traditional healers’ training needs and preference that would help in the management of IHHK. Table 5.22 shows that training on how to make IHHK an entrepreneurial sector, applicability of IPRs in protecting IHHK, customer care and services delivery, diagnosis of diseases, and packaging of traditional medicine are the five important and preferred areas of training needed by respondents with percentage representations of 72%, 78%, 78%, 67% and 67% respectively. During the interview sessions with traditional healers, one of the traditional healers at Njombe commented that:

“The government should design a training programme to deliver to all stakeholders including religious people in order for them to acknowledge our services and products openly. Also there is need to train traditional healers on proper management of the knowledge and if possible they should assist us in establishing a school for IK. I would also like to receive training on IPRs which provide security for our products (knowledge)”.

Table 5.22: Types of training required by traditional healers (N=18)

Types of training required	Frequency	Percentage
Participation in management of IHHK by stakeholders	2	11
Skills in writing a book	2	11
Documenting knowledge	3	17
Medical record keeping	4	22
Improving co-operation of health practitioners in the two medical systems	6	33
Packaging of the traditional medicine	12	67
Diagnosis of diseases	12	67
Making IHHK an entrepreneurial sector	13	72
Applicability of IPRs in protecting IHHK	14	78
Customer care and service delivery	14	78

Source: Field data, 2014.

NB: Data based on multiple responses

As indicated in Table 5.22, traditional healers would like to receive training on IPRs so that they would be aware of how the existing laws and policies provided security to their products (knowledge). Training of such kind would also give them knowledge on how they could transform their services and products into an entrepreneurial sector. Thus, the government of Tanzania was urged to introduce such training programmes to all stakeholders including religious people in order to make them recognise traditional healers’ services and products

openly. In support of the idea for different types of training required by traditional healers, one of the traditional healer at Singida commented that:

“Training on the ways in which stakeholders in traditional healing including religious people could participate in the management of traditional healing knowledge especially for documentation and preservation, the government should design a training programme to deliver to all stakeholders including the religious people in order to enable them to recognise our services and products openly”.

Another traditional healer at Magu commenting that:

“I would like to receive training not only about the establishment and management of traditional medical colleges but entrepreneurial skills in the preparation and distribution of traditional medicine just like the conventional medicine. There is also a need to train traditional healers on proper management of the knowledge and if possible should assist them in the management of traditional healing/medicine records. If the government was serious about our expertise, then, I think it should give us a little bit of medical knowledge. There is a need for the government to prepare training programmes that will give traditional healers knowledge on the preparation of text books that will be used in delivering education to traditional medical students”.

In addition, training for documentation officers is very important. If possible, traditional healers should be trained on how they can establish schools for transferring their IK to the youth. The traditional healers would like to receive training on packaging their traditional medicine as well as training on how the existing IPRs provide security for their IHHK.

5.7.1.3 Infrastructure

Good infrastructure should be established in order to enable users to ‘plug in’ and use the advanced equipment in managing IHHK metadata. This requires an increased number of computers to be used by the District Co-ordinator of TAHPC in managing IHHK metadata and a dedicated internet link for the TAHPC and ITM which can also be used by prospective users to access IHHK. This should be provided with health facilities including ambulances, medical beds and mosquito nets for patients. One of the traditional healers emphasised that:

“The government should create an enabling environment by supplying health facilities and infrastructure just like the way they do for the conventional hospitals, because we are all providing services to people who are also government people. The infrastructure for managing IHHK should be well constructed”.

Another traditional healer went further requesting that the government grant traditional healers computers and an ambulance stating that:

“I would also like to request the government to grant the traditional healers computers and training on computer applications for the preservation of our healing knowledge. Since, the traditional healers also provide health services just like the conventional hospitals, then, I request the government to provide us through our network an ambulance in order to transfer a patient when she/he gets seriously ill while in our hands”.

5.7.1.4 Financial problem

The problem of inadequate funding in the management of IHHK can be resolved by deliberate initiatives of allocating funds and a budget to specific projects for documenting and preserving IHHK as mentioned earlier. The government and other NGOs including other stakeholders should design fundraising and exchange programmes and allocate a portion of research grants to the management of IHHK.

5.7.1.5 Legal and political commitment

There should be legal and political commitment on the management of IHHK. The country's legal commitment should be stated openly in the country's vision and mission in various legal documents such as Acts, policies and strategies. The political commitment involves the participation of political leaders in the management of IHHK; it is also about how stakeholders are involved in the formulation, implementation and review of policies and strategies. There should be good internal politics and favourable organisational structures for the management of IHHK. However, the government should establish suitable policies and structures which focus on KM especially in terms of documentation and preservation of IHHK. Legal and political commitments would also eliminate mistrust between the two health systems. A respondent from ITM asserted that:

“The existing laws should be reviewed in order to harmonize them in handling health, biodiversity, the traditional healers and their commodity. Most important also is that the government should create a policy environment that ensures that the management of IHHK should be done in ways where every stakeholder knows what to do and is aware of the rights of each stakeholder in the documentation and preservation of the IHHK”.

One of the District Co-ordinator of TAHPC maintained that:

“There should be effective IPRs that recognise traditional healers’ services and their products. This means that the IPRs should provide security to their knowledge. By having security to their knowledge I believe the traditional healers would be in a position of releasing information about their IHHK. There should be good IPRs that provide room for the traditional healers to sign a contract of services with the government. I believe with a contract of service the traditional healers will feel that they are recognised and need to work hard for their profession”.

The idea was also supported by a respondent from the ITM who stated that:

“There is also a need to train traditional healers on the IPRs in order to make them understand what should be kept as a secret and what should not. It is very important for them to understand disclosure agreements”.

All these responses suggest that strengthening collaboration between and among health practitioners was very important, as discussed earlier. Traditional and conventional health practitioners should be working in collaboration.

5.7.2 General comments

The question that produced results for this sub-section was: What else would you like to add regarding the management of IHHK in Tanzania? The question sought additional comments from respondents, the results ranged from the establishment of a national project for the management of IHHK, tolerance and respect for the traditional medical system, fostering open discussion and designing training programmes that would make IHHK a new entrepreneurial sector. While one traditional healer from Njombe had the view that:

“The government should grant us through our union or network, an area to grow medicinal trees which are now likely to disappear and some are found very far from our localities”.

Another traditional healer in Masasi with the same views commented that:

“The government should help us in the preparation of the medicine. The government should also prepare a field where we can grow medicinal trees in order to protect it from disappearance”.

These responses from traditional healers are an indication that a current major problem in managing IHHK is increased deforestation due to the increased population and human activities,

which in turn causes loss of trees with medicinal values. The IHHK depends much on the forest but nowadays there is increased deforestation. Therefore, it is difficult to find trees of medicinal value.

The government of Tanzania is urged to create the national institute of IK that will directly deal with IK management issues, including IHHK. During an informal discussion, one of the research fellows at ITM commented that:

“The government should create a special institution to be called the institute of IK of Tanzania to handle IK. The institution should be different from National Institute for Medical Research, and ITM in its duties and responsibilities”.

The research fellow was not the only one with the idea of having a specific institution that dealt with the management of the IK in the country. The Registrar of TAHPC also commented that “I would like to recommend that Tanzanians should be thinking of having a museum centre/cultural centre for our traditional healing services”.

Based on these results, it is clear that the respondents want the government to ensure that there should be community participation through education in the management of IHHK. This would be possible with the provision of proper education and skills to all stakeholders. Such education should focus on two aspects. The first is the management and importance of IHHK (awareness creation and capacity building). Second, is to establish a traditional healers’ magazine/journal for documenting their activities and stories. Efforts to enlighten all stakeholders through seminars and workshops should be undertaken. During focus group discussions at Singida, one of the participants commented that “the healers themselves have to start the documentation of their knowledge at family level and teach members of their families how they can understand what has been written”.

5.8 Summary of Chapter Five

This chapter presented data gathered through semi-structured face-to-face interviews, focus group discussions, direct observation and documentary reviews. Data from the interviews and focus group discussions was analysed both quantitatively and qualitatively. During presentations

of the findings in this chapter, possible reasons for some responses are also given. Where necessary, tables and figures have been used to illustrate the responses.

The results of the study show that the management of IHHK in Tanzania was moderate. However, immediate measures and efforts are needed to ensure that all IHHK materials in Tanzania are collected, documented and preserved in a repository. The country's existing IK (IHHK) policies failed to specifically mention the management of IHHK in the IPRs systems. Therefore, a legal framework should be enacted to ensure the protection of IHHK. That means there should be policies and laws that stipulate the management of IHHK. Knowledgeable community members or traditional healers were perceived as ready to conduct documentation and preservation of their healing knowledge. Many factors that affect and contravene the documentation and preservation of IHHK were also mentioned together with strategies thought to assist in the process were mentioned as well.

CHAPTER SIX

INTERPRETATION AND DISCUSSION OF THE FINDINGS

6.1 Introduction

This chapter discusses the findings of the study on the management of IHHK in Tanzania. The aim of the chapter is to attach meaning and to draw inferences from the collected data. This study was built on the assumption that there is a substantial amount of IHHK in Tanzania, and the use status of such knowledge was high because most people used it for healing of various physical ailments. Nevertheless, its management was assumed to be less valued regardless of the application of ICT which would simplify the process. Therefore if the use of such knowledge would continue without its metadata be documented, it would likely be lost to future generations with the death of current holders of such knowledge (Maponya, 2005; Kanwar, *et al.* 2005; Ghimire and Bastakoti, 2009; Dixit and Goyal, 2011).

The broad purpose of this study was to comprehend the management of IHHK in Tanzania. However, the specific objectives were as follows: to assess the available KM efforts in relation to documentation and preservation of such knowledge; to analyse factors which affected the documentation and preservation of IHHK; and to recommend strategies that would assist in the documentation and preservation of IHHK in Tanzania. The main research questions which guided this research study were: (i) How is IHHK managed (accessed, documented and preserved) in Tanzania? (ii) How does the management of IHHK feature in the existed IPRs, policies and strategies? (iii) What are the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK? (iv) What factors affect (constrain) documentation and preservation of IHHK? (v) What strategies could assist in the documentation and preservation of IHHK in Tanzania?

As stated in Chapter Four, Section 4.2, this study was conducted within the pragmatism paradigm and a mixed approach was used. Thus, the findings discussed in this chapter resulted from both qualitative and quantitative analysis of data. The data for this study was collected by the use of face-to-face interviews, focus group discussions, direct observation, and documentation review. A review of empirical studies and various theories provided the basic theoretical framework for the investigation and also for developing key concepts. This study was

underpinned by Davenport and Prusak's (2000) knowledge market model. This model considers any organisation as a knowledge market of a particular commodity and is comprised of buyers, sellers and brokers. In this chapter, the interpretation and discussion of the findings is organised on the basis of and around the research questions, in order to explain the cause of the problem, proposed solutions and conclusions. Section 6.4, sub-section 6.4.2 is discussed on the basis of the reviewed documents while other sections depended much on the results from the interviews and focus group discussions.

6.2 Demographic information of respondents

Regardless of the respondents' places of domiciles as stated in Chapter Five, Section 5.2, the findings show that most of the respondents were men. In terms of their categorisation, many were prospective users followed by traditional healers and head of departments from the visited institutes. This variation depended on the methodology used to involve them in the study as well as the information needed from each of the categories. Although this study failed to reach the 84 numbers of the population in this study, it succeeded in yielding 86% response rate through various sampling techniques. The biographical characteristics of the involved respondents in this study testify that there was representation of the targeted population from the intended districts in Tanzania. However, the characteristics of the respondents was studied in order to give the researcher an opportunity to study the existing relationships between some variables in the biographical information such as age, gender, education, experience and religion of the respondents against various variables in the study such as necessity and readiness to document and preserve IHHK in a repository, as well as perceptions towards documenting and preserving such knowledge. Therefore, the results of this study can be generalised to communities in Tanzania. Hence, the results conform to the Boisot's (1995) I-Space, abstraction components which entail generalising the application of newly codified insights to a wider range of situations.

6.3 Ways in which IHHK is managed in Tanzania

The assumption that guided the collection of data for the question on how IHHK is managed in Tanzania was that Tanzania is a market place of IHHK which substantially contributes to modern developments but is not properly managed. In the management of the IHHK, three issues were

examined, these included the manner in which IHHK was accessed by the prospective users; the ways and the status in which it is documented; and the ways in which it is preserved, transferred or shared.

6.3.1 Accessing IHHK services

The findings of this study showed that the status of accessing IHHK services and products for Tanzania is very high. It is estimated that about 60% of the population of Tanzania use traditional medicine for their day-to-day health care requirements. Most people in Tanzania consult traditional healers first for their various ailments and only visit hospitals in case of complications (URT, 1990; 2003; 2007). The findings of this study therefore supports Moshi *et al.*'s (2007) finding that a good number of Tanzanians use traditional medicines for their day-to-day healthcare needs. The previous literature, including Gessler *et al.* (1995); Posey (2000); Kanwar, *et al.* (2005); Elujoba *et al.* (2005); Caldwell (2007); Ghosh and Sahoo (2011) and Yetein, *et al.* (2013) show that increased access to and use of traditional medicines is attributed to the fact that the medicine is considered to be non-narcotic, has limited side effects, is easily available, is cost effective and the only source of healthcare for the poor or rural communities where western health resources are scarce (Naicker, 2002).

The implication of the finding under this section is that Tanzanians still depend to a large extent on IHHK for their physical well-being. As discussed details in Section 6.3.2, the reasons for frequently consulting traditional healers as exposed to the conventional health practitioners' services conforms to Ross' (2008) finding that clients were dissatisfied with treatments received from conventional medical practitioners. In addition, the price of traditional medicine and services was cheap and easily accessible as compared to conventional ones (Naicker, 2002; Stangeland *et al.* 2008). In Tanzania, as Mpono (2007) found in South Africa among the Nguni people of the Eastern Cape and KwaZulu-Natal, traditional healers played a very important role in health care delivery, and they were well respected by their clients.

This finding rejects Kaniki and Mphahlele (2002) and Mpono's (2007) observations and the findings from other previous literature, that traditional medicine and traditional healers are primary healthcare for the poor or rural communities where western health resources are scarce.

During data collection for this study, it was observed that in some of the surveyed areas there were modern/conventional hospitals but there were many traditional healers in these areas/districts. Although, this may need another study to investigate the co-existence of traditional and conventional healthy services, this study's findings rejects the notion that poor or rural communities are the primary users of IHHK. The claim that traditional medicine and healing services is the primary medicinal treatment are accessible to rural communities and the urban poor may drive a researcher's attention to re-define the terms 'poor' and 'rich' in this context because the findings of this study showed that people from all economic groups accessed traditional medicine and healing services. There is also an increase in the number of traditional healers and users in urban areas.

The conclusion can be made that traditional medicine is not only used in rural but also in urban areas where there are many well-established conventional healthy resources and services. One could however understand that the reason for increased use of traditional medicine is because the medicine is non-narcotic, easily available, cost effective and is the only source of healthcare in some communities irrespective of such community being in either a rural or urban area. An alternative perspective is that the use of traditional medicine in some parts of the country is because of some cultural influence (Moshi, *et al.* 2007; Mulaudzi, 2012). Even in urban settings where many conventional healthcare facilities are available, people still consult traditional healers irrespective of their economic situation. Thus, there is an increased use of such knowledge and services even in urban settings which is believed to be the home of well-off people and that many conventional healthcare facilities are available. The finding of this study affirms the Mulaudzi (2012) argument that traditional medicine is an important part of the everyday life of people in African communities.

The findings of this study showed that various sources of information were used in accessing IHHK by the prospective users, but the main source was peers and friends who had used the services and products. Based on multiple responses, 100% of the 18 traditional healers during the data collection mentioned peers and friends as the main source of clients. The findings were also supported by the prospective users during focus group discussions that peers and friends were the most preferred and satisfactory sources of information used as compared to other sources. Other

source of information mentioned were posters, radio and newspapers. Although, posters, radio and newspapers were not mentioned specifically by respondents in the category of traditional healers as the source of information used by prospective users in accessing IHHK, they were however mentioned as sources by the prospective users themselves.

The findings of the current study accepts Nonaka and Takeuchi's (1995) socialisation attribute as individuals share their experiences. Also, the findings concur with the Davenport and Prusak (2000) model on the attribute of having brokers in the knowledge market, that is to say peers and friends who have used the services and products, and other sources assumed the role of brokers creating connections between people who needed the product and services to those who had the knowledge to provide the services and the products. In the idea of the knowledge market, Davenport and Prusak's (2000) model identified three factors influencing efficiency of markets. The factors are completeness of information, the localness of knowledge and reduction of asymmetry of knowledge in the country, organisation or community. This means that peers, and friends and other sources of information fulfilled the needs of efficiency of markets in which knowledge owners and prospective users share information on traditional healers' practices.

In the process of knowledge marketing, Davenport and Prusak (2000) emphasis the attributes of the knowledge market's signals, efficiencies and absence of pathologies. Absence of pathologies in this context refers to the absence of abnormal conditions and causes constraining the management of IHHK. For example absence of resources (physical, personnel and financial resources), and presence of unfavourable legal and administrative environments. The knowledge market signals indicated how prospective users of IHHK gained access to and used the mentioned sources of information. The efficiency of markets was basically observed through where, when and how buyers and sellers find each other and exchange their goods readily. Traditional healers had specific places, either at home or a traditional dispensary where they came into contact with users. One question that may be asked and perhaps may need further research or study, is how far the idea of the three factors influencing efficiency of markets such as the completeness of information, the localness of knowledge and reduction of asymmetry of knowledge in the organisation was fulfilled in the absence of repositories, public domains and locations where IHHK metadata is stored for access by the public. However, the findings of this

study showed that in the absence of pathologies to understand how owners are allowed to rent their expertise to accomplish or solve health problems was clearly stated by the Traditional and Alternative Health Practice Act No. 23 of 2002 through registering and licensing traditional healers and their services. This is regardless of the weak legal protection of IHHK in the country which was observed from the study's findings. Thus, making it difficult for the Boisot's (1995) diffusion attribute to happen because the knowledge is not easily accessible due to the poor legislative framework on access to IHHK.

6.3.2 Prospective users of IHHK

It was evident from the findings of the current study that age group and economic status of people had no impact in terms of accessing and using IHHK. In order to test the assumption, respondent were asked questions that needed to study their status on the matter. It was found that people of all age groups and from all economic groups were frequent users of traditional healers' services and products. Based on multiple responses, 85% of respondents mentioned failure of conventional medical treatment in curing some diseases as the main reason for people from all economic groups accessing IHHK; and 75% of them mentioned the cost of conventional medical treatment as the main reason. This finding conforms to the previous literature such as Gessler *et al.* (1995); Posey (2000); Kanwar *et al.* (2005); Caldwell (2007) and Yetein *et al.* (2013) that there were increased demands and use of traditional medicines which was attributed to various factors as mentioned in the first paragraph of Section 6.3.1 of this chapter.

In addition, the findings showed that the high cost of conventional medical treatment was one of the factors for some people, especially those from low and middle economic groups hence their use of IHHK. This conforms to Naicker (2002); Kanwar *et al.* (2005) and Caldwell's (2007) findings that the price of traditional medicine was a factor influencing access to it, that the prices of traditional medicine was cheap. This meant the medicine from IHHK was cost effective and delivered value for money. This may mean that the economic potentiality has an implication for accessing and using traditional medicine. However, this factor does not justify the increased demand and use of IHHK by people from all economic groups as the result of this study suggest. However, the fact that there are some diseases that cannot be healed and cured by conventional

medicine except by traditional medicine may be the most important justification for the increased demand and use of IHHK (Naicker, 2002; Ross, 2008).

6.3.3 Perceptions on documentation and preservation of IHHK

On the necessity of documenting and preserving IHHK, 83% of the traditional healers who participated in this study were of the opinion that documentation and preservation of IHHK was necessary. Only 17% rejected the idea. Based on multiple responses, the findings show that of the respondents who perceived the necessity of documenting and preserving IHHK, all of them gave the reason that documenting and preserving IHHK would simplify preservation and facilitate usability by future generations. However, 100% of those who opposed the idea were of the perception that it was because they were not aware of the source or the originator of the knowledge. The negative perception of respondents on the necessity of documenting and preserving IHHK could have been attributed to lack of awareness of the centrality and benefit of IHHK in it not only improving human health but also socio-economic development, and research.

As presented in Table 5.6, one of the reasons for documenting and preserving IHHK is commercialisation of such knowledge. Commercialising IHHK is about making such knowledge a source of income. In other words, commercialising IHHK involves the ability to make such knowledge a source of tourists' attraction, employment creation and income generation. This finding is in line with Caldwell's (2007) finding that encourages managing TK as a source for tourist attraction. According to Cetinkaya (2009), green and cultural tourism attributes of the model is the result of active participation of the knowledgeable community members. Hence, the proper management of IK is an initiative to generate employment opportunities and income as well as improving cultural interaction and relations. According to Kiggundu (2007), documenting IK makes it easier to market such knowledge for the benefit of communities, and to prevent it from unauthorized and surreptitious exploitation. This means that documenting IHHK makes it easier to promote and protect such knowledge through IPRs. Findings relating to such protection will be discussed in more detail later in the chapter.

