MAPPING AND AUDITING INDIGENOUS KNOWLEDGE AND ITS MANAGEMENT ENVIRONMENT: A COMPARATIVE STUDY OF KENYA AND SOUTH AFRICA

BY

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DECLARATION

I wish to declare that this thesis, "Mapping and Auditing Indigenous Knowledge and its Management Environment: A Comparative Study of Kenya and South Africa", except where indicated to the contrary within the text, is my original work, and has not been presented for the award of a degree in any other university. All the sources used in this work have been acknowledged by means of references.

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DEDICATION

To my late father, Mr. Justus Kahuria Wahome, my loving mother, Mrs. Mary Kahuria, my husband, Mr. Nelson Njiraine Kinyua, and our daughters, Ms. Sharon Wairimu Njiraine and Mary Mumbi Njiraine

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ABSTRACT

Knowledge management (KM) is increasingly popularized in various societies, organizations and governments because of its confirmed importance in fostering knowledge creation, codification and transfer, and development of knowledge capital capability. Indigenous knowledge (IK), which forms part of KM, is also generally thought to have crucial functions and importance in the knowledge management process (creation or production, storage, processing or codification, transfer and utilization) and should therefore receive significant attention. The aim and objectives of the study was to map and audit the current IK environment and practices in Kenya and South Africa with specific attention to identifying the IK policies and legislation in place, exploring and analyzing the IK governance structures, examining the IK centres and systems in terms of their roles, identifying what IK programmes and activities are in existence and when are they held, determining the status, trends and types of IK research.

The study used the survey method. The study was conducted in two countries, i.e. Kenya and South Africa, but was not defined geographically. It was restricted to the capital cities of Nairobi in Kenya and Pretoria in South Africa, which house the administrative governments of the two countries. Since the population of this study consisted of organizations, institutions, databases and activities, and because it was impractical to collect data from them all, the population was narrowed down to a representation or sample of the population.

Non-probability sampling techniques were used to create a sampling frame through cluster and multi-stage sampling. Purposive sampling technique was applied to select centres and activities from the Ministry of Culture, Sports and Gender in Kenya and South Africa that deal with IK. Both snowball sampling and purposive sampling were applied to select the key informants who headed the various IK Departments of Science and Technology in South Africa and the Department of Culture in Kenya. This resulted in a fair representation of the cultural diversity of the two countries and the various levels of knowledge, management and development of the personnel. A sample size of twenty organizations, 13 from Kenya and 7 from South Africa, was selected for this study. The sample size was different for the two countries because of the different management systems and the use of the snowball sampling technique to select

informants. The key informants (senior management positions within organizations) in many cases consisted of more than one person per organization. Research instruments consisted of field visits, interview guides, observation, and a document review/ critical literature review. The study used detailed interview guides with both structured and unstructured questions as the main research instrument. This was used to obtain both quantitative and qualitative data. A pilot study was carried out to test and verify the research instruments. This was done through the Department of Culture in Kenya.

The study found that both Kenya and South Africa have active IK policies and management in place to ensure its sustainability. A defined institutional framework is vital for the effective management of IK. A case in point is the existence of the South African National Indigenous Knowledge Systems Office (NIKSO) under the Department of Science and Technology (DST). The functions and rationale for NIKSO are stipulated in South Africa's IK Policy. However, such a mechanism does not seem to exist in Kenya, especially because of the nomadic nature of the Department of Culture. Ministries that housed the department include the Ministries of Culture and Social Services, Women and Youth, Home Affairs, and National Heritage, among others.

The presence of the various IK-related policy initiatives by different institutions within the same government points to lack of coordination, especially in Kenya. Examples of such duplicated initiatives include the National Policy on Culture of the Republic of Kenya, Ministry of Gender, Sports, Culture and Social Services, and the development of laws for the protection of traditional knowledge, genetic resources and folklore by the Office of the Attorney General.

The importance of IK cannot be stressed enough. According to WHO, countries in Africa, Asia and Latin America use traditional medicine to help meet some of their primary healthcare needs. In Africa, up to 80 % of the population uses traditional medicine for primary healthcare. This clearly indicates that unless measures for the protection of IK are beefed up, then the Access and Benefit-Sharing (ABS) of indigenous knowledge may never be realized.

Based on the study's findings, this study recommends an IK awareness program or campaign that targets those charged with the management of IK as well as the citizenry of the two countries. There should be heightened efforts to create an independent department in a vibrant

ministry that deals with IK to ensure that indigenous knowledge is put to the best possible use. Further research should be done in order to find ways in which indigenous knowledge can blend with modern technology to solve current problems. Academic institutions need to play a more proactive role in promoting IK in Kenya. IK programmes and activities should also focus on all features and aspects of IK rather than capitalize on culture only.