6.3.4 The current status of documentation and preservation of IHHK in Tanzania

The findings showed that, in Tanzania, traditional healers were accorded a lower status when compared to their counterparts in conventional health service provision. Although traditional healers were not fully accepted as health practitioners and were marginalised by the country's health system as stated in Section 5.3.4 sub-sections 5.3.4.1 to 5.3.4.3, they were recognised by the government as stated in Chapter Five, Section 5.4.2 especially in sub-sections 5.4.2.6 and 5.4.2.7. However, the marginalisation of IHHK not only occurs in Tanzania but also in other countries. This is supported by the study of Dlamini (2005) on the management of IK in Swaziland which found that IK was marginalised in the management of library resources in Swaziland. Thus, such marginalisation does not only affect the management of IK but also hinders youth and other prospective people from joining the traditional healers' profession.

In assessing the actual status of managing IHHK in Tanzania, the finding show that of 25 respondents, only 8% commented that the IHHK was fairly documented. Thus 92% were of the opinion that nothing had been done in terms of managing the knowledge and a substantial amount of such knowledge was still preserved in the minds of the owners. Thus, the knowledge cannot be regarded as common-sense. According to Boisot's (1987) knowledge category model, when un-codified knowledge is diffused such knowledge is common-sense knowledge. The factors for the lack of documentation of IHHK included that traditional healing knowledge was the gift from God to a particular person, and therefore is not easy to document and preserve in a repository. The low level of education among traditional healers was mentioned as another constraining factor for the country's success in documenting and preserving IHHK. This finding agrees with Okorafor's (2010) finding that the status of documentation of IK in Nigeria was not given due importance as not much of the knowledge was being captured and recorded for preservation. Therefore, this discouraging status of documentation and preservation of IHHK in Tanzania means that the country has not gone very far in managing the IHHK.

However, the findings showed that there was some success in that the ITM is progressing in preserving materials with medicinal values (*materia medica*). However, the information at the ITM herbarium was not intended for public access. The metadata available in the herbarium was confidential and was only used by ITM researchers and students. Moreover, it was observed that

the TAHPC registered traditional healers. This indicated that there was some progress in terms of managing IHHK, although there were insufficient conditions for sharing such knowledge by prospective users. The management of IHHK does not end with the registration of healers; documenting the types of diseases which they heal rather than just researching and preserving metadata on materia medica of some trees. This finding conforms to Ikoja-Odongo's (2006) observation that little is written about African IK.

6.3.4.1 The availability of a public domain for accessing IHHK

In order to ensure the full recognition, access, use and protection of the available IHHK in Tanzania, one would want to establish the availability of public access to IHHK by the prospective users. This study's findings showed that out of 23 respondents, 96% of them stated there was no public access to such knowledge. This meant that the IHHK in Tanzania was not documented and preserved in a space that would allow prospective users to access the required information of such knowledge. Therefore, as mentioned earlier much of the IHHK in Tanzania was still stored and preserved in the minds of the traditional healers themselves. This finding corresponds to Kanwar *et al.* (2005); Ikoja-Odongo (2006) and Stangeland *et al.*'s (2008) observations that in many countries, IK is passed through oral tradition and stored in people's minds particularly those of elders, and unfortunately is lost with the death of such people. Therefore, the current practice is contrary to Oluic'-Vukovic' (2001) Knowledge Processing Chain model, especially the component of gathering and organising knowledge which entails discovery of the parts where knowledge resides, acquisition and creation of new knowledge, and further revealing the ways in which IHHK is codified and preserved. Therefore, according to Boisot (1987) in the knowledge category model, what occurs in Tanzania today is personal (the un-codified and un-diffused) knowledge.

Ngulube (2002) comments on the need to have an IK database with the argument that having such database in place was very important because it would provide insights on how societies have interacted with their environment. However, such an observation is ignored by countries in Africa. The management of IK metadata and the dominant KM model in Africa has been based on acquiring, organising and preserving recorded and codified knowledge, which is largely generated by researchers, laboratories and research institutions (Msuya, 2007). There is a need to

establish the tangible knowledge map/databases of IHHK similar to that which is available at the ITM, but with metadata deliberately saved to serve the purpose of the public who would wish to access such knowledge.

In addition, the finding of this study showed that when respondents were asked on the need for having public access, knowledge map/directory or database for IHHK in place, out of 25 interviewed respondents, 84% of them felt that the need existed. When they were further required to mention the reason(s) for their perceptions, they stated that it would help by providing easy access, quick reference, would simplify preserving IHHK for future use, and it would also commercialise the knowledge and make it accessible by the community. This finding concurs with Dexit and Goyal (2011) recommendations that it was necessary to preserve IK for the benefit of future generations.

Dexit and Goyal (2011) recommended that the best way to preserve IK is to encourage students to learn from their parents, grandparents and other adults in the community. This recommendation failed to account for the existing problem of knowledge-loss due to the deaths of knowledgeable people in the current study. Therefore, this finding gives strength to Boisot's (1995) I-Space model, especially the diffusion attribute. The model concedes that the diffusion axis helps determine how widely knowledge has been diffused. According to the model, the diffusion element is the result of codification and abstraction. In this study, the findings show that most of IHHK in Tanzania is still in the minds of the traditional healers. According to Boisot's (1995) I-Space model, the way a particular knowledge is codified or un-codified makes the knowledge spread, transferred and shared within the organisation. Codified knowledge is quickly spread and is easily shared than uncodified knowledge. Thus, IHHK stored in the minds is uncodified and is unlikely to be easily shared as the finding of this study showed that there were no repositories in the study areas where the knowledge could be codified and stored, accessed and used.

6.3.5 The role of various stakeholders in managing IHHK

The intent of the questions on the role of various stakeholders was to reveal the roles of various stakeholders in managing IHHK. It was also aimed at testing the assumption that the Tanzania

central government and local authorities are potential institutes in managing IHHK. Based on multiple responses of the questions, the findings showed that out of 25 respondents, 60% perceived traditional healers and their organisations as having a role in the teaching and transfer of their knowledge to the younger generation. This was the perspective of 48% of respondents who perceived that the role of the traditional healers was to participate in documenting and collecting knowledge, and 39% perceived the traditional healers had roles in ensuring that medicinal trees were preserved for use by future generations. The finding concurs with Nonaka and Takeuchi's (1995) externalisation component of knowledge in the spiral model as well as the Boisot's (1995) scanning aspect which assume that individuals have the role of ensuring that knowledge flows within an organisation.

6.3.5.1 Benefits of a traditional healers' network in the management of IHHK

It was perceived by 91% of the 25 respondents that there were benefits of having a network of professionals (in this case a network of traditional healers). Based on the multiple responses, the mentioned benefits included having a network to build capacity of health services providers and that the network facilitates easy flow of knowledge and sharing through regular meetings. The responses indicated that professional organisations are important in reaching certain desired goals. In addition, the professional organisation would play the role of influencing and educating the public regarding the critical role played by traditional healers and their knowledge in improving human health. However the available traditional healers' networks have not lived up to these expectations. Thus, there is the need to establish traditional healers' organisations which would achieve such expectations. Findings showed that 96% of the traditional healers who were not attached to any professional organisation, stated the existing networks were not achieving such expectations.

Furthermore, the findings showed that respondents from the category of traditional healers and head of departments perceived traditional healers and their organisations as having a great role to play in managing IHHK. The assumption was that together with the reasons mentioned earlier for having a professional organisation of traditional healers, the role of the organisations was to improve and strengthen the profession by establishing standards for traditional health services

delivery, and negotiating with government on other various matters. In addition, such organisations should promote and encourage the younger generation to join the profession.

The assumption that traditional healers' networks had an impact on the readiness of traditional healers to document and preserve their IHHK prompted the need to test the relationship between these two variables. As shown in Table 5.8, the test proved that there was no statistically significant association between the traditional healers' status of belonging to a professional network against their perceived readiness to document and preserves their knowledge. This means that the finding suggests that having and belonging to a network of traditional healers organisations did not influence the traditional healers' acceptance or rejection of the idea of documenting and preserving IHHK. However, the failure of the professional organisation to influence readiness to document and preserve healing knowledge may be due to the following facts:

- (i) The traditional healers' organisations were not informed of the idea of documenting and preserving IHHK.
- (ii) The established professional organisations were established to perform and achieve other objectives rather than sensitising members to document and preserve their knowledge.

Although the factor of having a network did not seem to influence documentation of IHHK, the perceived need and readiness of traditional healers to document their healing knowledge in a repository was very high. This finding may be an indication that traditional healers were aware of the importance of documenting and preserving IHHK in a repository; that traditional healers were aware that codifying such knowledge would cultivates a sense of cultural heritage and possible economic development; and would enable easy access, sharing and use of the knowledge by people. The responses and views concur with Maponya's (2005) argument that unless knowledge is made explicit, such knowledge would frequently be lost or not be properly managed.

When levels of education were assumed to have an influence on the traditional healers joining a professional organisation, the Chi-square test of associations proved an absence of any relationship between the two variables. This implies that the levels of education reached by

traditional healer and the interest to be part of a network with colleagues in the profession are two independent variables. However, in order for professional organisations to perform their roles well in managing IHHK, professional organisations would require educated people who will be able to create awareness on various matters concerning traditional healers and the public. Such matters would include the existing IPRs and the ways in which they protect their knowledge, educating and training members on matters pertaining to their profession and safe guarding professional interests and providing security of their IHHK in the country.

6.3.5.2 The role of private and public organisations

It was confirmed from the current study that private and public organisations were not fully participating in the management of IHHK. As stated in Chapter Five, Section 5.3.5.2, of the 18 traditional healers, 89% had not been consulted by either private or public organisations. Moreover, it was thought that the age of a traditional healer and number of years in which they served as health practitioner had an influence on organisations consulting them. However, the finding showed that a number of years that a traditional healer lived and experience in the service had nothing to do with the status of being consulted by either private or public organisations. This may be due to the fact that the IHHK acquired no economic value that would attract such organisations, as stated by Msuya (2007) citing Kaniki and Mphahlele (2002) that IK has traditionally not been viewed in the business sense as capital. Thus IHHK, as a system of IK, has not effectively been managed. Organisations did not consult owners of such knowledge in the same way as which they conduct scientific knowledge, which is well managed because it is taken as knowledge that can be interpreted as capital valued or taken as profit (Dlamini 2009). On the other hand, secrecy and unwillingness on the part of traditional healers to document information on their healing knowledge might also be the reason for not being consulted by either of the two categories of organisations.

In addition, on affording equal status among the two systems in health delivery, it was found that the longevity and the experience that a traditional healer had in service delivery did not guarantee the acquisition of the same status as conventional health practitioners in Tanzania, as stated in Chapter Five, Section 5.2.10.3. The low status of traditional healers can be attributed to several factors. Firstly, it may be due to their low levels of education. Most of the traditional

healers in the country were not highly educated as they only received primary education as compared to their counterpart, as conventional health practitioners, who attended post-secondary education. Secondly, the misinterpretation of traditional healing services among members of the community and the religious people who tended to demonise such knowledge. The misinterpretation is observed in associating traditional healing with witchcraft and divination. However, misinterpretation of traditional healing services in Africa is viewed in the sense of colonialism and the establishment of foreign religions such as Christianity and Islam. In order to consolidate colonialism in Africa, colonialists used religion to suppress practices of Africans and their IK. This is in line with Kaniki and Mphahlele (2002) and their statement that the rise of colonialism in Africa had a profound negative impact on IK.

6.3.5.3 The government's role in managing IHHK

From the respondents' concerns and the review of various government documents, it was found that although people still use, and the government recognises traditional medicine, there was still weak government support for the management of IHHK (Chirangi, 2013). For example, the finding of this study showed that 100% of traditional healers in the study had received no assistance from the government either directly or through the TAHPC. However, the government has an important role to play in managing IHHK. The role as stated in Chapter Five, Section 5.3.5.3, includes creating a conducive environment for access, preservation and sharing of IHHK; provide sufficient facilities and creating suitable infrastructure for the management of IHHK; involving traditional healers in the health system by enhancing collaboration between traditional healers and conventional health practitioners in the provision of health services; establishing a centre such as a hospital which traditional healers will use for the delivering of their services; and giving the traditional healers land where they can cultivate trees with medicinal value. From the documents reviewed, the government has the role of formulating policy and regulations regarding the management of IHHK; registering traditional healers and provide licences for their services; supervising development of traditional health practice; ensure biodiversity is maintained; teaching and conducting research on traditional medicine, and training co-ordinators on how to manage IHHK.

Moreover, it was found that traditional healers would like to receive assistance from TAHPC and the government. The type of assistance which they would like to receive ranged from the creation of health infrastructure (provision of working tools, materials and facilities for documentation and preservation); work premises for healers (working houses for traditional healers); consulting and training traditional healers on proper health services provision (strategising healers on the management of IHHK); as well as dedicating land for growing medicinal trees. In order for this assistance to be implemented, government support (materially and financially) is required. However, the study found that the management of the IHHK system faces insufficient funding allocations from government when compared to the conventional medical system. In relation to this assertion, this is in accordance with Chirangi's (2013) claim that there was insufficient fund allocations to the management of IHHK projects as compared to that of the conventional health system as result of lack of or weak governmental support. However, the argument by Moahi (2007) necessitates governments to start supporting and championing the establishment of IK resource centres or repositories as clearing houses for collecting, documenting and disseminating IK.

6.3.5.4 The role of religious organisations

The findings showed that during the interview sessions, 92% of respondents were of the view that religious organisations do not play any role in the management of IHHK. Respondents claimed that religious organisations did not recognise the importance of IHHK for human well-being, for research and future generations. This may be due to religious leaders' poor interpretations of traditional medicine and healing knowledge, as most of them connected it with witchcraft, magic, divination and devil worship. This is in line with Titoce (2002) and Chirangi's (2013) findings that churches dismissed African practices publicising it as immoral and not compatible with the Christian faith. Also that the roles of traditional healers were distorted through foreign religious teachings which were against the practice of traditional medicine associating it with witchcraft as mentioned earlier. Kaniki and Mphahlele (2002) are also of the opinion that the rise of colonialism in Africa had a profound negative impact on IK. However, in reality traditional medicine and healing knowledge is not against the teaching of the Bible and Quran.

6.3.5.5 The role of ICTs in the management of IHHK

The findings showed that out of 27 respondents, 64% preferred the use of ICTs in the management of IHHK. The reasons provided included the simplicity of storing and preserving knowledge metadata and efficiency of communication and access of IHHK (bringing together users and owners) through ICTs. It was also found that ICTs can assist in performing various functions such as education delivery, documentation and preservation of IHHK, simplification of access to information on IHHK and preservation of records for future generation. Thus, ICTs could help in the management of IHHK. This accepts Davenport's (2000) and Oluic'-Vukovic' (2001) model's on the importance and use of IT in KM. Other authors who supports the use of ICTs in preservation of knowledge include Ayars (1983), Oluic'-Vukovic' (2001), Haralambos and Holbon (2004), and Rasooli and Albadvi (2007). However, the traditional healers in the country still had limited knowledge on the use of various ICTs and technological tools as most of them had low education levels and thus were not capable of making full use and application of ICTs in their activities and in the preservation of their knowledge.

6.4 Administrative and legal issues relating to the management of IHHK

Administrative and legal issues are very important in the management of IHHK. In measuring the assumption that knowledgeable community members would be willing to document their IHHK only if security were to be provided by the existing legal framework, respondents were asked various questions on the influence of the legal framework in the management of IHHK. In addition, various legal documents were reviewed. The findings show that various governmental legal documents, including those on health service sectors, disregarded the management of IHHK. It was found from the current study that such knowledge was still managed and controlled autonomously by members of the community and traditional healers themselves.

6.4.1 Awareness of the availability of IPRs

On the awareness of respondents regarding the existence of legal frameworks relating to the management of IHHK, the finding of this study showed that most of the respondents had no knowledge of the existence of a legal framework guiding the management of IHHK. Moreover, the finding showed that among the 18 traditional healers who participated in the study, 89% of them lacked awareness of the existence of a legal framework that protected their knowledge.

That means the traditional healers were not aware of whether the IPRs existed or not in the country. Thus, traditional healers were not influenced to document and preserve their knowledge as there were no assurances of security or protection of their knowledge. It was further found that some respondents in other categories were not sure as to whether the country's legal framework mentioned the management of IHHK or not. Some respondents did however know that Tanzania had a parliamentary Act, the Traditional and Alternative Medicines Act, No. 23 of 2002, and Regulations of 2008. Very few traditional healers were aware of the existence of the Act or Regulations. However, the Act and Regulations were primarily about the establishment of the TAHPC, and the registration of traditional health practitioners, their rights and duties as well as the regulations guiding the practice of traditional and alternative medicines.

The findings further showed that during the time of data collection for this study there was no formal policy for protection of the managed IHHK. The existed regime on the protection of IPRs was not suitable to influence the documentation and protection of the managed IHHK in a repository. From the reviewed literature in Tanzania such as Msuya (2007) and Chirangi (2013), it was observed that there was a tendency by large companies to modify or adapt scientific explanations and dosage from traditional healers' knowledge and/or the local community, and package and protect the knowledge with patents of their companies without any compensation for the primary owners of such IK. This is the result of weak protection of property rights of the traditional healing knowledge in Tanzania. This therefore discourages traditional healers from documenting their knowledge (Chirangi, 2013).

Therefore, in order to protect IHHK from being lost and misused, either the government and/or NGOs should support IHHK management projects. The support should focus on both material and financial support. Material support includes preparing training and employing knowledge managers who could work by collecting and categorising such knowledge; establishing knowledge-oriented technological infrastructure; and monitoring the use of such knowledge (Dlamini, 2009; Cetinkaya, 2009; Davenport and Prusak, 2000). This observation is in line with Dlamini (2009) who suggests that for the preservation of knowledge, knowledge managers dealing with IK, and in particular IHHK, should identify and use effective motivators and motivating techniques to facilitate knowledge sharing. According to Davenport and Prusak's

(2000) model, the motivators and motivating techniques involve creation of trust among sharers of a particular knowledge. According to Davenport and Prusak (2000), in order to create an environment of trust includes sharing the same culture among people, time and meeting places, and the status and reward of knowledge owners who share their knowledge. This means that recognising that in order to facilitate and ensure that knowledge (in this context the IHHK) is shared, knowledge owners and generators must be supported and assured appropriate compensation, rewards and/or recognition for their knowledge (Kaniki and Mphahlele, 2002). Otherwise, it will be very difficult to influence the perceptions and readiness of traditional healers to document and preserve their knowledge for sharing in a repository. The implication here is that documentation and preservation of IHHK depends a great deal on the existence of the proper IPRs. The IPRs should therefore give full and proper recognition to the rights of indigenous and local communities to their own knowledge, innovations and practices (Quiroz, 1994).

The level of education reached by participants was cross-tabulated with the awareness of the participants on the existence of the IPR with the aim of ascertaining some association between the two variables. The finding showed that the participants' levels of education had some impact on their understanding of the availability and existence of IPRs in the country. This finding concurs with the abstraction attribute in Boisot's (1995) model, which is of the view that different categories of knowledge exhibit a high degree of association that one can stand in lieu of the other.

6.4.2 IHHK management issues in legal documents

In understanding the country's level of commitment to the management of IHHK, it was essential to study how IHHK management issues featured in the country's legal documents. Documents such as the Tanzania Development Vision 2025 of 1999, the National Biotechnology Policy of 2010, the National Research and Development Policy of 2010, the National Health Policy of 1990 and the National Health Policy of 2003 were reviewed. Other legal and policy documents include the National Health Policy of 2007, the National Tourism Policy of 1999, the Traditional and Alternative Medicine Act, No. 23 of 2002, and the Traditional and Alternative Medicine (code of ethics, conduct and practice) and Regulations of 2008.

The finding of this study showed that the context for the registration of traditional healers and health facilities has been created by the Traditional and Alternative Medicine Act, No. 23 of 2002, and the Traditional and Alternative Medicine (code of ethics, conduct and practice) Regulations of 2008. The results of this study are in line with the study of Stangeland *et al.* (2008) who observed that the Act, No. 23 of 2002, aimed at integrating traditional medicine in the national healthcare system as well as encouraging co-operation between traditional healers and conventional medical practitioners. However, regardless of the context, the management of IHHK in the country was not encouraging. This implies that the reviewed legal documents meant that although Tanzania recognised the roles and contributions of traditional healing knowledge in improving human health, the documents were silent on the management of IHHK with insufficient legal framework to document and preserve such knowledge. Therefore, the literature suggests that in countries such as Tanzania where there is a growing interest on the use of indigenous health care resources, governmental policies should aim at guaranteeing recognition of the importance of herbs and their preservation as part of the country's resources (Gessler, *et al.* 1995). The country's government is urged to ensure the passing on of such knowledge of medicinal plants and the practice to the younger generation to safeguard it against loss.

The finding showed that the existing legal framework in Tanzania did not create sufficient condition to ensure security for the documented and preserved IHHK. Moreover, the legal documents reviewed lacked provisions linked directly to the management of IHHK and also the manner in which it should be protected as well. The silence of the country's legal documents on such matters may be attributed to the habit of associating such knowledge with witchcraft, magic, divination and evil. Thus leaving the room open for exploitation of it without protection as Msuya's (2007) and Chirangi's (2013) studies found that modified or adapted scientific explanation and dosage from large companies was well packaged and protected by patents of those companies, leaving the primary knowledge owners (the traditional healers and/or the community in this case) without any compensation. Thus many studies, including this study, urge the countries to create appropriate policies to encourage and provide guidelines on the innovation, conservation and preservation of IK especially IHHK (Mchombu, 2004; Msuya, 2007; Okorafor, 2010). Msuya (2007) proposed guidelines on policy creation so that a proper policy for the management of IK and IHHK in particular, should address, among other things,

the government's appreciation of IK; political commitment to the IK system; copyright and patent issues; use of IK; a trans-border IK system and how to share it; statement on protection of IK, preservation of IK; and distribution of benefits accrued from IK. In this regard it is argued that in order to succeed, governments in countries with such indigenous knowledge should play a leading role in the creation, development and protection of IK for human health (Msuya, 2007).

6.4.3 Plans for the formulation of policies and strategies

Despite the fact that it was discovered in the study that many participants had no knowledge of what the process was regarding the formulation of policies and strategies, it was however found that there were ongoing efforts to enact effective laws and policies to achieve the management of IHHK in Tanzania. This implies that during the period of data collection for this study, there were no policies regarding the management of IHHK in Tanzania and the government was in the process of formulating such policies and laws expected to cover issues on the management of IK and probably IHHK.

6.4.4 Functions of IPRs in protecting IHHK

The findings of this study revealed that having IPRs in place would benefit the community and the country at large. In addition, it would also provide security and encourage invention and creativity among traditional healers, also boosting up their economic and moral status as well. This means that with IPRs in place, the community and the knowledge owners would be financially rewarded especially when other people want to use such creativity and inventions. In addition, when IPRs for IHHK are to be marketed, the government would also collect revenue from it. Thus the IPRs will protect the right of ownership from theft and exploitations by big companies. Furthermore, it will help researchers and research institutions to facilitate knowledge dissemination and technological transfer from one generation to another and from one jurisdiction to another. In addition, the IPRs would influence prospective users to access the improved IHHK products and services.

It was noted from the findings of this study that IPRs are very important not only for the knowledge owners but also for the government, community and research institutions. According to Feris (2004), IPRs are the most effective legal mechanism to safeguard the products of human

creativity from being infringed or misused by others. Thus, as a strategy for managing IK, IPRs should be upheld so that indigenous communities can benefit from commercial use of their IK (Dlamini, 2009). In addition, the IPRs could influence the traditional healers to co-operate with knowledge managers because some traditional healers depend on IK as their only source of income. Thus, they cannot disclose it freely without assurance that they would benefit from it been shared. This finding of the current study accepts Sharabati and Nour's (2013) view that once IPRs are established, owners enjoys certain specified rights in terms of its duration up to 20 years for patents and life plus 50 years for copyrights (United Nations, 2007).

The importance of IPRs can be assumed by Cetinkaya's (2009) element of eco-labelling in the holistic strategy for the maintenance and transmission of TK model. The Cetinkaya (2009) element gives stakeholders the label to commercialise their know-how as means of improving their economic welfare through job creation and employment. However, IT and agencies' support in terms of improving access and marketing strategies, infrastructure, and accessing micro-credits, capacity building and dealing with externalities such as the co-operation with tourism agencies may affect the process (Cetinkaya, 2009).

6.4.5 Influence of IPRs on the readiness of documenting and preserving IHHK

The finding shows that the IPRs had an influence on such readiness. It was perceived that if the IPRs that protect the IHHK were in place, knowledge owners would have been ready to document and preserve their knowledge. This means that knowledgeable community members were willing to document their IHHK only if security for their knowledge was assured. This was also noted by Chirangi (2013) in the study on "Afya Jumuishi: towards inter-professional collaboration between traditional and modern medical practitioners in the Mara Region of Tanzania". Since, it was noted that there was weak protection of traditional property rights in Tanzania, traditional healers were therefore reluctant to document their IK (Msuya, 2007).

The finding on the weak protection and prevention from extinction and piracy agrees with Cetinkaya's (2009) idea of having instruments for providing benefit sharing and advice. According to Cetinkaya (2009) model, for effectiveness, achievement and sustainability of the responses, and insurance of equitable benefit sharing for the local communities, the instruments

for providing benefit sharing and advice should be put in place. The instruments will help in negotiating fair terms; and provide monetary support to the country-wide programme of documenting IHHK and the related projects. This in turn provides sufficient benefit not only to the knowledgeable community members but also to the local community from the commercialisation of their local products (Feris, 2004; Okorafor, 2010). This observation concurs with the Davenport and Prusak (2000) working knowledge model on the views that the knowledge market works by having pricing and payment mechanisms. It is in this context that the mechanisms are created by the presence of a legal and environmental framework. Therefore, it is in this milieu that it is very important to have national indigenous policies and strategies for the documentation and preservation of IK. Lack of such policies remains a challenge for a country with IK such as Tanzania (Okorafor, 2010).

6.5 The necessity of documenting and preserving Tanzania's IHHK

It was observed that responses from the categories of respondents who participated in this study through face-to-face interviews as stated in Chapter Five, Section 5.5.1, perceived the need and necessity to document and preserve IHHK in Tanzania. Of 18 traditional healers interviewed, 83% perceived the need to have IHHK documented and preserved, and only 17% did not perceive such a need. All the head of departments from the surveyed institutions perceived necessity for documenting and preserving IHHK. Thus a total of 89% of respondents who participated in the study through the interview sessions perceived the need for documenting and preserving IHHK. This implies that respondents were aware of the importance and necessity of documenting and preserving IHHK. In addition, they were also aware of the values attached to IHHK for historical data, for the prosperity of future generations, research and development.

The finding of the current study are in line with the Dlamini's (2009) view that IK is an important resource which needs to be collected and preserved for the present and future generations, and also disseminated in every possible way. Furthermore, Moahi (2007) is of the view that documenting IK would establish prior existence and deter fraudulent claims of intellectual property, thus promoting and protecting IK. Moreover, documenting and preserving IHHK makes it easier to be marketed for the benefit of communities, and prevents such knowledge from unauthorized and surreptitious exploitation (Feris, 2004; Kiggundu, 2007).

According to Mchombu (2004), recording IK is akin to safeguarding it from being misused or stolen by other people. The documented IK would provide evidence that a particular community owned such knowledge. That is why Cetinkaya (2009) advocates having in place instruments for providing benefit-sharing as one of the most important attributes in the management of IHHK. Similarly, Davenport and Prusak (2000) assert that a country as an organisation is urged to properly manage IK by not only having market places and spaces for trading and sharing but only by performing well the processes of accessing, codification and preservation. If this is successful, then there is a chance for green and cultural tourism that would generate employment opportunities and income as well as improving cultural interaction and relations (Cetinkaya, 2009). According to Cetinkaya (2009), green tourism encourages visitors to work together with local people to collect and preserve the available IHHK. Active participation of the knowledgeable community members in green and cultural tourist activities should be supported to create opportunities for the transmission of TK.

6.5.1 Relationship between traditional healer's age and experience against the attitude to document and preserve IHHK

The findings showed that none of the traditional healers in the age groups ranging between 21 to 50 years were against the idea of documenting and preserving IHHK, except some of those in the ages above 51 years. The reason for their rejection of the idea may be due to lack of writing skills and use of modern technologies among the traditional healers at the ages above 51 years. This could also be due to a lack of awareness of the importance of documenting and preserving IHHK, and lack of trust. Furthermore, the findings of this study show that attitudes towards necessity of documenting and preserving IHHK was not influenced by experience based on the number of years which a traditional healer has been involving in service delivery. Therefore, from the Chi-Square test of relationships, the finding of this study implied that age and experience had no influence on the traditional healers' attitudes of documenting and preserving IHHK. That means there was no relationship between age of the traditional healer and the experience in delivering services against the attitude towards documenting and preserving IHHK.

6.5.2 Readiness of traditional healers to document their IHHK

Regardless of the age factor and experience in services delivery by traditional healers, traditional healers were still ready to document their knowledge. The findings show that 56% of the 18 traditional healers involved in the study were ready to document and preserve their knowledge, while 44% were not ready. In addition, the responses from seven (71%) heads of department perceived traditional healers as being ready to document and preserve their knowledge, while 29% perceived them as not ready. The few (six) respondents who perceived traditional healers as not ready to document and preserve their knowledge gave various reasons for their answers based on multiple responses. All of the six respondents stated that it was because there were no legal provisions providing security to the traditional healers' knowledge when this was documented, while 17% were of the opinion that it was very difficult for the people to understand the documented knowledge. In addition, they also mentioned that due to ignorance, some people did not understanding the role documentation and preservation of IHHK would play in the country.

Respondents who perceived traditional healers as ready to document and preserve their IHHK, mentioned various types of information which they considered traditional healers would be ready to document. The metadata ranged from local names of plants, parts of medicinal plants, the medicine preparation process, location of the plants/materials, medicinal values, dosage forms/use and method of application of the knowledge owner. This implies that a majority of the respondents confirmed the need to codify and preserve IHHK in a repository, and the traditional healers themselves were ready to document and preserve IHHK. However, legislation, policies and strategies that ensure security of their knowledge need to be enacted and put in place for implementation. Therefore, the finding of this study is in line with Oluic'-Vukovic's (2001) Knowledge Processing Chain model on the organising component which entails classifying and structuring the knowledge. This is similar to Boisot's (1995) codification and abstraction attributes in the I-Space model; Nonaka and Takeuchi (1995) externalisation component; and Davenport and Prusak's (2000) codification and transfer components in the Working Knowledge model. Organising activities enhance identification, location, retrieval and manipulation of knowledge using metadata schemes and tools, as well as techniques that enhance the processing and retrieval capabilities (Oluic'-Vukovic', 2001).

A test on the relationship between gender and readiness was carried out, and it was noted from the finding of the current study that there was no direct relationship between gender of the knowledge owners and the readiness of the traditional healers to document and preserve IHHK. That the findings did not find any association between the two variables as summarised in Table 5.16. This implied that the readiness to document and preserve IHHK in a repository did not directly relate to their gender (biological) status. This may have happened because of the unequal representation between respondents in terms of gender. In this study, out of 72 respondents, 68% were males, while only 32% females. Even when the designations of respondents was assumed to have an impact, it was still found to have no association.

6.5.3 The influence of traditional healer's religion on management of IHHK

The religious affiliation of traditional healers was also assumed to have an impact on the readiness to document and preserve IHHK. When the test of association between the two mentioned variables was carried out, the result showed that there was no statistical significance between the variables. This finding implies that the religious affiliation of traditional healers was not directly linked to their readiness to documenting and preserving IHHK. In other words, the readiness to document their traditional knowledge was not influenced by their religious affiliation but depended on the owners' perception and willingness to participate in the processes. However, results showed that the religious affiliation of a traditional healer can be one of the factors for the acceptance or rejection of the idea to document and preserve IHHK, as well as using such knowledge. Inferiority complexes amongst traditional healers before the eyes of religious followers and believers who consider traditional healing knowledge as witchcraft, divination, magic or evil is also another factor hindering the proper management of IHHK.

6.5.4 The influence of education on the readiness to document IHHK

The findings as shown in Table 5.19 indicate that there was no significant relationship between the education level of the respondents and the perceived readiness of traditional healers in documenting and preserving IHHK. The finding show that of 25 respondents, 52.9% of those who had received primary education were of the view that traditional healers were ready to document their knowledge while 47.1% were not. For those who had post-secondary education, 71.4% of them were of the view that traditional healers were ready to document their IHHK,

while 28.6% were not. All of those who had not gone to school were ready to document their knowledge and preserve it in a repository. These findings therefore imply that the traditional healers' rejection or acceptance to document and preserve their knowledge depended much on the individuals' willingness and need to do so, but did not depend on their level of education. However, although the level of education did not show any sign of influence on the perceived readiness of the traditional healers' to document and preserve their healing knowledge, there is still a great need for conducting a sensitisation and awareness creation campaigns in order to expose traditional healers and other stakeholders in IHHK to information that could change their attitude and readiness to document and preserve their IHHK in a repository.

6.5.4.1 The preferred format for documenting IHHK

It is obvious that IT has brought tremendous changes in various aspects including the management of knowledge where people tended to ignore other means and systems of storing and disseminating knowledge. While the finding of this study show that of the 15 respondents who responded to the question during the interview sessions, 42% of respondents preferred the metadata for IHHK to be stored in a print form because it simplifies access for many people, even those who lack skills in using ICTs. However, 33% of the respondents held the view that such information should be documented and preserved in both print and electronic forms for the following reasons namely that when information is presented in both electronic and print form it simplifies access; and it is easy to preserve such knowledge. The observation to store the IHHK metadata in both of the forms is valid in a sense that ICTs are not a panacea for all problems, as in some cases it may inhibit access and use of knowledge especially for user communities which lack or have limited skills for using such ICTs. Only one reason for preferring the electronic format was mentioned by 25% respondents who preferred the electronic format. The reason was that it was considered that preserving information in electronic form would retain the information longer (it would not be lost easily). Therefore, it can be concluded that the IHHK metadata should be stored in both print and electronic form because it would simplify access to persons familiar with either print or electronic formats. This finding of the current study responds to the Ngulube's (2002) and Okorafor (2010) recommendations that there is a need to codify IK into both print and electronic formats in order to make it widely available, accessible

through global information infrastructures and easy to use. A mix of dissemination channels and formats is very important in the management of IHHK.

6.5.4.2 Strategies to encourage readiness to document and preserve

The finding on this aspect shows that based on the multiple responses, two respondents mentioned the registration of traditional healers as one of the strategies to encourage their readiness. In addition, sensitisation and capacity building through seminars was also mentioned by the respondents who perceived that traditional healers were not ready to document their knowledge. However, registering traditional healers by TAHPC was seen as having less impact on the management of IHHK, because in reality the service providers (traditional healers) were registered however their products were not registered and there were no proper policies to protect their TK. This implies that the process of registering traditional healers was the first step in recognising the usefulness of traditional healers' services and products, and for setting a roadmap for documentation and preservation of IHHK for research, development and use by future generations.

6.6 Factors affecting the management of IHHK

IHHK is very important not only in the improvement of human health but also for socio-economic development, historical use by future generations and for research and development as mentioned earlier. However, the processes of managing IHHK can be affected by both internal and external factors. The internal management environment includes factors within the organisation that impact on the approach and success of management operations. The external environment consists of a variety of factors outside the organisation where the knowledge is available, and which the organisation and knowledge managers do not have sufficient control over.

In its broader sense, internal factors include the strength of knowledge owners, and managers' motivation to manage the process; the management processes itself; relationships between and among the traditional healers, government institutions and personnel responsible for the management of IHHK. All these can significantly impact on the effectiveness and efficiency of the management of IHHK. However, one of the most critical external factors impacting the

management of IHHK is stigmatisation of IHHK by conventional health services. Conventional health services ignore the traditional way of offering health services and view such approaches as primitive.

Other common external factors include socio-economic, legal, ethical, political and technological matters. In its broader sense, the socio-economic factors relate to the values, attitudes and concerns of stakeholders with regard to not only the continued use of IHHK but also in terms of allocation of funds and budgets to various IHHK management projects. The administrative, legal, ethical and political environments relate to the stakeholders' need to abide by IHHK management practices and principles in order to meet the ethical or social responsibility standards of communities and the country at large. While Davenport and Prusak's (2000) working knowledge identified some barriers in knowledge sharing/transfer, the factors constraining the management of IHHK in Tanzania are presented in Table 5.20. The management of IHHK in Tanzania faces a number of challenges including stereotyping and stigmatisation of IHHK, and education and technological application skills. Other factors include lack of proper infrastructure; mistrust between the two health systems; financial problems; formulation, implementation; and review of policies and strategies; legal and political commitment, and memory loss due to the death of knowledgeable people. The details of this are discussed in the following sub-sections.

6.6.1 Education and information technological application skills

In the context of this study, education is very important for both the IHHK stakeholders and the professional development of traditional healers. The findings of this study show that education and technological application skills were factors that affected the management of IHHK. The findings of this study indicate that many of the traditional healers in Tanzania had a very low level of education. In addition, the country did not invest sufficient resources to cater for the problem of lack of trained personnel to work as IK managers. It was found that there was a problem of a lack of ICTs and the application skills for the management of IHHK. Therefore, it was not possible to properly manage such TK without ICTs resources. For management efforts to succeed, traditional healers and knowledge managers should be trained to manage their TK by documenting and preserving it using ICTs.

It is rather disappointing that despite the present level of ICT development, none of the institutions or traditional healers themselves at their family level documented IHHK in electronic format for public access. This is a reflection that the level of ICT adoption in the country did not serve the purpose of documentation and preservation of IHHK. This is contrary to Davenport and Prusak (2000) model on the use of ICT. The model recommends that ICT has a key role to play in KM. However, lack of proper ICTs and expertise to apply the available technologies for documentation and preservation of IHHK in Tanzania is a challenge for all stakeholders. In other words, the technological challenge is associated with a lack of ICT application skills between and among the knowledge owners and knowledge managers, in addition to the lack of required expertise in using technological media in identifying, collecting and storage of IK (Ngulube 2002; Dlamini, 2009). According to Oluic'-Vukovic's (2001) and Bouthillier and Shearer (2002), technologies are useful in the whole processes of managing IHHK as it is used to synthesise data and information captured from diverse sources. As an emphasis, people and organisations should be ready to implement different technologies for sharing different types of knowledge (Snowden, 1998).

6.6.2 Stereotyping and stigmatisation of the IHHK

The findings of this study show that among the factors affecting the management of IHHK in Tanzania were stereotyping and stigmatisation of such knowledge by religious people and the public. Stereotyping of IHHK may refer to the state of affecting social attitudes and beliefs with the aim of creating negative attitudes, and the display of hostile or discriminatory behaviour towards the use of traditional healers' services and products. In most cases, the stereotyping cases leads to stigmatisation. Such stigmatisation influences the experience of people with negative attitudes on how the IHHK and holders of such knowledge should be treated by the wider community. This is observed through the ways in which people cope with the practice of IHHK in society, and the way in which society provides support for the management of IHHK. In other words, it is about distinguishing traditional healers' services and practices from other health services provided. One way of reducing stereotyping and stigmatisation of health practitioners is through education (NHS Health Scotland, 2008).

The findings show that the source of stereotyping and stigmatisation in this study was foreign religious teachings and conventional health practices which for many years ignored the traditional practices of Africans, and specifically in Tanzania. The finding is in line with Chirangi's (2013) views that colonialists in Tanzania made efforts to suppress the work and role of traditional healers. Colonialists, such as the Germans and later the British, used their foreign religious teachings to succeed in their prejudice. Such religious teachings were against the practice of traditional medicine and associated it to witchcraft (Stangeland, *et al.* 2008). This was done intentionally in order to suppress and discredit indigenous people's undertakings in the health and other sectors. It would be argued that was intentional error and misconception of Africa's indigenous culture and practices (Ross, 2008; Stangeland, *et al.* 2008). Therefore, the church's great tradition dismissed African practices as immoral and not compatible with Christian faith. Through religion, Africans practices and undertakings were demonised and were made to appear as the prototype of darkness which Christians, including African Christians, have to avoid at any cost (Titoce, 2002).

6.6.3 Financial constraints

Funding and budget allocation for the proper management of IHHK is essential to enable and achieve the required results. Funds are needed for infrastructural and personnel training, and development. Personnel training and development must involve not only the use of various ICTs for the management of IHHK but also for acquiring the proper techniques of managing the IHHK. However, from the findings of this study one of the challenges constraining the management of IHHK was the issue of limited funding and budgetary allocation. Neither public nor the private organisations allocated sufficient funds for the management of IHHK. This shows that funds are a prerequisite to the management of IHHK by either private or public organisations. Since there were no specific projects for the documentation and preservation of IHHK, apart from the registration of traditional healers and their services by the TAHPC, the traditional healers and traditional medicine were less valued. This also therefore discouraged younger people from joining the field.

The adequacy of the budget allocated to the projects on the management of IHHK is an aspect that needs more scrutiny. From the literature, Dlamini (2009) and Ngulube (2002) claim that the

challenges in managing IK include financial constraints. According to Dlamini (2009), financial constraints were the main challenge affecting the acquisition of the necessary equipment for IK management and the high transport costs to places where IK could be collected.

6.6.4 Infrastructure

In any organisation, infrastructure is a very important long-term foundation and is critically required for the management of organisational resources. In this context, the resource is the IHHK. The infrastructure required to manage IHHK include both support mechanisms and technologies. The infrastructure should support the management of IHHK and development through data processing, storage, dissemination and communication. Though the increased use of ICTs in various aspects of KM, is assumed to simplify documentation and preservation of it. However, the finding of this study show that ICTs were not fully utilised to manage IHHK. Generally, the findings show that the current infrastructure in the country lacks the facility to manage such knowledge. Due to lack of funds to finance infrastructural development projects for IK management, the infrastructure in Tanzania is still very poor. The availability of sufficient and appropriate infrastructure and equipment in the country would enable the management processes of IHHK to operate efficiently and effectively. Lack of such essential equipment implies that the management of IHHK is lagging behind.

6.6.5 Legal and political commitment

IHHK does provide profit to people especially those trading with traditional medicine. There should therefore be a mechanism set by the legal and political framework to ensure that the benefit appropriated to the trading of IHHK is also shared with traditional healers and the community. The finding of this study shows that there were no strong legal and political commitment in Tanzania in the documents including policies and strategies reviewed. It was further observed that there were no exact specifications on KM and eventually the management of IHHK. This finding concurs with Stangeland's *et al.* (2008) observation that due to the trading of such knowledge without legal and political commitment, the traditional healers and the community have been left without any benefits of the shares appropriated to Tanzania. This means that the existing regime on the protection of IPRs was not best suited to influence documentation and protect the managed IHHK in a repository. This is in line with the finding by

Chirangi (2013) who found weak protection of property rights of traditional healing knowledge in Tanzania as mentioned earlier. The weak protection of property rights is evident when they are modified or adapted with scientific explanations and dosage by large companies who package and patent the knowledge. This leaves the primary owners of the IK (the traditional healers and/or the community) without any compensation (Msuya, 2007; Chirangi, 2013).

The current study confirms that although legal and political commitments are key to the management of IHHK, the existing policies, strategies and other legal documents do not openly speak to the issue of the management of IHHK. The documents were silent on the involvement of stakeholders in the formulation, implementation, and review of various policies and strategies on the management of IK. This may be due to the effect of colonial governments on independent African countries. The colonial government in most African countries ignored TK and practises of the indigenous people. This view was also evident in various reviewed literature including the study by Ross (2008) which found that during colonialism in South Africa, the 1974 Health Act and its 1982 amendments restricted traditional healers from performing any act related to traditional medical practices. Thus, in relation to the current study's findings the country's government is still silent on the management of IK which may be as a result of the colonial mentality and misinterpretation of African IK by government and religious leaders. The study by Ross (2008) in South Africa, reports that after the 1994 independence, when the African National Congress (ANC) government formulated the White Paper for the Transformation of the Health System in the country, IK was valued. The White Paper was followed by a recognition of traditional healers as part of the broader primary health-care team in 1997. The situation of African countries which lack policies on the management of IK has also been observed in other countries such as Swaziland. A study by Dlamini (2009) on management of IK initiatives in Swaziland, found that there were no policies in Swaziland specifically focusing on the management of IK. Similarly Tanzania has also experienced such lack of recognition of the traditional health system. Some improvement was however observed through the registering of traditional healers and their services in sums of parliamentary Act No. 23 of 2002. It is unfortunate that there are no established standards or specified guidelines and policies for the management of IHHK Tanzania.

6.6.6 Mistrust between the two health systems

The mistrust in the management of IHHK may be due to lack of functioning institutions such as an IK development bureau, functioning IPRs, stigmatisation by religious people and the attitudes of conventional health practitioners. The finding of this study shows that due to mistrust, some traditional healers were reluctant to disclose their IHHK for documentation and preservation. Dlamini's (2009) study of the management of IK initiatives in Swaziland also found that knowledge managers were sometimes not allowed to visit some sacred places by knowledge owners with the claim that it was a taboo to access those places since only special people could visit such places. The findings of this study reveal that the knowledge owners did not trust knowledge managers as there was no legislative provision in place to protect their IHHK. Therefore there were few documented sources of IHHK which staff members could use to support IK management in Tanzania. Hence the finding concurs with Davenport and Prusak's (2000) attribute of the barriers to KM, which includes lack of trust. Absence of the well-defined norms and values that can be reflected in the country's mission statements regarding management of IHHK justifies this challenge.

6.6.7 Loss of memory

It was revealed from the findings of this study that loss of memory due to the deaths of knowledgeable people in the community was another factor affecting the management of IHHK. The finding of this study reveal that much of the knowledge was still in the minds of the traditional healers and such knowledge was lost with the deaths of the knowledgeable owners. Therefore in the study, much of the available IHHK was personal knowledge. Boisot (1987) states that personal knowledge is un-codified and un-diffused knowledge and is still stored in the minds of the owners. Therefore, the reviewed literature (including this study) recommend recording IK in order to safeguarding it not only from being misused or stolen by other people, but also from loss with the death of the knowledge holders (Mchombu, 2004).

6.7 Proposed strategies to assist in the management of IHHK in Tanzania

Davenport and Prusak's (2000) working knowledge model recommends developing effective knowledge markets by increasing the use of ICTs, building marketplaces such as physical and virtual spaces dedicated to IHHK exchange, such as creating talk rooms for fair trade. The

working knowledge model also recommend creating and defining knowledge market value attached to IHHK through empirical means including recognising, promoting and rewarding the owners for sharing their know-how. These are very important recommendations in ensuring that IHHK is well-managed throughout Tanzania. However, in order to assist the documentation and preservation of IHHK, from the findings of this study various strategies have been proposed to include political commitments; increasing the required number of personnel; strengthening collaboration between traditional healers and conventional health practitioners; and the creation of a national institute of IK. Strategies for many of the challenges discussed in the previous section are discussed. The details of these strategies are stated in the following sub-section.

6.7.1 Education and technological application strategies

Education is a very important key in improving the management of IHHK. Therefore, education in its various aspects as a strategy to influence proper management of IHHK should be provided to stakeholders (including religious and political practitioners). Education provided to stakeholders should be that which acquaints them with knowledge on the importance, role and methods of properly managing IHHK. Provision of education, knowledge and awareness on the importance of traditional healing knowledge and the need for documenting and preserving such knowledge would probably remove the IHHK stereotyping and stigmatisation attitudes among people. The change of attitude among community members on the practice of IHHK would influence good collaboration between the two health systems in the country. Thus, properly collaboration amongst stakeholders would facilitate the management of IHHK. Training on the use of technologies is vital in order to improve the IHHK management processes.

Therefore, there is a need to design programmes to train traditional healers on the use of ICTs for managing their knowledge. To succeed on this, the government should ensure that the infrastructure is improved. That includes among other things, the availability of appropriate IPRs that focus on the management of IK that would encourage trust between the two health systems. Thus, the fair treatment by the government among and between these two health services providers, would encourage traditional healers' openness in sharing their knowledge as they will be able to market and sell their knowledge within the approved IPR framework. By marketing and selling their IPRs the traditional healers could solve the challenge of lack of funds to

document and preserve their IHHK. The study by Dlamini (2009) found that financial constraints were the main challenge affecting the acquisition of necessary equipment for IK management. Therefore, access to funds from selling IPRs would help traditional healers to buy equipment necessary for managing their IHHK. This strategy is in accordance with Cetinkaya's (2009) attribute of education and raising awareness. Furthermore, the study by Dlamini (2001) recommends more training for the management of IK in order for institutions to conduct the management of IK efficiently and effectively.

In educating people on matters related to the management of IHHK, there should be an emphasis on creating awareness on the differences that exist between traditional healing knowledge/IHHK, witchcraft, divination, magic and/or evil. While the traditional healing knowledge aims at improving human health, witchcraft and the related aim at destroying or bringing suffering to human beings. Findings of this study reveal that government should prioritise IHHK as a new entrepreneurial sector. If well-managed, IHHK can provide employment for a number of people, especially the youth who are said to be the disadvantaged group in the employment sector in Tanzania. Government initiatives should provide support by allocating budgets for the management of IHHK; running training programmes on the management of IHHK and the use of ICTs; establishment and implementation of IPRs; as well as the establishment of the national centre or bureau for managing IHHK is greatly needed. Grenier (1998) recommends that appropriate arrangements should be made for the in-country recording, storing, application and transferring of IK within and between national and international communities.

To achieve all these objectives national indigenous policies and strategies are pivotal to the documentation of IK, and the lack of these policies remains a challenge to many countries with IK (Okorafor, 2010). Therefore, the instruments for providing benefit-sharing and advice as stated by Cetinkaya (2009) for effectiveness, achievement and sustainability of IHHK management processes should be put in place. Such instruments are also expected to ensure that equitable benefits are shared amongst the local communities. Having such instruments in place would negotiate fair terms; provide monetary support to the country wide programme of documenting IHHK; and related projects which in turn provide sufficient benefit to the local

community and to the knowledgeable community members from commercialisation of their local products (Feris, 2004; Okorafor, 2010).

6.7.2 Strategy on financing IHHK management projects

Financial allocation to adequately funding various IHHK management projects is a key to not only facilitating delivery of quality traditional healing and health services, but also to the influencing of proper management of it. Funds are needed for infrastructural development, human and physical resources. However, in Tanzania it was observed that funds were poorly allocated for the IHHK management projects, either by the government or private organisations. It was immediately clear from the response that failure of the organisations to allocate sufficient funds to the IHHK management projects has a negative impact on infrastructural development, staffing of KM officers, services offered to prospective users and the existence of the knowledge maps or public access databases for IHHK in the country. This challenge can be resolved by deliberate initiatives that ensure the allocation of funds to the documentation and preservation projects. The government and other non-government organisations, including all stakeholders, should implement fundraising initiatives and allocate a portion of research grants to the management of IHHK. This finding agrees with Okorafor's (2010) recommendation that adequate funding is needed to achieve effective IK documentation and preservation services. This is crucial due to the high cost of equipment and qualified staff necessary to document and preserve the IHHK.

6.7.3 Infrastructural strategy to manage IHHK

For the purposes of improving the management of IHHK, there is also a need to build and improve infrastructure to facilitate the documentation and preservation of such knowledge. The infrastructure should support creation of an environment conducive for the management of IHHK. Facilities and equipment for such management should be prerequisites not only for healing services delivery but also for documentation and subsequent preservation for the use by future generations. Since the findings showed that in Tanzania the infrastructure in place is poor, the government and private organisations are urged to established proper infrastructure for such purposes. To start with, the government is advised to provide the office of the District Co-ordinator of TAHPC with a sufficient number of computers to use for managing IHHK metadata,

and provide a dedicated internet link for the TAHPC databases that can be used by prospective users to access IHHK. The government should also provide traditional healers with health facilities including ambulances, medical beds and mosquito nets to improve the services offered. The study by Dlamini (2001) suggests that a substantial amount of IK can be collected with increased staffing with relevant qualifications. Dlamini (2001) recommended the need for dedicated transport and the purchase of relevant equipment which would greatly enhance the collection and dissemination of IK.

6.7.4 Legal and political commitment strategy

The enactment and implementation of IPRs laws and policy is an aspect of legal commitment. In this case the country's commitment to the proper management of IHHK should have been stated in various documents reviewed in Chapter Five, Section 5.4.2. Unfortunately, the findings of this study showed that Tanzania lacks a comprehensive and well-articulated policy and other related documents with vision and mission statements focused on the management of IK (IHHK). The available documents do not take into consideration all the aspects of IHHK documentation and preservation.

As a strategy to rescue the situation, it is argued that there is need to have a comprehensive and well-articulated policy that could take care of all aspects of IK documentation and preservation processes (Lwoga, 2009). However, such policy should not only confer authority on the relevant institutions but should also create an enabling framework and provide general direction for the documentation and dissemination of IHHK. Therefore, there is a need to have such a policy in place. The policy should relate to and include the following areas the objectives of IHHK documentation; broad areas of indigenous human health services; rights of access to IHHK; funding for documentation projects; IPRs and IHHK preservation methods and formats. In addition, other literature recommend the existence of clear policies in order to ensure that laws are implemented for the security of IK, specifically the IHHK (Ngulube 2002; Okorafor, 2010). These factors all demonstrate that legal and political commitments are vital requirements for the documentation and dissemination of IHHK.

In addition, influencing political will and commitment among politicians is another strategy of influencing the management of IHHK. It is commonly known that a lack of political will in various projects is the major failure of such projects because politicians influence the allocation of funds and implementation of various projects in the country. This means that in order to succeed in the management of IHHK, legal and political commitments should be in place. Political commitment involves the participation of political leaders in the management of IHHK. Such commitment is also concerned with involving stakeholders in the formulation, implementation and review of various policies and strategies. Therefore for the proper management of IHHK, good internal politics and favourable organisational structures are very important. Thus, the government of Tanzania should establish suitable policies and structures on managing IK, which will directly or indirectly influences politicians to participate in the process of managing IHHK.

Therefore, stakeholders' involvement and participation in such activities responds to Cetinkaya's (2009) model on the social and behavioural response attribute. The attribute advocates that the social and behavioural response occurs when local community members are empowered to actively participate in decision-making. As the stakeholders' involvement and participation is also important in the management of IHHK, the TAHPC should also be empowered to not only co-ordinate, inspect and reinforce the documentation and preservation of IHHK process, but also to be a part of the documentation and preservation of the IHHK. This might resolve the problem of memory loss due to deaths of knowledge holders.

6.7.5 Strategy on maintaining knowledge from loss of memory

As stated earlier, the issue of memory loss due to deaths of knowledgeable people in traditional medicine and healing is a challenge as such knowledge has not been documented. To overcome this challenge traditional healers are encouraged to share and transfer their knowledge to younger people through practical training or by documenting and preserving such knowledge in a repository. This solution to the loss of memory relates to Nonaka and Takeuchi's (1995) knowledge sharing which is the result of the socialisation process with and/or among knowledge owners. Boisot's (1987) knowledge category mode introduces the elements of codification and diffusion of knowledge which facilitates the easy sharing of knowledge. Hence, sharing and

preservation of knowledge including IHHK depends on how it is organised and structured (Boisot, 1995; Oluic'-Vukovic', 2001). Dlamini (2001) is of the view that in Nigeria, there is a department of traditional healers managed by traditional healers themselves. This means that having in place departments of such kind makes it easier for the existence of IHHK, regardless of memory loss. Hence, knowledge managers should ensure the longevity of the documented IK by devising preservation strategies which include sharing of such knowledge (Dlamini, 2009).

Literature shows that knowledge-sharing is an inevitable activity that underpins the business of KM. Therefore knowledge-sharing is crucial activity since knowledge bears no value if it is not distributed and shared (Rasooli and Albadvi, 2007; Ismail and Yusof, 2010). However, knowledge sharing in this context is often regarded as an unnatural act. Therefore, both public and private organisations should understand the factors which enables their knowledge holders to share knowledge before they fully leverage the knowledge of the holders. Literature provides reasons why traditional healers would reject/become reluctant in sharing their know-how. Nkungwana (2005) is of the view that lack of trust and benefits from sharing traditional medicine research and innovations prevents traditional healers from sharing their knowledge and treatments. Therefore, elders empowering local people and youth, with knowledge and skills on the use of medicinal plants in the community is important to pass such knowledge to younger people as the way of preserving such knowledge (Mchombu, 2004; Cetinkaya, 2009).

6.7.6 Strategy on establishing a centre/national bureau of IHHK

The results indicate that Tanzania does not have an institution responsible for the management, development and review of indigenous KM programmes and policies. Therefore, as suggested earlier, the government should establish a national centre of traditional healing knowledge or a national bureau of IHHK where all traditional healers will be required to document and preserve their knowledge. The role of the centre would be to initiate and develop IK management programmes; review and approve policies and training programmes on IK including IHHK; harmonise and co-ordinate traditional health services delivery; establish an instrument or advisory committee for achieving effectiveness and sustainability of the IHHK; and ensure equitable benefit-sharing to enable the local communities to continue their traditional lifestyles and practices. The established committee should attend to the provision of monetary funding and

support of the country-wide programme of managing IHHK and related projects; the provision of sufficient benefits to the local community and to knowledgeable community members from commercialisation of their local products (Cetinkaya, 2009). This could help in the management of IHHK in the country since proper management of IHHK in a centre will not only act as a means for securing such knowledge from being lost, but will also attract tourists and researchers. Hence the centre would co-ordinate all IHHK management initiatives. This recommended strategy concurs with Davenport and Prusak (2009) who recommend developing effective knowledge markets for the use of ICTs and having proper marketplaces.

Increased deforestation as a result of increased population and human activities has caused the loss of trees with medicinal values. If established, the national institute of IK should directly deal with IK management issues including the conservation of forests with medicinal trees. The centre should work on establishing an IK magazine/journal for research activities on managing IHHK as well as the conservation of forests for keeping biodiversity alive. Based on Oluic'-Vukovic's (2001) Knowledge Processing Chain on the aspect of knowledge gathering, the major functions of the institution/bureau should be the discovery, acquisition and documentation of TK.

6.8 Training requirements of traditional healers

Without ignoring the importance of education and training for development, the findings of this study show that traditional healers require training to help them properly manage their knowledge. As stated in Chapter Five, Section 5.7.2, the training requested included assisting them make IHHK a new entrepreneurial sector, familiarising them with the country's IPRs and the ways in which the legal framework can protect IHHK, customer care and service delivery, diagnosis of diseases, and packaging of the traditional medicine. For traditional healers, training on IPRs would help them as knowledge owners become aware on how the existing laws and policies provide security to their products (knowledge). Therefore, such training would also give traditional healers knowledge on how they can benefit from their services and products.

The government should also prepare training programmes for all stakeholders involved in traditional healing services and products. Such training should include religious people in order to help them understand the central nature and importance of traditional healing in improving

human health. The government should also train documentation officers to work as knowledge managers. Ultimately the government should create an environment in which traditional healers establish their schools to enable them to transfer their own knowledge to other interested people.

6.9 Summary of Chapter Six

This chapter discussed and interpreted the findings of the key questions of the study as presented in Chapter Five. The discussion followed the research objectives of the study. The discussion revolved around the current status of management of IHHK in Tanzania which focused on the manner in which such knowledge is managed, factors affecting the process of managing IHHK, and the roles of various stakeholders in the process of management, as well as the proposed measures to improve the management of IHHK were discussed.

From the discussion it was observed that the management of IHHK in Tanzania is not encouraging as much of the knowledge is still stored in the minds of the knowledge owners and is lost with the death of such people. Therefore, the situation needs an economic, legal, administrative and infrastructural improvement for it to be properly managed. Although some of the findings in this study fitted in with the components of the working knowledge model by Davenport and Prusak (2000) there is still need for another model that best suits the need for the long term preservation of IK, specifically IHHK. The required model is expected to provide solutions to the problems and constraints in the management of IHHK in the African context. It is in this context that the new model should provide prospective users from all socio-economic groups an opportunity to access and enjoy the use of traditional healing services and products openly. In addition, the model should influence people (particularly the younger generation) to join the profession to ensure that such knowledge is preserved.

Matters on administrative and legal issues were also discussed. It was observed that legal and political commitments were very important for the prosperity of IK, however the existed legal and administrative strategies were very weak to support the management of IK. For proper management of IHHK, the government should support IHHK management efforts by directing its efforts to the establishment of a national IHHK management policy, standards and the national IHHK centre/bureau under the Ministry of Education or any other suitably related

ministry. Among other activities as stated in Section 6.6.6 the bureau should be assigned with the task of initiating and developing IK management programmes, reviews and approve policies and training programmes on IK that protect the knowledge from being lost and/or misused. Traditional healers did not want to document their IHHK without assurance of the protection of IPRs. They feared that since such knowledge was their only source of income, exposing it would affect their income gains. Therefore, the country should ensure that IPRs focusing on collecting and categorising knowledge, establishing knowledge-oriented technological infrastructure and monitoring the use of such knowledge are in place as soon as possible. The existence of a good and implementable administrative and legal framework would eliminate almost all factors constraining the management of IHHK.

According to the findings of this study, the factors that constrain the management of IHHK included educational and technological matters, stereotyping and stigmatisation of IHHK, limited funding and budget allocation to IK projects, and mistrust among the health systems. Other factors include memory loss; infrastructural challenges; lack of national policies on the management of IK; lack of responsible institutions such as a national centre for managing IK; strategies and IPRs focusing on the management of IK. If a real turnaround strategy of the current situation for managing IHHK in Tanzania is to be realized, political will and government support is necessary to alter the factors limiting the management of such knowledge. This means that government support in terms of appropriate legislation, policy and regulations that address the current and future challenges in managing IHHK and appropriate implementation mechanisms is essential for the existence and development of such knowledge for healing and use by future generations, research and development.

As a solution to many of the mentioned barriers for the proper management of IHHK, the following strategies have been recommended, namely the allocation of funds is required for the construction of the IHHK repository, provision of appropriate equipment, facilities, ICTs, staffing and resources. The government should develop a sound budget that is capable of fulfilling all the requirements to facilitate the management processes of IHHK. A mechanism should also be put in place to monitor the implementation of the activities as per the budget. Monitoring and evaluation are essential for benchmarking and assessing the performance of the

responsible organisations in managing IHHK. Another strategy is that all stakeholders should play their roles in the management of such knowledge.

CHAPTER SEVEN

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This chapter presents a summary of the study on the management of IHHK in Tanzania, which aimed at assessing the available KM efforts in relation to documentation and preservation of such knowledge, analysis of factors constraining documentation and preservation, as well as recommending proper strategies and a course of action to assist in the management of IHHK in Tanzania. The chapter provides a picture of the study from introduction to conclusions and recommendations based on the findings. The recommendations presented in this chapter are from the findings of the study, literature and theoretical approaches reviewed as well as the researcher's observations. The recommendations provided if well executed, could proffer solutions to the stated research problem and knowledge gaps.

7.2 Summary of the study and findings based on research questions

This study was conducted in Tanzania, a country rich in IHHK used for healing some physical ailments. The study shows that there was no purposeful management of IHHK for easily locating healers or traditional health services for the general public. IHHK was not documented and preserved in a repository. This knowledge could therefore be lost to future generations with the death of current holders of such knowledge. Inevitably it was thought that it was very difficult to manage and provide concrete answers to questions related to the IHHK of Tanzania. Both theoretical and empirical reviews were carried out in order to provide a deeper understanding of the problem at hand as well as focusing on the variables relevant to the study and the methods of enquiry. In addition, the theoretical framework enabled an understanding of the why, how, and when a certain construct in the management of IHHK occurred. It gave the researcher an opportunity to explain the presence or absence of the relationship among/between variables.

The study was guided by KM theories as discussed in detail in Chapter Two. The reviewed theories included the Organisational Knowledge Creation by Nonaka and Takeuchi (1995), Knowledge Category models by Boisot (1987), Information Space by Boisot (1995), Knowledge Processing Chain by Oluic'-Vukovic' (2001), Holistic Strategy for the Maintenance and Transmission of TK by Cetinkaya (2009), and Working Knowledge by Davenport and Prusak

(2000). The Working Knowledge by Davenport and Prusak (2000) was the principal model in this study.

In addition, the reviewed literature showed that there were important developments regarding traditional healers in the literature concerning KM particularly the management of IK. However, it was indicated that there was a lack of attention by social science research devoted to the management of IHHK. This was regardless of its importance, increasing use and IHHK contribution to conventional health practices and success to pharmaceutical corporations. The study found that the IHHK was still passed on through oral tradition and stored in people's minds and lost with the death of the knowledge owner. The literature showed that only China and India were countries which had successfully managed to document and preserve IHHK, especially medicinal plants. For these countries, the documented traditional medicine has been used as a source of tourist attraction and has the potential for bio-cultural diversity that promotes ecologically sustainable behaviour, natural resources management and contributes to sustainable development. Much of the reviewed literature including Gericke (1996); Kanwar, *et al.* (2005) and Ghosh and Sahoo (2011) recommended that other countries codify and record their IK into print and electronic forms in order to make it widely accessible through the global information infrastructure. However, much of the IHHK in Tanzania has not been codified and recorded in any form and therefore could not be made widely accessible.

This study adopted mixed methods for conducting research whereby the dominant approach was qualitative, supplemented with a quantitative approach. While the qualitative approach was largely used in collecting and analysing descriptive data that provided descriptive experience on how IHHK is documented and preserved, the quantitative approach was used through selection of samples and testing relationships among variables as well as in analysing data obtained from close-ended questions available in the instruments. The traditional healers, prospective users of IHHK and Head of Department in the visited institutions were the sources of data. The methods used to collect data included semi-structured face-to-face interviews, focus group discussions, direct observation and review of various documents. The analysed qualitative and quantitative data provided the result for this study. During presentation, interpretation and discussion of the findings, the possible reasons for some responses were also given.

7.2.1 Demographic information of respondents

A survey was conducted in 18 villages from 18 wards of four districts in four regions of Tanzania, and three institutions in Dar es Salaam. The study involved 18 traditional healers, nine heads of department from the three institutions (especially ITM, TAHPC and UDSM-SoL) and 45 prospective users of IHHK. The designation of respondents from the institutions ranged from the Registrar of TAHPC, District Co-ordinators of TAHPC, research fellow, research professor, and senior lecturers, whose responsibilities and the responsibilities of the institution in brackets included, but were not limited to, the following:

- Supervising development of traditional and alternative health practice (TAHPC);
- Sensitisation to various issues of traditional healing such as record keeping (TAHPC);
- Ensuring biodiversity (TAHPC);
- Teaching and research in traditional medicine (ITM);
- Policy improvement and creation of regulations on traditional medicine (ITM); and
- Teaching and research on legal issues, and policy recommendations and improvement (UDSM-SoL).

Respondents from both genders participated in the study. However, there were fewer female respondents than male. The gender variable was studied in order to investigate if the variable had influenced people to participate in this study, and their readiness and willingness to participate in the management of IHHK. No relationship between these variables was discovered. When the religious affiliation of the main respondents was assumed to have an influence on the traditional healers' readiness towards documentation and preservation of IHHK, the test was carried out. Among the 18 traditional healers in the study, 56% were Christians while 39% were Muslims. The findings revealed no relationship between the two variables. Also the Chi-Square test of relationships was carried out to test if experience in terms of number of years which a traditional healer has been involving in service delivery had an influence on the traditional healer's attitude towards documenting and preserving IHHK. After the test of the relationship between the variables such as the traditional healers' experience in practising IHHK and the attitude of documenting and preserving such knowledge was then found to have no influence on the traditional healers' attitudes. However, the finding of the study showed that most of the traditional healers had very low levels of education. Sixty eight percent (68%) of them had only

attended primary school. It was assumed that the traditional healer's level of education might have a relationship with an impact their perceived readiness to document and preserve IHHK. Therefore the Chi-square test between these two variables was carried out. The results of such test showed that there was no significant correlation between the education level of the traditional healers and their perceived readiness to document and preserve IHHK.

It was further discovered that specialisation of traditional healers in the surveyed area ranged from healing and cure of disorders, maternal health complications, infectious and non-infectious conditions. However, the knowledge of healing some conditions such as maternal health complications was practiced by very few traditional healers who specialised in the area or had healing knowledge of the specialisation. Moreover, irrespective of the specialisation, the environment used to provide service was not encouraging as most traditional healers (94%) had their special rooms reserved near their residences for the services, while only 6% had a traditional dispensary to treat patients. It is however important to note that 78% of the traditional healers in the study inherited the knowledge from their parents and grandparents, 17% argued that they were granted the knowledge by the ancestral spiritual, while only 5% learned it by attending a traditional healing school. Most traditional healers had many years of experience in their practises of traditional medicine as 78% of them had experience of more than 10 years. Although such experience had no impact on their readiness to document and preserve IHHK.

In order to determine the status of traditional healers, various issues including registration status and contribution to the treatment of illness and infrastructure were investigated. The finding of this study showed that all 18 traditional healers in this study were registered by the TAHPC. Although the registration of traditional healers by TAHPC was meant to recognise traditional healers' services, provide traditional healers with security on their delivery of services as well as identifying and dispersing the charlatans in the service in order to give the profession practice its status; the findings showed that their professional status was still very low. The findings show that 61% of traditional healers perceived themselves as not accorded the same status as their counterpart in health practices (conventional health practitioners) that therefore the IHHK was marginalised. This view of the marginalisation of IHHK was also supported by prospective users of IHHK services and products, irrespective of the fact that traditional healing services were the

primary health service for most people in Tanzania. It was further found that the reason behind the IHHK considered as being the primary health services for people in Tanzania was not only because it was cost effective compared to the conventional medicine, but also due to its ability to cure certain conditions that could not be cured by conventional medical practitioners.

In terms of the contribution to the national medical infrastructure, it was stated by 70% of respondents that traditional healers contributed substantially to the national medical infrastructure. They also stated that traditional healers' knowledge on the use of certain medicinal trees contributed materially to many of the pharmaceutical industries. The findings showed that in the treatment of illnesses, 57% of the participants considered traditional healers and their IHHK as having minimal input in the treatment of ailments, whereas only 43% of traditional healers considered contributing to the treatment of various ailments. Since the findings showed that none of the respondents commented that the traditional healers had made no contribution, this establishes the fact that whether the contribution was low or high the knowledge had contributed to the treatment of some conditions as well as to the national medical infrastructure.

7.2.2 Ways in which IHHK is managed in Tanzania

The methods in which IHHK was managed in Tanzania was sought through the first question of this study. The findings for the question was presented in three aspects of the management, that is how the metadata of IHHK was accessed; the ways in which it was stored/codified; and the means by which it is transferred or shared. With regard to the ways in which it is accessed, the findings of the study revealed that prospective users of IHHK received access to information on such knowledge and services through peers and friends who had used the services and products. However, others received information through posters, radio and newspapers. The findings showed that 89% of respondents rated peers and friends who had used the services and products as satisfactory sources. Furthermore, the findings showed that the IHHK was accessed and used by almost all people, of all age groups, and from all economic groups. Thus, age and/or economic position of a person were not a condition determining the access and use of traditional healing services and products. As stated in Chapter Five, Section 5.5.1, 72% of respondents stated that people from all economic groups consulted and used the traditional healers' services.

Among other reasons mentioned in Table 5.5 for accessing IHHK, the main reasons included that:

- (i) The IHHK was cheaper when compared to conventional medical treatment; and
- (ii) Failure of conventional medical treatment in healing some physical human conditions.

In addition, respondents' perceptions on documentation and preservation of IHHK provided an indication on how the IHHK was codified, documented and stored in Tanzania. The respondents, including 83% of the traditional healers in this study, were of the view that it was necessary to document such knowledge in order to simplify its preservation, improve commercialisation, facilitate access and preserve it for future generations. The findings further showed that well-managed IHHK is an important source for tourist attraction, employment creation and income generation.

According to the findings of this study, the status of documentation and preservation of IHHK in Tanzania during the period of data collection was not encouraging as much of such knowledge is still stored in the minds of knowledge owners. Factors including the country's economic, legal and administrative framework, and infrastructure were mentioned as constraints in the process of managing IHHK. The government therefore should enact laws and a model that best suits the aim of managing IK (specifically the IHHK). This involves providing solutions to problems; providing opportunities for people to access and uses the traditional health services and products; and encouraging people to join the profession as well. The findings showed that the country has not made much progress in terms of documentation and preservation as only 8% of the respondents commented that such knowledge in the country was documented, while 92% were of the view that nothing has been done in documenting such knowledge. The reasons as to why the knowledge was not documented and preserved in a repository were also given. Not much information was documented in the herbarium at ITM which is used by the ITM staff and students only. There was thus no database or public domain for public access. Hence 84% of the respondents who were interviewed, recommended that such a database for public access should be established. Stakeholders such as traditional healers and their organisations, private and public organisations, and the prospective users should therefore play their roles in the management of such a database/repository.

7.2.3 Administrative and legal issues relating to the management of IHHK

The findings of this study indicated the need for an administrative and legal framework to facilitate the management of IHHK. In Tanzania, both legal and political will is still very weak to support the management of IHHK. It was found that the country lacked an IHHK management policy, standards and a national IK centre/bureau, 89% of traditional healers also lacked awareness of whether the IPRs (including the Traditional and Alternative Health Practice Act No 23 of 2002 and the Regulations of 2008) existed or not. However, in reviewing legal documents it was discovered that the Traditional and Alternative Health Practice Act No 23 of 2002 and the Regulations of 2008 focused only on the registration of traditional healers and their practices, and facilities. The Act and Regulations did not provide sufficient conditions for protection of the documented and preserved IHHK in a repository. It was further noted that respondents' levels of education had some impact on their understanding of the availability and existence of IPRs in the country.

Although a few (33%) respondents had knowledge of the plans for the formulation of policies/strategies and some were involved in the formulation of policy, the findings of this study showed that there were ongoing efforts to enact effective laws and policies to manage the IHHK. Of the nine respondents, 67% had no knowledge of what initiatives were undertaken, this raises the question of stakeholders' participation. The finding showed that 70% of the respondents who participated in this study through interviews, were unaware of the level of influence of the IPRs on the management of IHHK. Thus 30% were of the view that the IPRs had an influence on the knowledge owners' readiness in documenting and preserving their IHHK. If there were clear policies in place, various stakeholders and institutions would be obliged to document such knowledge. The findings further showed that well-articulated IPRs would benefit the community, knowledge owners, researchers, research institutions, and the prospective users of IHHK.

7.2.4 Perceptions and readiness of traditional healers to document and preserve IHHK

In this study, the perceptions and readiness of traditional healers to document and preserve their IHHK were studied. The findings showed that regardless of the variations in the levels of education, age of the traditional healers, and experience in the field of traditional healing, 83% of

the traditional healers, and 100% of the heads of department involved in this study perceived it necessary to document and preserve IHHK. However, on the basis of their experience, the findings showed that 100% of traditional healers with experience between 4 to 7 years and between 8 to 10 years in providing traditional healing services and products, thought that documentation and preservation of IHHK was a necessity. On the other hand, 78.6% of traditional healers who had the experience of over 10 years thought documentation and preservation of IHHK was necessary. Therefore, from this finding it is obvious that traditional healers were positive about documenting and preserving their knowledge. A Chi-Square test of association was carried out to test the relationship that existed between the perceptions and readiness of traditional healers towards documentation and preservation of IHHK against their ages and experience. The result of the test showed that the positive attitudes of the traditional healers on the documentation and preservation of IHHK was neither influenced by their ages nor their experience as traditional healers in the delivery of health services. This is because traditional healers with different experiences had almost the same perceptions on the documentation and preservation of IHHK.

With regard to the readiness of traditional healers to document and preserve their traditional healing knowledge, the findings showed that 56% of traditional healers were ready to do so, while 44% were not. The responses of traditional healers concurred with the responses of 71% of heads of department who perceived traditional healers as being ready to document and preserve their knowledge. From these findings it is clear that 60% of respondents, irrespective of their categories, perceived the traditional healers as ready to document and preserve their IHHK in a repository. However, for the 40% of respondents with a different view it was found that they opposed the idea because there were no legal provisions providing security for traditional healers' knowledge. The stakeholders' ignorance on the role of documenting and preserving IHHK was also another reason provided.

The Chi-Square test of association results, with variables such as gender, religion and religious affiliations of the knowledge owners, age, and the levels of education reached had no statistical significance on the traditional healers' readiness to document and preserve IHHK. The mentioned variables failed to influence traditional healers' readiness to document and preserve

their IHHK. It was found that traditional healers were ready to document and preserve almost all types of IHHK metadata including local names of medicinal plants, parts of medicinal plants, medicine preparation processes, location of the plants/materials, the medicinal values of the trees, dosage forms, use and methods of application and founder/knowledge owner. The preferred formats for the documentation and preservation were both the print and electronic. It was stated that storing IHHK metadata in both the print and electronic format would make it easily accessible to many people even those who lack ICT skills as the traditional healers themselves lack such skills.

7.2.5 Factors affecting documentation and the preservation of IHHK

According to the findings of this study, there were many factors that constrained the management of IHHK. The factors included education and ICT application skills, stereotyping and stigmatisation of traditional healers and their knowledge, limited funding and budget allocation to the IHHK projects, mistrust among the health systems and knowledge managers, memory loss due to the deaths of knowledgeable people, infrastructural challenges, lack of national policies regarding the management of IHHK, and lack of responsible institutions such as a national centre for managing IHHK, and strategies and IPRs focusing on the management of IHHK.

Various strategies are proposed in this study in order to assist in the management of IHHK in Tanzania. The strategies include that the government should allocate sufficient funds for construction of the IHHK repository furnished with equipment, facilities, ICTs, staffing and resources to achieve the objectives. Another strategy is of influencing individuals and stakeholders so that they play their roles in the management of IHHK. The third strategy is that the government of Tanzania should provide not only practical training on how such knowledge can be codified and stored in a collection, but also provide education on various matters on how the IHHK would help people change their mind-sets about traditional medicine and healing services. It is also argued that the government of Tanzania should put in place legal instruments that focus on the management of IHHK. The legal commitment should be openly justified in the vision and mission statements of the various legal documents such as Acts, regulations, policies and strategies. Political commitment is very important in the management of IHHK. Political

leaders and stakeholders should be involved in the formulation, implementation and review of policies and strategies for managing IHHK.

7.2.6 Linkage of the findings to the working knowledge model

The findings of this study showed that there is an increased use of traditional healing services and products among people of all categories, regardless of their economic status and age group in Tanzania. It was further found that people became aware of and accessed such services and products using various means, with peers and friends as detailed in Chapter Five, Section 5.3.1 as being the main sources.

This study was informed by the Davenport and Prusak (2000) working knowledge model. Given the context of this study, the model provides a framework to ensure that IHHK in Tanzania is well-managed as a commodity to be sold in the market. The model has some attributes that are influential to the management of knowledge in organisations, especially when the organisation is considered by the model as a knowledge market. The attributes include organisation, knowledge market with buyers, sellers and brokers, and market places. According to the model, ICTs and other factors including the element of trust can positively affect the process of transferring knowledge. In addition, as stated in Chapter Two, Section 2.7 of this study in the process of marketing, the model advocates the presence of knowledge market signals, efficiencies and absence of pathologies.

The Davenport and Prusak (2000) working knowledge model can be linked to the findings of this study in the following ways namely, the organisation attribute of the model is assumed as the country of Tanzania in this context. The country as an organisation having substantial knowledge used for healing of certain human physical ailments. In relation to the commodity attribute of the model such knowledge is a commodity which needs to be sold in a knowledge market. In this context, knowledge market as a place where sellers meet the customers is linked to the place where traditional healers in the study area provide their services and products, as well as the place which they use to share knowledge and provide training to others. In the study, it was found that traditional healers meet patients (customers) in their homes and provide services in a special room reserved near their houses. Few had established dispensaries and held informal

classes to train people about their knowledge of healing. Peers and friends who had used the traditional healers' services and products, other sources of information, and institutions such as the TAHPC and ITM, relate to the brokers' attributes in the working knowledge model. Such sources make the connections between traditional healers and patients possible.

The model advocates that the market work by having pricing and payment mechanisms. The findings of this study have thus shown that although traditional healers perceived it necessary and were ready to document and preserve their IHHK in a repository, they still needed legal provisions that could not only provide security of their knowledge when documented, but also provide them with benefits from documenting and sharing their knowledge. This implies that a payment mechanism is very important in documenting, sharing and preserving IHHK. Traditional healers would only take time and effort to document and share their knowledge if the system benefitted them. The benefit may also include being recognised and gaining reputation for the services and products which they provide and by being willing to share knowledge.

Since knowledge market signals have been summarised by the findings that the IHHK still resided in the minds of the owners and prospective users gained access to it through various sources and in case of using the services, payment was generally cheaper compared to the conventional health service market. The findings showed that if properly used ICTs will positively affect the process of IHHK transfer, and also the IHHK management processes in general. The impact of ICTs can be observed through developing effective knowledge markets whereby both the physical and virtual spaces dedicated to IHHK exchange can be built. The model advocates that any organisation (whether it is a country or not) if they want to excel in managing knowledge, should perform well in the three KM sub-processes of generation, codification and transfer. The findings showed that the generation and transfer of IHHK was potentially present as 78% of traditional healers had inherited the knowledge from their parents and grandparents, 5% learned from a traditional healing school and 17% received it from an ancestral spirit; making it difficult to documenting such knowledge in such instances.

In view of the above discussion, the Davenport and Prusak's (2000) model can help in the management of IHHK of Tanzania. For its proper management, there is a need to put in place an

ideal legislative framework that will not only explain the status of managing IHHK in the country and also provide the blueprint for implementation of the strategies that ensure such knowledge is documented and preserved within the proper context of Africa and Tanzania in particular. The context that considers among other things, the impact of colonialism on the management of IHHK, stereotyping and stigmatisation of IHHK, education reform curricula that revive the need for having IHHK. Also the framework should include provisions for appropriate funding and budgetary allocation for IHHK management projects, availability and skills for using information and ICTs. The model that presupposes the stakeholders' support should develop a structure and systems that facilitates the management of IHHK.

7.3 Conclusion of the research problem

The main objective which guided this study was to explore the management of IHHK in Tanzania. This study can however be considered as a survey of needs assessments for the documentation and preservation of IHHK in Tanzania through a description and analysis of the current state of managing IHHK as well as the major factors affecting documentation and preservation of the IHHK in Tanzania. It further analysed the administrative and legal matters required for managing IHHK, before establishing the course of action and the traditional healers' perceptions and readiness for documenting and preserving such knowledge. A mixed or combined approach of both qualitative and quantitative research methodologies has been implemented. Though the use of both qualitative and quantitative research methods and techniques, the specific objectives of this study were fulfilled. Basing on the objectives of the study the following conclusions are made:

The novelty of this study on management of IHHK in Tanzania is in both the conceptualisation and the design. The available few studies that have been conducted in Tanzania and in other countries on traditional medicine and traditional healing knowledge are ethnographic, ethnobotanical and biomedical in nature focusing on integrating traditional medicine in a conventional health practices including the study by Chirangi (2013) and Stangeland *et al.* (2008). Other previous studies undertaken on traditional medicine in Tanzania have paid attention to measuring or examining the use and availability of chemical ingredients and compounds in some medicinal plants. The uniqueness of this study is that it has served to assess the available KM efforts in

relation to documentation and preservation of IHHK in Tanzania. It thus, established the need and readiness of traditional healers towards documenting and preserving their knowledge in a repository. In addition, this study has been able to analyse the value of ICTs in the documentation and preservation of IHHK in Tanzania.

Although this study was interested in the details of documenting and preserving IHHK, by implication it also studied the access and use of IHHK in Tanzania with the idea of documentation being the centre of the study. It was found that Tanzania is rich in IHHK and that it was accessed and used by almost all people from all ages and economic groups. However, the status of documentation and preservation was not encouraging as much of such knowledge was still in the minds of knowledge holders. Very little was documented in the herbarium at ITM and was only used by the ITM staff and students. The few efforts made by TAHPC ended with establishing ‘who knows what’ in Tanzania, for what ailment, and where he/she is located. However, this is not a sufficient condition for the management of IHHK. Thus, in conclusion to this there were no proper management efforts or projects purposeful meant to gather, document and preserve IHHK metadata, which are essential in managing IHHK. It is very important that with proper security, managing IHHK ensures that the metadata is available in the public domain to be accessed by people so that others can learn from the knowledge and experience of Tanzania’s traditional healers.

Among other factors affecting the management of IHHK were the administrative and legal matters. The study found that administrative, political and legal commitments for the management of IHHK in Tanzania were very weak. The country lacked an IHHK management policy, standards and the national IHHK centre/bureau that could help regulate the management of IHHK. In addition, it was found that the education policy of Tanzania was silent on integrating IHHK in the formal school curriculum. Thus, education and ICTs application skills constrained the management of IHHK. Issues such as the absence of a national project for documentation and preservation of IHHK, lack of funds and insufficient budget allocations to conduct IHHK management projects, poor infrastructure, and stereotyping and stigmatisation of IHHK is evidence of the government’s weak legal, political and administrative will and commitment towards managing IHHK. However, political and administrative will and

commitment are pivotal to the management of IHHK. The instruments (such as the national centre or department for IK) for managing IHHK should be established and funded by the government to assist the documentation and preservation of such knowledge. The focussed attention of the government is very important. Therefore the government should provide meaningful interventions that will ensure the protection of the documented IHHK, and the continued access and used of IHHK for various human physical conditions. Since traditional healers are key health practitioners in improving the health of both rich and poor people in both urban and rural areas of Tanzania, the government should promote them so that they provide the desired health services. Traditional healers would then be keen to document and preserve their IHHK to a satisfactory level.

The findings of this study have shown that ICTs were not fully utilized to manage the available IHHK in the country. Challenge in the management of IHHK were associated with lack of or shortage of trained personnel with expertise in using ICTs for the management of IHHK. However, lack of funds and poor budgetary allocation in the management of such knowledge made it very difficult to acquire improved infrastructure, including ICT equipment and facilities. On the use of ICTs for the management of IHHK, a conclusion can be made that although traditional healers lacked skills on the use of various ICTs as a means for managing their healing knowledge, ICTs could positively affect the process of managing IHHK. As most traditional healers can read and write, the government should train them on how to use ICTs for managing their IHHK.

Despite the challenges and mismanagement of IHHK, various strategies to assist in its documentation and preservation in the context of Tanzania have been proposed. The government of Tanzania is urged to promote the potential of traditional healers in carrying out activities of improving human health as the findings from both the survey and documentary review showed that over 60% of Tanzanians (regardless of the areas of domicile, age and economic status) depended on IHHK for their health recreation. With its inherent cultural element, it has been a primary health services to many Tanzanians, is arguably cheaper, more accessible, and traditional healers have identified themselves as dynamic and provide desired health services to

the country's people. Thus their knowledge on traditional medicine and healing should be documented and preserved.

7.4 Contribution of the study to knowledge

This study investigated the management of IHHK in Tanzania using Davenport and Prusak's (2000) working knowledge model as the main model underpinning the study. This study was conducted using survey methodological tools including face-to-face interviews, focus group discussions and documentation review supplemented by the observation technique. The conduct of the study in Tanzania was based on zonal representation of the area. The four zones included were the Sukuma land/lake zone regions, Central zone regions, Coastal regions along the Indian Ocean and South-western highland regions. Therefore, the findings of this study can be used by stakeholders as a needs assessment for documenting and preserving IHHK in Tanzania. The study therefore provides baseline data and a framework for future surveys on the management of IHHK in Tanzania.

This study explored some issues on how the IHHK is documented and preserved in Tanzania, the knowledge owners' readiness to document and preserve their knowledge in a repository, and the available efforts towards its documentation and preservation. The study further explored the factors affecting the documentation and preservation of IHHK. The results of the study revealed that the country has progressed in terms of the documentation and preservation of IHHK for public consumption. The status of managing such knowledge was not encouraging as much of the IHHK was still stored in the minds of knowledge owners and lost with the death of such persons. The finding of the study established the factors affecting the management of IHHK, before proposing measures for improving the situation. Moreover, the result of this study identified ways in which legal and administrative matters could positively or negatively affect the management of IHHK. Furthermore, the roles of various stakeholders in the management of IHHK have been stated and stakeholders are encouraged to play their roles to ensure the proper management of such knowledge. The established critical knowledge base of this study has contributed to the field of managing IHHK in an African context.

7.5 Research implications for theory, practice and policy

Based on the importance of traditional healing knowledge in healing various human physical conditions, and in improving the national medical infrastructure; its contribution in socio-economic value to the traditional healers and other stakeholders; and the way it can promote socio-economic development in the local communities to which traditional healers belong; the findings of this study have implications for the theory of managing IHHK, practice and policy. Therefore, in this context, the contributions of this study on the management of IHHK in Tanzania can also be observed in the following aspects.

7.5.1 Implications for theory

Although this study was underpinned by Davenport and Prusak's (2000) working knowledge model, various KM theories were also reviewed. The review of various KM theories for this study are based on the pragmatic paradigm which guided the study. The paradigm helped in addressing a particular research question with one or more methods when it was observed appropriate and possible to work with variations (Munyua and Stilwell, 2012). In this section, the theoretical implications of the study on managing IHHK in Tanzania are scrutinised. Davenport and Prusak's (2000) working knowledge model is suited for providing insight into the proper management of Tanzania's IHHK. The model has as its assumption that an organisation is a knowledge market. For the commodity to be sold, there should be marketplaces where the sellers meet the customers, and there should also be brokers. The details of the model were discussed in Chapter Two. In this case in order for the IHHK to be documented and preserved, the organisation should create an environment conducive for such process to take place. In addition, the stakeholders of IHHK should play their roles to ensure the successful management of IHHK. Based on the findings of this study, Tanzania's socio-cultural, economic, legal and political settings, and the challenges facing the management of IHHK were used to examine and build on the reviewed KM theories, particularly Davenport and Prusak's (2000) working knowledge model.

The observed challenges in managing IHHK in Tanzania in this study imply that the Davenport and Prusak's (2000) working knowledge model in practice is missing some useful attributes in managing IHHK, on the aspects of documentation and preservation. The challenges include the

lack of a public domain; lack of the instrument responsible for not only benefit-sharing, but also the instruments responsible for conducting appropriate training and the development of programmes to support IHHK; weak political, administrative and legal environment to support the management of IHHK; perceptions of the stakeholders towards the knowledge services and products; and the matter of documenting and preserving the knowledge, readiness, education and technological application skills, finance and infrastructure. All these were identified as a result of the improper structure of how to manage the IHHK, therefore new methods of dealing with these issues are required. Therefore, a model to, explain and address the challenges under study is proposed. It is from this context that the IHHK Prosperity model through documenting and preserving important metadata in a repository in the context of Tanzania is proposed. Therefore the framework is put forward for further research.

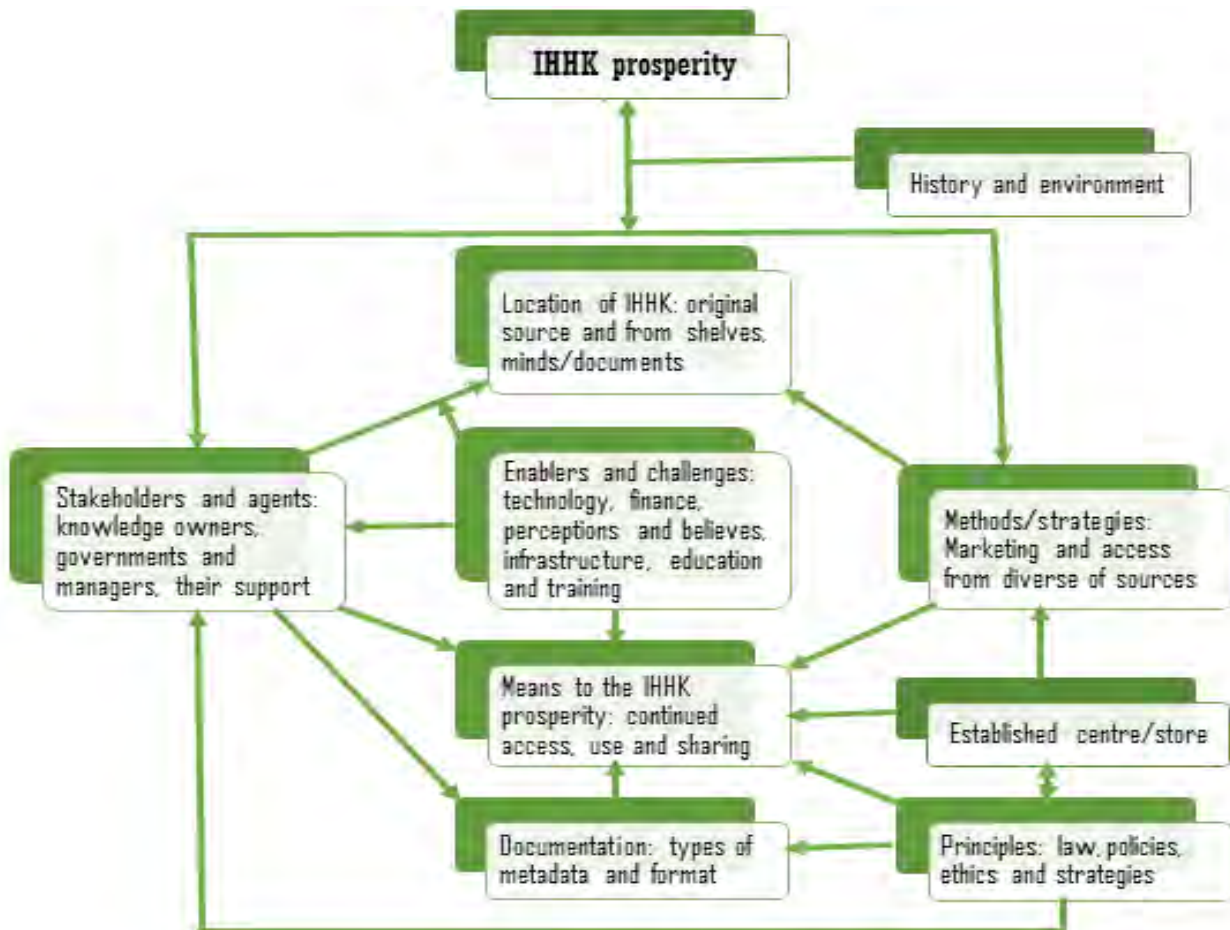


Figure 7.1: Indigenous Human Health Knowledge Prosperity model
Source: Field data, 2014

The IHHK Prosperity model presupposes that in order to document and preserve IHHK, several elements are important. Of paramount importance is understanding the IHHK history in terms of stakeholders and their support, the place where such knowledge is located, and the methods to locate such knowledge from the variety of resources and sources. The model proposes that the history of the IHHK is based on the environment created by the support and readiness of stakeholders such as the knowledge owners, government and NGOs, and the presence of qualified knowledge managers. If this environment is well-established, then it will determine the location at which a person can find the knowledge. The variable of location in the proposed model provides that knowledge originates somewhere. In other words, there are places where the knowledge originates and that a person can access it from there (Mwanahewa, 1999). It may be from the original source such as the minds of knowledgeable persons, peers or friends or from the shelves or metadata of an institution's repository. However, in order to access such knowledge from the sources, will depend on the methods/strategy adopted including the source of information that one uses. It may be through people who have used the source or through the use of technological locators and other sources. It may also depend on the marketing strategy that has been used to promote the sources where knowledge can be located. When the strategies to promote knowledge are successful, then continued access, use and sharing of such knowledge by people is achieved in the IHHK Prosperity model.

According to the proposed model, the means to obtain prosperity of IHHK depends on the available enablers including ICTs, finance and budgetary allocation, perceptions and beliefs, infrastructure, education and training. These enablers can impact on the stakeholders and agents' support and readiness. In addition, in allocating their support to the processes, stakeholders especially the government, NGOs and prospective users can face challenges. All stakeholders must be ready to support the documentation process as the most important aspect of ensuring prosperity of the IHHK. Documentation in this context entails providing codes to the metadata of IHHK as well as deciding on the forms in which the metadata should be stored. However, the documentation of IHHK will depend to a great deal on the available principles stated in laws, policies and ethical documents and strategies for managing IHHK. While the principles are what influences stakeholders' support and readiness, these also may influence the means to ensure prosperity of the IHHK. The principles should also state or make provision for the establishment

of a national bureau/committee that will oversee the activities, benefits to be shared, conduct appropriate training, and develop programmes. The established committee or bureau will not only be expected to influence the continued existence of the IHHK, but will also at some point propose changes or improvement to the existing principles for managing IHHK such as overseeing implementation of the policy, standards, and regulations. It should also influence the methods and strategies for accessing the knowledge from different sources as well as the marketing strategies to be used for promoting the IHHK sources and resources. The bureau should also be responsible in ascertaining value and keeping a record of IHHK through evaluation and monitoring the traditional healers' service provision and sharing of IHHK.

7.5.2 Implications for policy

The findings of this study are expected to influence the establishment of the IK management policy that focuses on the management of IHHK at national, as well as at institutional levels. At the national level, given the evidence provided by this study, the policy to be formulated is expected to influence the establishment of a national bureau/committee or centre for the management of IHHK. The established policy should establish among other things, the issue of funding and budget allocation of various IHHK projects, training for knowledge managers and for those who want to join the profession, and the use of ICTs for the management of such knowledge. It is further hoped that the findings of this study will influence and strengthen collaboration between traditional healers and the conventional medical practitioners in the healing of certain human physical conditions.

Moreover, the findings of this study are expected to influence those in authority to make decisions which contribute to the management of IHHK and bridge the gap between policy and practice. In order to help decision makers understand various issues discussed in this study, strategies such as workshops, publications, conferences and advocacy should be conducted. This will help policy makers recognise and act on the need to demonstrate the on-going and concerted commitment on the management of IHHK.

7.5.3 Implications for practice

The findings of this study show that Tanzania has substantial amount of IHHK which is used for healing some human physical conditions. It was also found that the available IHHK in Tanzania was really scattered within various local communities without purposeful and systematic organisation for easily access and use. Thus, codification and preservation of the metadata for such knowledge has been pointed out by respondents and literature reviewed as very necessary in order to ensure the continued existence of the knowledge. The codification and preservation of IHHK is consistent with the proposed prosperity of IHHK model and supported by the Davenport and Prusak's (2000) working knowledge model that affirms that as a part of KM processes, codification and preservation need to be performed properly. The codification and preservation of IHHK will cultivate a sense of cultural heritage and possible economic development as well as increased research on such knowledge and information. Absence of a public domain or knowledge repository where people can have access to IHHK metadata, as this study has established, is an indication that much of the IHHK is still stored in the minds of people and is lost with their death. The proper management of such knowledge through documenting and preserving in a repository in Tanzania was constrained by lack of infrastructure, educational and ICT application skills, stereotyping and stigmatisation of traditional healing services and products, limited funding and budget allocation, mistrust among the healthcare systems and knowledge managers, memory loss due to the deaths of knowledgeable people, infrastructural challenges, lack of national policies on the management of IHHK, strategies and IPRs focusing on the management of IHHK.

The findings of this study created an awareness of the methods in which such knowledge should be managed and the factors constraining proper management. Thus this study's results contribute to the understanding of the status of documentation and preservation of IHHK which is not encouraging. Tanzania as a country therefore has achieved limited success in this area. The conclusions drawn and the proposed measures and strategies in this study would assist government, other IHHK stakeholders and the responsible ministries to play their roles in the management of IHHK. Furthermore, the findings and recommendations of the study could be used as a tool to help policy makers formulate evidence-based policies and decisions that will influence and expedite the available efforts on documentation and preservation of IHHK. In

order to improve the situation by making IHHK well-managed, the recommendations provided in this study give a course of action for the management of IHHK through the establishment of the national bureau of IHHK for supervising and running various IHHK management projects throughout the country.

7.6 Originality of the study

This study is original both in conceptualisation and design. Literature shows that previous studies on KM in Tanzania and other countries were ethnographic, ethno-botanical and biomedical in nature not providing a qualitative and quantitative estimation of the community gains. Furthermore, literature shows that little has been done in Africa to explore the potential use of ICTs in managing IK, specifically IHHK. The originality of the current study is based on the fact that it is a social survey study focusing on the community gains and the value of using ICTs in the documentation and preservation of IHHK in Tanzania. In addition, the study showed how ICTs can be used to manage and disseminate IK. This study is also original in contributing to the existing base of knowledge as it broadens the literature base on the management of IHHK in Tanzania. Using the social survey research approach, the findings of this study in the understudied area gave an understanding of the readiness of knowledge owners on the documentation and preservation of their healing knowledge in a repository, something that had not been done earlier. This study has contributed to the previous studies on the management of IHHK specifically by its potential to influence the establishment of a large project for documenting and preserving IHHK throughout the country, and helping policy makers to formulate evidence-based policies and making decisions which will expedite the management of such knowledge.

This study has also provided information about the efforts made by IHHK stakeholders through service delivery, preservation of such knowledge, financial and infrastructural improvements for the development and continued use of IHHK for human health and use by future generations. The study is also original in meeting the need for the development of new theoretical frameworks and models that apply to the prosperity of IHHK. The understudying of KM models such as the Organisational Knowledge Creation by Nonaka and Takeuchi (1995), Knowledge Category models by Boisot (1987), Information Space by Boisot (1995), Knowledge Processing Chain by Oluic'-Vukovic' (2001), Holistic Strategy for the Maintenance and Transmission of

TK by Cetinkaya (2009), and the Working Knowledge by Davenport and Prusak (2000) in order to address the research questions and objectives of the study, influenced the need for other KM theories/models which suit the management of IHHK in other contexts. Hence, the IHHK Prosperity model was proposed.

The originality of this study can also be observed in the methods of collecting data. Triangulation of data collection methods, of which the interview was the main methods of collecting data supplemented by focus group discussions, observation and documentary review methods were used. Traditional healers were the main source for first-hand information while legal experts were also consulted for the legal issues regarding the management of IK including IHHK. Researchers on traditional medicine from the ITM were also involved in this study. Similarly, the major investigation of this study was based on an area which has not been studied empirically in Tanzania, namely the readiness of traditional healers in documenting their healing knowledge, the available efforts and the way the management of IHHK is featured in the country's available legal documents.

7.7 Recommendations

This study has identified a variety of issues in relation to the management of IHHK. From the findings of this study, recommendations are made to influence deliberate and concerted efforts by the government, non-governmental organisations and other stakeholders in managing IHHK. Since, IHHK is essential for healing some human physical ailments, and subsequently for improving socio-economic and cultural development of the country, the following are recommended in order to influence the documentation and preservation of IHHK. The recommendations of the study are presented as follows based on each of the research questions and the findings:

The first research question aimed at identifying the manner in which IHHK is managed in Tanzania. The question focused on investigating the matters on how was IHHK was accessed, and how it was documented and preserved.

Basing on the findings of the study from the first question of this study, the following is recommended:

- (i) The government and non-governmental organisations should strive to improve the situation by encouraging individuals to positively participate in the management of IHHK. Seminars and workshops on the importance of the IHHK and the methods in which the knowledge should be managed to harness its benefits for socio-economic and cultural development are very important to all stakeholders. The government should train knowledge managers to deal with managing IHHK.
- (ii) The government should act by supporting and championing the establishment of a national bureau/committee or a centre for IHHK. Such a resource centre or repository shall be working as a clearing house for collecting, documenting and disseminating information about the availability and usefulness of IHHK. The government should also sponsor and encourage research into this area. By having such a centre in place, it would not only preserve Tanzania's IHHK for healing certain human physical conditions, but the established centre itself would create employment for people, act as a tourist and research centre, thus becoming a source of income generation.
- (iii) If the knowledge owners are serious about preserving their knowledge, they should play their role by transferring such knowledge to the younger generation, documenting and preserving it in a repository at all levels including the family, community and the country for future generations, research and development.
- (iv) African countries should learn or follow the examples set by countries like China, Brazil and India and other South American countries that have gone far in documentation and preservation of IHHK

The second research question of this study sought to reveal the administrative and legal efforts by focusing on the manner in which the management of IHHK featured in the existing IPRs, policies and strategies of Tanzania. Since indigenous knowledge management policies are urgently needed to encourage and provide guidelines on the innovation, conservation and preservation of IHHK, government should make deliberate efforts to develop such policies. The issues to be covered in the new policies for managing IK, specifically the IHHK, among other things should include government appreciation of IHHK; political commitment for the IHHK

system; copyright and patent issues including the issue of who owns the findings of the research or the innovation under patent rights, especially for research involving local communities' use of IHHK; a trans-border IHHK system and how to share it; statement on protection of IHHK; preservation of IHHK; and distribution of benefits accrued from IHHK.

The third research question was on the perceptions and readiness of knowledgeable community members towards documentation and preservation of IHHK. The question sought to reveal the respondents' perceptions and readiness to document and preserve their IHHK. It is recommended that a national project for documentation and preservation of IHHK throughout the country be established. Government and NGOs should therefore engineer the process as the need has already been identified.

A lot of the factors constraining documentation and preservation of IHHK were identified by research question four. The objective of the research question and the subsequent questions were to uncover, the factors and challenges in the management of IHHK. It is recommended that stakeholders should join hands and play their roles by sponsoring education and training on the importance of managing IHHK as well as producing knowledge managers to work on managing IHHK. The government should play a leading role in the creation of infrastructure and allocating funds for researching and developing the management of IHHK. Government efforts and the value attached to IHHK should be observed through set policies, rules and regulations that will protect and promote the use of traditional medicine and healing for national interest.

The fifth research question was on the strategies that could assist in the documentation and preservation of IHHK. The question was meant to propose the course of action for the management of such knowledge. Funds should be allocated to facilitate training on the importance of managing IHHK and for implementing various IHHK management projects including infrastructural development, staffing of KM officers, services offered to prospective users and the establishment of knowledge maps or public domains/databases for IHHK. In order to facilitate management, politicians should be involved in initiating various management projects. The politicians, political advocacy and legal commitments can influence the allocation of funds and supervise the implementation of such projects. Therefore, there is a need for IHHK

holders to be represented by political constituencies where traditional healers will be represented in a national assembly or health forum as well as in different decision making organs. Political advocacy is an important action in order that the management of IHHK in Tanzania receives the necessary political support for its documentation and preservation undertakings.

Stakeholders' support is thought to be mostly required as support in the aspects of training and building capacity of traditional healers for documentation and preservation. The government should sponsor and encourage research into IHHK. In order to ensure the idea of documenting and preserving IHHK, proper strategies, rules and regulations which motivate and guide the use of documented and preserved IHHK should be formulated. There is also a need to set in motion a sustainable course of action including corresponding mechanism on how to go about identifying sources of IHHK; collection of the available IHHK; and organising such knowledge in a systematic way for study, teaching, research and development purposes. Putting in motion the course of action or to make such action plans work, the following should be done:

- (i) Train specialists or hire technically trained persons for the purpose;
- (ii) Create a facility to preserve the knowledge;
- (iii) Establish rules and regulations regarding the use, misuse and abuse, and also to specify corresponding legal provisions for such use, misuse and abuse as they may occur;
- (iv) Establish a governing body of trustees or any such organ for the purpose of policy making and guidance on related matters; and
- (v) Establish ways and means of funding the operations of the organ, preferably the central government and local government as the case may be.
- (vi) Dedicating land for growing medicinal trees needed by the traditional healers

7.8 Recommendations for further research

This study was conducted in order to establish the manner in which IHHK was managed in Tanzania. It covered the legal and administrative matters of managing such knowledge. The study further examined the factors that constrained the process of managing IHHK before proposing a course of action for expediting the documentation and preservation of such knowledge. Therefore, for further studies, it is recommended that there is a need to conduct a survey study to assess the needs for establishing training programmes or designing formal

curricula focusing on IK studies to be implemented in a formal learning environment, also to determine the needs to integrating some IK topics in the formal school curriculum. This process would fill the gap of inadequacy of knowledge managers to manage IHHK.

The study highlighted some factors constraining the management of IHHK including fear on the part of the knowledge owners that in the absence of the established rules and regulations regarding the use, misuse and abuse, and corresponding legal provisions their knowledge could be misused and pirated if such information is to be documented and preserved in a repository. Thus, the proposed IHHK Prosperity model that recommends the establishment of a national committee or another organ for the purpose of providing security to the documented and preserved IHHK as well as funding the IHHK management projects has been put forward for further research. It is therefore recommended that in order to test the workability of the proposed prosperity of IHHK model in the African context of Tanzania in particular, an empirical study should be conducted to test if the model have potentials to influence the effective management of IHHK, and other IK systems.

In addition, a comparative study on the accessibility and use of IHHK services and products between rural and urban communities, and rich versus poor people in Tanzania should be conducted in order to determine better methods in which the services and products can easily be made available and accessible for use by such people.

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Appendices

Appendix 1: Letter seeking research permit from the TAHPC



22 March 2013

The Registrar,
Traditional and Alternative Health Practice Council,
P.O. Box 9083,
Dar es Salaam, Tanzania

Dear Sir/Madam

Re: Management of Indigenous Human Health Knowledge in Tanzania

I am writing on behalf of John Iwata, a doctoral student in Information Studies in the School of Social Sciences. He is investigating the management (access of, documentation and preservation) of indigenous human health knowledge in Tanzania. He requires permission to interview yourself or the Head of Departments in your organization, the District Cultural Officers and the registered Traditional Healers.

I would be most grateful if you could assist him.

Yours sincerely

Dr Ruth Hoskins (Supervisor)
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Appendix 2: Letter seeking research permit from the MUHAS-ITM



22 March 2013

The Director
Directorate of Research and Publication (Institute of Traditional Medicine)
Muhimbili University of Health and Allied Sciences
P.O. Box 65001
Dar es Salaam
Tanzania

Dear Sir/Madam

Re: Management of Indigenous Human Health Knowledge in Tanzania

I am writing on behalf of John Jackson Iwata, a doctoral student in Information Studies in the School of Social Sciences. He is investigating the management (access of, documentation and preservation) of indigenous human health knowledge in Tanzania. He requires permission to interview yourself or the Head of Department of your organization.

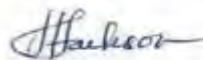
I would be most grateful if you could assist him.

Yours sincerely

Dr Ruth Hoskins (Supervisor)
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Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

Appendix 3: Letter seeking research permit from the University of Dar es Salaam



06 April 2014

Vice Chancellor,
University of Dar es Salaam,
P. O. Box 35091,
Dar es Salaam
Tanzania

Dear Sir/Madam |

Re: Management of Indigenous Human Health Knowledge in Tanzania

I am writing on behalf of John Jackson Iwata, a doctoral student in Information Studies in the School of Social Sciences. He is investigating the management (access of, documentation and preservation) of indigenous human health knowledge in Tanzania. He requires permission to interview the Heads of Units in the Department of Indigenous Knowledge at the School of Law of the University of Dar es Salaam.

I would be most grateful if you could assist him.
Yours sincerely

Dr Ruth Hoskins (Supervisor)

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Appendix 4: Research permit from the TAHPC

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH AND SOCIAL WELFARE
TRADITIONAL AND ALTERNATIVE HEALTH PRACTICE COUNCIL**

Telegrams: 'AFYA', DAR ES SALAAM
Telephone: 2120261 - 7
Fax No. 2139951
(All letters should be addressed to
The Permanent Secretary)
In reply, please quote:



P.O. Box 9083
DAR ES SALAAM

Ref: No. HF. 209/615/01A/83

21st October, 2013

Mr. John Jackson Iwata
University of Kwazulu – Natal
School of Social Sciences
Private Bag X01,
Scottsville,
South Africa

Dear Sir,

**RE: PERMISSION TO ACCESS REGISTERED TRADITIONAL HEALERS IN
MAGU, SINGIDA URBAN, MASASI AND NJOMBE DISTRICTS**

Refer to your letter with Ref. No: MUCCOBS/PF/9/1000.

The office of the Registrar of Traditional and Alternative Health Practice Council received the above mentioned letter regarding accessing the registered traditional healers in 5 districts. The focal person in the District is the Traditional medicine Coordinator found at the office of the District Medical Officer. The coordinators have the names of registered traditional healers with details of village and the ward where each hails. The cultural officer deals with culture aspect only.

You need to get the Research clearance from the relevant authorities before conducting the study.

You will have to report to the office of the Registrar of Traditional and Alternative Medicine at the Ministry of Health and Social Welfare so that the relevant coordinators be informed before commencing the research.

Yours,


Dr. Naomi V Mpemba
Acting Registrar - TAHPC

Appendix 5: Research permit from MUHAS

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED
SCIENCES**

DIRECTORATE OF RESEARCH AND PUBLICATIONS

P.O. BOX 65001
DAR ES SALAAM
TANZANIA



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Website: <http://www.muhas.ac.tz>

Ref. No. MU/DRP/AEC/Vol. XVIII/

11th September, 2013

John Jackson Iwata
PhD Student- University of Kwazulu Natal

**RE: APPROVAL FOR ETHICAL CLEARANCE TO CONDUCT YOUR STUDY TITLED
"MANAGEMENT OF INDEGENEOUS HUMAN HEALTH KNOWLEDGE IN TANZANIA"**

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the Senate approved ethical clearance of the above mentioned study, on recommendation of the Expedited Review Sub-Committee of the Senate Research and Publications Committee held on 05th September, 2013.

The validity of this ethical clearance is one year effective from 05th September, 2013 to 04th September, 2014. You will therefore be required to apply for renewal of ethical clearance on a yearly basis if the study is not completed at the end of this clearance. Permission to publish your study findings should be sought from appropriate authorities at MUHAS and/ or MNH.

You will be expected to provide a final project report upon completion of your study.

Prof. Majnen J. Mushi

CHAIRMAN, SENATE RESEARCH AND PUBLICATIONS COMMITTEE

c.c. Vice Chancellor, MUHAS.

- Your letter Ref.No.MU/01/1022/0134/144

c.c. Deputy Vice Chancellor – ARC, MUHAS.

Appendix 6: Research permit from University of Dar es Salaam

UNIVERSITY OF DAR ES SALAAM

DIRECTORATE OF RESEARCH

P.O. Box 35091 ■ DAR ES SALAAM ■ TANZANIA

General Line: 2410500-8 Ext. 2084
Direct Line: 2410727
Website: www.udsm.ac.tz



Fax: 255 022 2410743
255 022 2410023
E-mail: research@udsm.ac.tz

Our Ref. AB3/31

22nd April 2014

Dean, School of Law
University of Dar es Salaam

RE: RESEARCH CLEARANCE

This is to introduce **Mr. John Jackson Iwata** who is a Tanzanian student at the University of KwaZulu-Natal, South Africa. Mr. Iwata is undertaking Doctor of Philosophy in Information Studies and at the moment he is conducting research titled **"Management of Indigenous Human Health Knowledge in Tanzania"**.

This is to request you to grant the above-mentioned student any help that may enable him to achieve his research objectives. The period for which this permission has been granted is from May to July 2014 and will cover the following area: **School of Law**.

Prof. R.Y.M. Kangalawe
DIRECTOR, RESEARCH

cc: Vice Chancellor
cc: DVC- Academic
cc: DVC- Administration
cc: DVC – Research and Knowledge Exchange

Appendix 7: Research ethical clearance certificate from the University of KwaZulu-Natal



05 May 2014

Mr John J Iwata (213547968)
School of Social Sciences
Pietermaritzburg Campus

Protocol reference number: HSS/1025/013D
Project title: Management of Indigenous Human Health Knowledge (IHKK) in Tanzania

Dear Mr Iwata,

Approval – Amendment

I wish to confirm that your application dated 02 May 2014 in connection with the above mentioned project has been approved as follows:

- Amendment to sites / locations

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol.

Yours faithfully

Dr Shenuka Singh (Chair)

/ms

cc Supervisor: Dr Ruth Hoskins
cc Academic Leader Research: Professor Sabine Marschall
cc School Administrator: Ms Nancy Mudau

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: xinbac@ukzn.ac.za / svmmanm@ukzn.ac.za / mohupnd@ukzn.ac.za

Website: www.ukzn.ac.za



100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

Appendix 8: Informed consent form



September 20, 2013

Informed Consent Letter

Researcher: Mr. John Jackson Iwata
Institution: University of KwaZulu-Natal
Telephone number: +27725352842/+255752875885
Email address: 213547968@stu.ukzn.ac.za

Supervisor: Prof. Ruth Hoskins
Institution: University of KwaZulu-Natal
Telephone number: +27 (0) 33 2605093
Email address: hoskinsr@ukzn.ac.za

Dear Respondent,

I, **John Jackson Iwata**, of Moshi University College of Cooperative and Business Studies, who is currently a PhD student at the school of social science of the University of KwaZulu-Natal, kindly invite you to participate in the research project entitled: **Management of indigenous human health knowledge in Tanzania**

This research project is undertaken to fulfil the requirements for the award of PhD degree of the University of KwaZulu-Natal, Information Studies Department.

The aim of this study is to investigate the existing knowledge management efforts in Tanzania in relation to the documentation and preservation of it. It will further study factors affecting the documentation and preservation with the view of proposing a sustainable course of action for proper management of such knowledge.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. The information you provide will be used for academic purposes only and not otherwise. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Department of Information Studies, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated above.

It will take us about 40 to 45 minutes to complete the interview.

Thank you for participating in this research project.

Signature

Date

School of Social Sciences

Postal Address: Private Bag X01, Scottsville, 3209, South Africa

Telephone: +27 (0) 33 260 5320/5007

Facsimile: +27 (0) 33 260 5002

Email: ivivlab@socialsci.ukzn.ac.za

DECLARATION OF CONSENT

I, (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the above mentioned research project.

I..... I consent / do not consent to have this interview been recorded.

I acknowledge that I have been informed of the purpose of this interview. I am aware that participation in the study is voluntary and I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Participant

Signature
Date:
Email:

Researcher

Signature
Date:



School of Social Sciences

Postal Address: Private Bag X01, Scottsville, 3209, South Africa
Telephone: +27 (0) 33 260 5320/5007 Facsimile: +27 (0) 33 260 6092
Email: socialsciences@ukzn.ac.za

Appendix 9: Informed consent form (Kiswahili translation)



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

Septemba 20, 2013

Barua ya hiari ya mshiriki

Jina la Mtafiti: Bw. John Jackson Iwata
Taasisi: Chuo Kikuu cha KwaZulu-Natal
Nambari ya simu: +27725352842/+255752875885
Barua pepe: 213547968@stu.ukzn.ac.za

Msimamizi wa utafiti: Prof. Ruth Hoskins
Taasisi: Chuo Kikuu cha KwaZulu-Natal
Nambari ya simu: +27 (0) 33 2605093
Barua pepe: hoskinsr@ukzn.ac.za

Ndugu mshiriki,

Mimi, **John Jackson Iwata**, wa Chuo Kikuu Kishiriki cha Ushirika na Biashara Moshi, ambaye kwa sasa ni mwanafunzi wa shahada ya uzamivu katika shule ya sayansi jamii ya Chuo Kikuu cha KwaZulu-Natal, ninakuomba ushiriki katika utafiti huu wenye kichwa cha somo: **Utunzaji wa maarifa ya tiba asilia kwaajili ya afya ya mwanadamu.**

Utafiti huu unafanyika ili kukidhi mahitaji ya shahada ya uzamivu (PhD), ya Chuo kikuu cha KwaZulu-Natal, Idara ya mambo ya taarifa.

Madhumuni ya utafiti huu ni kuchunguza jitihada zilizopo za utunzaji wa maarifa ya tiba asilia kwaajili ya afya ya mwanadamu; mambo yanayoathiri uwekaji na uhifadhi kwa njia ya maandishi ili kupendekeza hatua endelevu katika utunzaji bora wa maarifa hayo.

Ushiriki katika utafiti huu ni wa hiari. Unaweza kukataa kushiriki au kujiondoa kwenye utafiti huu katika hatua yoyote na kwa sababu yoyote bila kupata madhara yoyote. Hata hivyo ijulikane kuwa hakutakuwa na malipo yoyote kwa kushiriki kwako katika utafiti huu. Taarifa zote utakazotoa zitatumika kwa madhumuni ya kitaaluma tu na si vinginevyo. Na kwamba taarifa zozote kukuhusu wewe kama mshiriki zitahifadhiwa na Idara ya mambo ya taarifa ya Chuo Kikuu cha KwaZulu-Natal.

Kama una maswali au hoja yoyote kuhusu kushiriki katika utafiti huu, jisikie huru kuwasiliana nami au msimamizi wangu kwa kutumia namba hizo hapo juu.

Tutatumia dakika 40 hadi 45 kukamilisha mahojiano haya.

Nashukuru kwa ushiriki wako katika utafiti huu.

Saini

Tarehe



School of Social Sciences

Postal Address: Private Bag X01, Scottsville, 3209, South Africa

Telephone: +27 (0) 33 260 5030/5007

Faxsimile: +27 (0) 33 260 5093

Email: saad@socialsci.ukzn.ac.za

TAMKO LA KUKUBALI KWA HIARI

Mimi, (jina kamili la mshiriki) nathibitisha kwamba nimeelewa maudhui ya andiko hili na kiini cha utafiti huu, na kwa hiari yangu nakubali kushiriki kwenye utafiti huu kama ulivyotajwa hapo juu.

Aidha, mimi nakubali/sikubali mahojiano haya yachukuliwe kwa kutumia kinasu sauti.

Nakiri kwamba nimefahamishwa vya kutosha kuhusu madhumuni ya mahojiano haya. Na nimeelewa kwamba ushiriki wangu kwenye utafiti huu ni wa hiari, na kwamba niko huru kujiondoa katika kushiriki wakati wowote nitakapojisikia.

Mshiriki

Saini
Tarehe:
Baruapepe:

Mtafiti

Saini
Tarehe:

Traveling Companion: | | | | | | |

School of Social Sciences

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Appendix 10: Interview schedule for traditional healers

Part A: Personal Data

1. Region:
2. District:
3. Ward:
4. Village:
5. Gender: () Female () Male
6. Religion: () Christian () Muslim () Traditional () Other (Please specify)
7. Age group: () 15-20 () 20-30 () 30-40 () 40-50 () 50-60 () above 60:
8. Highest level of education: () Primary education () Secondary education () Post secondary () Other (Please specify)
9. Please state your specialisation in tradition healing.
.....
.....
.....
10. From where do you provide your treatments and healing services to patients? (e.g., home, hospital, clinic, etc.)
.....
11. How did you come to learn about your traditional medicine and healing knowledge?
.....
.....
12. How long have you been practising traditional medicine?
13. Are you afforded the same status as orthodox medical practitioners in the Tanzanian health system?
() Yes () No
Please explain your answer
.....
.....
.....

Part B: Management of indigenous human health knowledge

B1.1 Ways in which IHHK is managed (access, documented and preserved) in Tanzania

14. How do your prospective users get access to information about your traditional healing services?
.....
.....
.....
15. Who are your prospective users of IHHK?
() Elders () Youths () Children () Other (Please specify)
16. How would you classify the economic status of patients/prospective users who access your services?
() Higher income () Middle income () Low income
Please explain your answer
.....
.....

17. Do you think it is necessary to document and preserve Tanzania's IHHK?

() Yes () No

Please explain your answer

.....
.....
.....

18. What is your role in managing IHHK?

.....
.....
.....

19. How is your traditional healing knowledge preserved?

.....
.....
.....

20. Do any private or public organisations consult you on your healing knowledge?

() Yes () No

If YES, please can you provide examples of such organisations?

.....
.....
.....

21. Do you belong to an IHHK owners' network?

() Yes () No

If the answer is YES, how beneficial the network is in management of your indigenous healing knowledge?

.....
.....
.....

If the answer is NO, how do you share and update your knowledge?

.....
.....
.....
.....

22. Are you registered with the TAHPC?

() Yes () No

If the answer is YES, what assistance have you received from the TAHPC in terms of documenting and preserving your IHHK?

.....
.....
.....

23. What assistance do/would you need from government for sustainability of your knowledge and services?

.....
.....
.....
.....

24. How do you think technology could assist in the management of IHHK?

.....
.....
.....

25. What is the contribution of religious organisations towards access, documentation and preservation of IHHK?

.....
.....
.....

B1.2 The IPRs, existing policies and strategies in relation to the management of IHHK

26. What IPRs, national policies and strategies for the management of IHHK exist that you are aware of?

.....
.....
.....

B1.3 Perception and readiness of traditional healers towards documentation and preservation of IHHK

27. Would you like to document your traditional healing knowledge?

Yes No

If the answer is YES, then:

a) What information on IHHK would you be able to disclose for codification and preservation?

Local names of the plants Parts of medicinal plants Medicine preparation process (
 Location of the plants/materials the medicinal values Dosage forms/use and method
of application Founder/knowledge owner Other (Please specify)

.....
.....

b) In what format would you prefer to document the information in (a) above?

Electronic Print Other (Please specify)

Please explain for your answer

.....
.....
.....

B2: Factors affecting management of IHHK

28. What challenges do you face in managing your IHHK?

.....
.....
.....
.....

29. How can these challenges be resolved?

.....
.....
.....

B3: Strategies to assist in the access, documentation and preservation of IHHK of Tanzania

30. What strategies could assist the documentation and preservation of IHHK in Tanzania?

.....
.....
.....
.....
.....
.....

31. What type of training should you undertake to improve on the management of your IHHK knowledge?

.....
.....
.....
.....
.....

32. What else would you like to add in regards to the management of IHHK in Tanzania?

.....
.....
.....
.....
.....
.....

Thank you for your participation

Appendix 11: Interview schedule for traditional healers (Kiswahili translation)

Kiambatisho cha 11: Kielelezo cha mahojiano kwa waganga wa tiba asilia

Sehemu A: Taarifa binafsi za mshiriki

1. Mkoa:
2. Wilaya:
3. Kata:
4. Kijiji:
5. Jinsia: () Mwanamke () Mwanaume
6. Dini: () Mkristo () Muislam () Mfuasi wa dini za jadi () Dini nyingine (Tafadhali itaje)
.....
7. Umri wako: () 15-20, () 20-30, () 30-40, () 40-50, () 50-60, () zaidi ya miaka 60:
.....
8. Kiwango cha juu cha elimu yako: () elimu ya msingi () elimu ya sekondari () elimu baada ya sekondari () nyingine (Tafadhali itaje)
9. Eleza eneo ulilobobea katika tiba asilia
.....
.....
.....
10. Je, tiba zako na huduma za kitabibu kwa wagonjwa huwa unazitoa ukiwa wapi? (mfano nyumbani, hospitalini, kliniki nk.)
11. Je, ni kwa namna gani ulijifunza kuhusu hizo dawa asilia na maarifa ya kutibu?
.....
.....
12. Una muda gani tangu umeanza kujishughulisha na dawa asilia?
13. Je, kwenye mfumo wa afya nchini Tanzania, mnapata hadhi sawa na ile ya waganga wa hospitalini?
() Ndiyo () Hapana
Tafadhali eleza kwa jibu lako

Sehemu B: Utunzaji wa maarifa ya tiba asilia nchini Tanzania

B1.1 Mbinu zitumikazo katika kutunza maarifa hayo

14. Je, ni kwa namna gani watumiaji wanapata taarifa kuhusu huduma zako za tiba asilia?
.....
.....
.....
15. Je, ni nani hasa ni watumiaji wa maarifa ya tiba hizo za kienyeji?
() Wazee () Vijana () Watoto () wengine (Tafadhali wataje)
16. Je, watumiaji wa mara kwa mara wa maarifa ya tiba asilia wanatoka katika kundi gani la kiuchumi?
() Wenye uchumi mzuri () wa wastani () uchumi duni
Tafadhali elezea zaidi kuhusu jibu lako
.....
.....
.....

17. Je, unafikiri ni muhimu kuweka kwenye maandishi na kutunza maarifa ya tiba asilia za hapa nchini Tanzania?

() Ndiyo, () Hapana

Tafadhali eleza sababu kwa jibu lako

.....
.....
.....

18. Je, ni nini wajibu wako katika kutunza maarifa ya tiba asilia?

.....
.....
.....

19. Je, ni kwa namna gani maarifa yako ya kutibu kienyeji huhifadhiwa?

.....
.....
.....

20. Je, kuna mashirika yoyote ya binafsi au ya umma yamefika kukuona kwaajili ya maarifa yako ya kutibu?

() Ndiyo, () Hapana

Kama jibu ni NDIYO, tafadhali unaweza kutoa mifano ya mashirika hayo?

.....
.....

21. Je, wewe ni mwanachama kwenye mtandao wowote wa ushirikiano wa wamiliki wa maarifa ya tiba asilia?

() Ndiyo, () Hapana

Kama jibu ni NDIYO, je, mtandao huo una umuhimu gani katika utunzaji wa maarifa yako ya tiba asilia?

.....
.....

Kama jibu ni HAPANA, ni kwa namna gani mnashirikishana na kusasahishana maarifa yenu ya tiba asilia?

.....
.....

22. Je, wewe umesajiliwa na baraza la tiba asilia na dawa mbadala (TAHPC)?

() Ndiyo () Hapana

Kama jibu ni NDIYO, ni msaada gani huwa unapata/ungependa kupata kutoka baraza la tiba asilia na dawa mbadala ili kuweka kwenye maandishi na kuhifadhi maarifa yako ya tiba asilia?

.....
.....
.....

23. Je, ni msaada gani huwa unapata/ungependa kupata kutoka serikalini kwaajili ya kuendeleza maarifa na huduma zako?

.....
.....
.....

24. Je, unafikiri teknolojia inaweza kusaidia kwa namna gani katika utunzaji wa maarifa ya tiba asilia?

.....
.....
.....

25. Ni nini mchango wa dini katika upataji (ufikiwaji), utunzaji kwenye maandishi na uhifadhi wa maarifa ya tiba asilia?

.....
.....
.....

B1.2 Haki miliki ya zao la akili, sera na mikakati iliyopo kuhusu utunzaji wa maarifa ya tiba asilia

26. Je, ni sheria zipi za haki miliki ya zao la akili, sera za kitaifa na mikakati inayoongoza utunzaji wa maarifa ya tiba asilia unazozifahamu?

.....
.....
.....
.....

B1.3 Fikra na utayari wa waganga wa tiba asilia katika kutunza maarifa ya tiba asilia kwenye maandishi

27. Je, ungependa maarifa yako ya tiba asilia yatunzwe kwenye maandishi?

() Ndiyo, () Hapana

Kama jibu lako ni NDIYO, jibu yafuatayo:

a) Ni taarifa zipi utakuwa tayari kuziweka wazi ili ziwekwe na kuhifadhiwa kwenye maandishi?

- () Majina ya kienyeji ya mimea dawa, () Sehemu za mmea zitumikazo kwa dawa,
- () Mchakato wa uandaaji dawa, () Mahali mmea dawa/malighafi zinakopatikana,
- () Manufaa ya kidawa yaani magonjwa yatibiwayo, () Kipimo na masharti ya utumizi wa dawa, () Mwasisi/mmiliki wa dawa, () Taarifa nyingine (Tafadhali zitaje)

.....
.....

b) Je, taarifa hizo hapo juu namba (a) ungependelea zihifadhiwe katika umbo gani?

() Umbo la kielektroniki, () Kwenye karatasi, () Kwenye maumbo mengine (Tafadhali yataje)

Tafadhali eleza zaidi kuhusu jibu lako
.....
.....
.....

B2: Mambo yanayoathiri utunzaji wa maarifa ya tiba asilia

28. Je, ni changamoto gani unakabiliana nazo katika utunzaji wa maarifa yako ya tiba asilia?

.....
.....
.....

29. Ni nini masuluhisho ya changamoto hizo?

.....
.....
.....

B3: Mikakati ya kusaidia kuweka na kuhifadhi maarifa ya tiba asilia kwenye maandishi

30. Je, ni mikakati gani unafikiri inaweza kusaidia katika uwekaji kwenye maandishi na uhifadhi wa maarifa ya tiba asilia hapa Tanzania?

.....
.....
.....
.....

31. Je, ni mafunzo gani ingefaa uyapate ili kuboresha utunzaji wa maarifa yako ya tiba asilia?

.....
.....
.....
.....

32. Je, jambo gani jingine ambalo ungependa kuongeza kuhusu utunzaji wa maarifa ya tiba asilia hapa nchini Tanzania?

.....
.....
.....
.....
.....

Asante sana kwa kushiriki

**Appendix 12: Interview schedule for Heads of Department/District Co-ordinators of
TAHPC**

Part A: Personal data

1. Designation:
2. Role and responsibilities:
3. Name of Institute:
4. Gender: () Female () Male
5. Name of Department:
6. Education qualification: () Primary education () Secondary education
() Post secondary () Other (Please specify)

Part B1: Management of indigenous human health knowledge

B1.1 Ways in which IHHK is managed (access, documentation and preservation in Tanzania)

7. What is the impact of traditional healers' services in the treatment of illness?
.....
.....
.....
8. What is the contribution of traditional healers towards the national medical infrastructure?
.....
.....
.....
9. How do you identify the traditional healers and their services/products they provide and the places from which they operate?
.....
.....
.....
10. Why are traditional healers required to register with the council?
.....
.....
.....
11. What criteria do you use to register traditional healers' services and products?
.....
.....
.....
12. What in your opinion is the status of documentation and preservation of IHHK in Tanzania?
.....
.....
.....
13. What knowledge map/databases exist to store the list of traditional healers and their services, products and places they operate from?
.....
.....
.....

B1.2 The IPRs, existing policies and strategies for the management of IHHK

14. What policies/strategies exist for the management of IHHK in Tanzania?

.....
.....
.....

15. If the policies/strategies do not exist what plans are been made for the formulation of such policies/strategies?

.....
.....
.....

16. What do you think are the roles/responsibilities of your institute in the management of IHHK?

.....
.....
.....

B1.3 Perception and readiness of traditional healers towards documentation and preservation of IHHK

17. In your opinion are traditional healers ready to document and preserve their IHHK?

() Yes () No

If the answer is YES, what information are the traditional healers ready to disclose?

() Local names of the plants () Parts of medicinal plants () Medicine preparation process
() Location of the plants/materials () Medicinal values, () Dosage forms/use and method of application () Founder/knowledge owner () Other (Please specify)

.....
If the answer is NO, what strategies are in place to encourage traditional healers to document and preserve their IHHK?

.....
.....
.....
.....

B2: Factors affecting management of IHHK

18. How could technology be used to facilitate the management of IHHK?

.....
.....
.....

19. In your opinion what are the challenges in the management of IHHK?

.....
.....
.....
.....

B3: Strategies to assist in the documentation and preservation of IHHK of Tanzania

20. What strategies can assist in the documentation and preservation of IHHK in Tanzania?

.....
.....
.....
.....
.....
.....
.....

21. What else would you like to add regarding the management of IHHK in Tanzania?

.....
.....
.....
.....

Thank you for your participation

**Appendix 13: Interview schedule for Heads of Department/District Co-ordinator of
TAHPC (Kiswahili translation)**

**Kiambatisho cha 13: Kielelezo cha mahojiano kwa Wakuu wa Idara/Waratibu tiba asilia
Sehemu A: Taarifa binafsi za mshiriki**

1. Wadhifa:
2. Wajibu na majukumu:
3. Jina la taasisi:
4. Jinsia: () Mke () Mume
5. Jina la idara:
6. Kiwango cha elimu yako: () Elimu ya msingi () Elimu ya sekondari
() Elimu ya baada ya elimu ya sekondari () Nyingine (Tafadhali itaje)
.....

Sehemu B: Utunzaji wa maarifa ya tiba asilia nchini Tanzania

B1.1 Mbinu zitumikazo katika kutunza maarifa ya tiba asilia

7. Ni nini mchango wa huduma za waganga wa tiba asilia katika kutibu magonjwa?
.....
.....
.....
8. Ni nini mchango wa huduma za waganga wa tiba asilia katika miundombinu ya tiba ya
kitaifa?
.....
.....
.....
9. Je, ni kwa namna gani mnawatambua waganga wa tiba asilia na huduma/tiba zao, na hata
mahali wanapotolea huduma hizo?
.....
.....
.....
10. Ni kwanini waganga wa tiba asilia wanalazimika kusajiliwa na baraza la tiba asili?
.....
.....
.....
11. Ni vigezo gani mnavyotumia kusajili huduma na tiba za waganga wa tiba asilia?
.....
.....
.....
12. Kwa maoni yako, ni nini hali ya uwekaji kwenye maandishi na uhifadhi wa maarifa ya tiba
asilia nchini Tanzania?
.....
.....
.....
.....
.....

13. Ni ramani/bohari taarifa ipi inahifadhi orodha ya waganga wa tiba asilia na huduma zao, dawa na mahali wanapofanyia kazi?

.....
.....
.....

B1.2 Haki miliki ya zao la akili, sera na mikakati iliyopo kuhusu utunzaji wa maarifa ya tiba asilia

14. Je, kuna sera/mikakati gani kwaajili ya utunzaji wa maarifa ya tiba asilia hapa nchini Tanzania?

.....
.....
.....

15. Kama hakuna sera/mikakati, je kuna mipango gani kuhusu kuanzisha/kutunga sera na mikakati hiyo?

.....
.....
.....
.....

16. Je, unafikiri ni nini wajibu/majukumu ya taasisi yako katika utunzaji wa maarifa ya tiba asilia?

.....
.....
.....
.....
.....

B1.3 Mtizamo na utayari wa waganga wa tiba asilia katika kuweka kwenye maandishi maarifa ya tiba zao

17. Kwa maoni yako, unadhani waganga wa tiba asilia wako tayari kuweka kwenye maandishi na kuhifadhi maarifa yao ya tiba asilia?

() Ndiyo, () Hapana

Kama jibu ni NDIYO, unafikiri ni taarifa zipi wako tayari kuziweka wazi?

() Majina ya kienyeji ya mmea dawa, () Sehemu za mmea zitumikazo kwa dawa,

() Mchakato wa uandaaji dawa, () Mahali mmea dawa/malighafi zinakopatikana, ()

Manufaa ya kidawa yaani magonjwa yatibiwayo, () Kipimo na masharti ya utumizi wa dawa,

() Mwasisi au mmiliki wa dawa, () Taarifa nyingine (Tafadhali zitaje)

.....
.....
.....
.....
.....
.....
.....

Kama jibu lako ni HAPANA, je kuna mikakati gani ya kuwahamasisha waganga wa tiba asilia waweze kuweka kwenye maandishi na kuhifadhi maarifa yao ya tiba asilia?

18. Je, unafikiri teknolojia inaweza kutumika namna gani ili kurahisisha utunzaji wa maarifa ya tiba asilia?

.....
.....
.....
.....
.....

19. Kwa maoni yako ni nini changamoto zinazokabili utunzaji wa maarifa ya tiba asilia?

.....
.....
.....
.....

B3: Mikakati ya kusaidia kuweka na kuhifadhi maarifa ya tiba asilia kwenye maandishi

20. Je, ni mikakati gani unafikiri inaweza kusaidia katika uwekaji kwenye maandishi na uhifadhi wa maarifa ya tiba asilia hapa Tanzania?

.....
.....
.....
.....
.....
.....
.....

21. Je, jambo gani jingine ambalo ungependa kuongeza kuhusu utunzaji wa maarifa ya tiba asilia nchini Tanzania?

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Asante sana kwa kushiriki

Appendix 14: Interview schedule for Heads of Department-UDSM-SoL (School of Law)

Part A: Personal data

1. Name of Institute:
2. Designation:
3. Sex: () Female () Male
4. Name of Department:
5. Education qualification: () Primary education () Secondary education () Post secondary () Other (Please specify).....

Part B: Management of indigenous human health knowledge

B1: IPRs, existing policies and strategies in relation to the management of IHHK

6. What in your opinion is the importance of documenting and preserving IHHK?
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7. What policies exist regarding the management of IHHK in Tanzania?
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8. If no policies exist, what plans are in place to develop such policies relating to the management of IHHK in Tanzania?
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9. What in your opinion do you think is the role of IPRs in protecting IHHK in Tanzania?
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10. How can IPRs, national policies and strategies influence owners' readiness towards documentation and preservation of IHHK?
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B2: Factors affecting management of IHHK

11. How can technology (for example computers, phones) be used in the management of IHHK?
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12. What challenges does the government face in formulating and implementing various policies and strategies relating to the management of IHHK in Tanzania?

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B3: Strategies to assist in the documentation and preservation of IHHK of Tanzania

13. What strategies can assist in the documentation and preservation of IHHK in Tanzania?

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14. What else would you like to add regarding the management of IHHK in Tanzania?

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Thank you for your participation

Appendix 15: Interview schedule for Heads of Department, UDSM-SoL (Kiswahili translation)

Kiambatisho cha 15: Kielelezo cha mahojiano kwa Wakuu wa Idara, Shule ya Sheria, Chuo Kikuu cha Dar es Salaam

Sehemu A: Taarifa binafsi za mshiriki

1. Jina la taasisi:
2. Cheo:
3. Jinsia: () Mke, () Mume
4. Jina la idara:
5. Kiwango cha elimu yako: () Elimu ya msingi, () Elimu ya sekondari, () Elimu ya baada ya sekondari () Nyingine, tafadhali itaje

Sehemu B: Utunzaji wa maarifa ya tiba asilia nchini Tanzania

B1: Maarifa ya tiba asilia kwaajili ya afya ya mwanadamu na utunzaji wake

B 1.1: Haki miliki ya zao la akili, sera na mikakati iliyopo kuhusu utunzaji wa maarifa ya tiba asilia

6. Je hapa Tanzania kuna sera na mikakati gani kuhusu utunzaji wa maarifa ya tiba asilia?
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7. Kama hakuna sera, je, kuna mipango gani ya kutengeneza sera kuhusu utunzaji wa maarifa ya tiba asilia hapa Tanzania?
8. Kwa maoni yako, unadhani ni nini faida ya sheria ya haki miliki ya zao la akili katika kulinda maarifa ya waganga wa tiba asilia?
9. Ni kwa namna gani sheria ya haki miliki ya zao la akili na mikakati iliyopo inawahamasisha waganga wa tiba asilia kuweka kwenye maandishi na kuyahifadhi maarifa yao?
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10. Kwa maoni yako, ni nini faida za kuweka na kuhifadhi kwenye maandishi maarifa ya tiba asilia?
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11. Je, ni kwa namna gani teknolojia (kwa mfano utumizi wa kompyuta, radio na simu) inaweza kutumika katika utunzaji wa maarifa ya tiba asilia?
12. Je, unafikiri serikali ya Tanzania inakabiliana na changamoto gani katika kuunda na kutekeleza sera na mikakati mbalimbali inayohusu utunzaji maarifa ya tiba asilia nchini?
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B2: Mikakati ya kusaidia kuweka na kuhifadhi maarifa ya tiba asilia kwenye maandishi

13. Je, ni mikakati gani unafikiri inaweza kusaidia katika uwekaji na uhifadhi wa maarifa ya tiba asilia kwenye maandishi hapa Tanzania?

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14. Je, jambo gani jingine ambalo ungependa kuongeza kuhusu utunzaji wa maarifa ya tiba asilia nchini Tanzania?

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Asante sana kwa kushiriki

Appendix 16: Focus group discussion themes and sub-themes for users

Part A: Personal data

1. Region:
2. District:
3. Ward:
4. Village:
5. Number of Female Number of Males
6. Religion representations: () Christians () Muslims () Traditional () Other (Please specify)
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Part B1: Management of indigenous human health knowledge

1.1 Ways in which IHHK is managed (accessed) in Tanzania

7. What sources of information do you consult in accessing information on IHHK?
8. Are you satisfied with information obtained from these sources?
9. What is your attitude towards traditional healers and their healing services?
10. How do you compare the cost of traditional medicine with modern medicine?
11. In your opinion why is it important to manage IHHK?
12. What do you think is the role of government in managing IHHK?
13. What do you think is the role of traditional healers in managing IHHK?
14. What do you think is the role of religious organisations in managing IHHK?

Theme 2: Factors affecting management of IHHK

15. What challenges do you face in accessing IHHK?
16. What in your opinion are the factors affecting the management of IHHK?
17. How can technology facilitate access, documentation and preservation of IHHK?

Theme 3: Strategies to assist in the documentation and preservation of IHHK of Tanzania

18. What do you think should be done to improve the management of IHHK?

Thank you for your participation

Appendix 17: Focus group discussion themes and sub-themes for users (Kiswahili translation)

Kiambatisho cha 17: Mada na maudhui lengwa ya majadiliano katika vikundi

Sehemu A: Taarifa binafsi za mshiriki

1. Dini:
2. Wilaya:
3. Kata:
4. Kijiji:
5. Idadi ya Wanawake Idadi ya Wanaume
6. Uwakilishi kidini: () Wakristo () Waislamu, () Dini za jadi, () nyingine, tafadhali zitaje
.....

Sehemu B: Utunzaji wa maarifa ya tiba asilia nchini Tanzania

Maudhui 1.1 Mbinu zitumikazo katika kutunza maarifa hayo

7. Ni vyanzo gani vya taarifa mnavitumia kupata taarifa kuhusu maarifa ya tiba asilia?
8. Je, taarifa toka vyanzo hivyo zinakidhi/zinakuridhisha?
9. Ni nini mtizamo wako kuhusu waganga wa tiba asilia na huduma za kitabibu wanazotoa?
10. Unalinganishaje gharama za dawa asili na zile za hospitalini?
11. Kwa maoni yako, ni kwanini ni muhimu kutunza maarifa ya tiba asilia?
12. Unafikiri ni nini wajibu wa serikali katika kutunza maarifa ya tiba asilia?
13. Unafikiri ni nini wajibu wa waganga wa tiba asilia katika kutunza maarifa ya tiba asilia?
14. Unafikiri ni nini wajibu wa mashirika ya kidini katika kutunza maarifa ya tiba asilia?

Maudhui 2: Mambo yanayoathiri utunzaji wa maarifa ya tiba asilia

15. Ni changamoto zipi mnazokabiliana nazo katika kupata (kuzifikia) taarifa zinazohusu maarifa ya tiba asilia?
16. Kwa maoni yako, ni mambo gani yanayoathiri utunzaji wa maarifa ya tiba asilia?
17. Ni kwa namna teknolojia inaweza kusaidia ufikiwaji, uwekaji kwenye maandishi na uhifadhi wa maarifa ya tiba asilia?

Maudhui 3: Mikakati ya kusaidia kuweka na kuhifadhi maarifa ya tiba asilia kwenye maandishi

18. Unafikiri nini kifanyike ili kuboresha utunzaji wa maarifa ya tiba asilia?

Asante sana kwa kushiriki

Appendix 18: Observation checklist for communities and institutes

Section A: Information about the community/institute

1. Name of the institute/community
2. Region:
3. District:
4. Ward:
5. Village:

Part B: Management of indigenous human health knowledge

B1: IHHK management efforts in Tanzania

B1.1 Ways in which IHHK is managed (accessed, documented and preserved) in Tanzania

6. Facilities

- a) Computer availability
- b) Internet connectivity
- c) Information available in databases (information sources)
- d) Access to the databases (who has access and why?)
- e) Storage of traditional healing information

7. Collections

- a) Types of indigenous knowledge resources available
- b) Access to IHHK information by prospective users

8. Activities

- c) Activities related to codification and preservation of IHHK
- d) Storage and dissemination of IHHK

Appendix 19: Observation checklist for communities and institutes (Kiswahili translation)

Kiambatisho 19: Orodha ya mambo ya kuyatazama kwenye jamii na taasisi

Sehemu A: Taarifa kuhusu jamii/taasisi

1. Jina la taasisi/jamii:
2. Mkoa:
3. Wilaya:
4. Kata:
5. Kijiji:

Sehemu B: Utunzaji wa maarifa ya tiba asilia nchini Tanzania

B1: Maarifa ya tiba asilia kwaajili ya afya ya mwanadamu na utunzaji wake

B1.1 Mbinu zitumikazo katika kutunza maarifa hayo

6. Vitendeakazi

- a) Uwepo na ufikiaji wa kompyuta
- b) Uunganishwaji mtandao wa intaneti
- c) Taarifa zilizopo kwenye bohari taarifa(vyanzo vya taarifa)
- d) Ufikiaji wa bohari taarifa (je, ni nani anaruhusa kuzifikia na kwa nini?)
- e) Uhifadhi wa dawa
- f) Mazingira ambayo waganga wa tiba asilia wanafanyia kazi

7. Bohari za kuhifadhia maarifa

- a) Rasilimali taarifa zinazohusu maarifa ya tiba asilia
- b) Namna watumiaji wa taarifa zinazohusu maarifa ya tiba asilia wanavyozipata (kuzifikia)

8. Shughuli

- a) Shughuli zinazohusu uwekaji kwenye maandishi na uhifadhi wa maarifa ya tiba asilia
- b) Mifumo/aina iliyopo ya rasilimali maarifa ya kienyeji
- c) Uhifadhi na utambulishaji maarifa ya tiba asilia