ACRONYMS AND ABBREVIATIONS

AAU	Association of African Universities
ACHPR	African Charter on Human and People's Rights
ACTs	African Centre for Technologies Studies
AEOS	Assistant Educational Officers
AGRICOLA	National Agricultural Library Catalog
AIDS	Acquired Immuno Deficiency Syndrome
APD	Advocacy and Policy Development
ARC	Agricultural Research Center
ASTD	American Society for Training and Development
BOZONET	Botanical and Zoological Network
CBD	Convention on Biological Diversity
CBOs	Community Based Organizations
CCF	Christian Children Fund
CCR	Current and Completed Research
CEMIRIDE	Centre for Minority Rights Development
CIKSAP	Centre for Indigenous Knowledge Systems and By-Products
CIRAN	Centre for International Research and Advisory Networks
CISDA	Centre for Information Society Development in Africa
CITES	Convention on International Trade in Endangered Species
CKOs	Chief Knowledge Officers
COMESA	Common Market for East and Southern Africa
CPPCD	Convention on the Protection and Promotion of Cultural Diversity
CSICH	Convention for the Safeguarding of the Intangible Cultural Heritage
CSIR	Council for the Scientific and Industrial Research
DAC	Department of Arts and Culture
DATAD	Database of African Theses and Dissertations
DEAT	Department of Environmental Affairs and Tourism
DFA	Department of Foreign Affairs
DLA	Department of Land Affairs

DoA	Department of Agriculture
DoE	Department of Education
DoH	Department of Health
DPICC	Declaration of the Principles of International Cultural Co-operation
DPLG	Department of Provincial and Local Government
DSR	Department of Sports and Recreation
DST	Department of Science and Technology
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EAC	East African Community
ECA	Economic Commission for Africa
EMCA	Environmental Management and Coordination Act
EPDT	Elephant Pepper Development Trust
ERSW&EC	Economic Strategy for Wealth and Employment Creation
FAO	Food and Agriculture Organization
FM	Frequency Modulation
GDACE	Gauteng Department of Agriculture, Cultural and Environmental
HEIs	Higher Education Institutions
HIV	Human Immunodeficiency Virus
HP	Hewlett Packard
IC	Intellectual Capital
ICCPR	International Covenant on Civil and Political Rights
ICPPBD	International Convention for the Protection of Phonograms and Broadcasting Organizations
ICT	Information and Communication Technology
IDRC	International Development Research Centre
IDS	Institute of Development Studies
IGAD	Inter-Governmental Authority on Development
IHNE	Indigenous Health, Nutrition and Environment
IIN	Indigenous Information Network
IIRC	International Institute of Rural Reconstruction

IIRR	International Institute of Rural Reconstruction
IK	Indigenous Knowledge
IKS	Indigenous Knowledge Systems
IKSSA	Indigenous Knowledge Systems of South Africa
ILO	International Labor Organization
IPA	Industrial Property Act
IPR	Intellectual Property Rights
ISAP	Index to South African Periodicals
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
ITU	International Telecommunication Union
IUU	Illegal, Unreported and Unregulated
KARI	Kenya Agricultural Research Institute
KBC	Kenya Broadcasting Corporation
KD	Knowledge Development
KEMRI	Kenya Medical Research Institute
KENRIK	Kenya Resource Centre for Indigenous Knowledge
KESSPO	Kenya Educational Sector Support Programme
KIE	Kenya Institute of Education
KIK-WG	Kenya Indigenous Knowledge Working Group
KIPI	Kenya Industrial Property Institute
KIPO	Kenya Industrial Property Office
KIPS	Kenya Information Preservation Society
KIRDI	Kenya Industrial Development Research Institute
KMS	Knowledge Management and Strategy
KWS	Kenya Wildlife Service
LDA	Limpopo Department of Agriculture
MDGs	Millennium Development Goals
MEDLINE	Medical Literature Analysis and Retrieval System Online
MKS	Modern Knowledge Systems
MoGSCSS	Ministry of Gender, Sports, Culture and Social Services
MoST	Management of Social Transformation

MRC	Medical Research Council
NAAIRS	National Automated Archival Information
NACECE	National Centre for Early Childhood Education
NAP	National Action Programme
NAROS	National Register of Oral Sources
NBI	National Botanical Institute
NBSAP	National Biodiversity Strategy and Action
NEMA	National Environmental Management Authority
NEPAD	New Partnership for Africa's Development
NFI	Northern Flagship Institution
NHC	National Heritage Council
NIKSO	National Indigenous Knowledge Systems Office
NMK	National Museums of Kenya
NPEP	National Poverty Eradication Plan
NRF	National Research Foundation
OCLC	Online Computer Library Center
OCS	Organizational Cognition Spiral
OK	Organizational Knowledge
PDE	Provincial Director of Education
PRSP	Poverty Reduction Framework Paper
PS	Permanent Secretary
PTA	Parents Teachers Association
RMS	Royal Media Services
RSA	Research Support Agency
SA	South Africa
SABINET	Southern African Bibliographic Information Network
SADC	South African Development Community
SANGONet	Southern Africa NGO Internet Provider
SAPSE	South African Post Education
SARDC	Southern African Research and Documentation Centre
SECI	Socialization, Externalization, Combination, Internalization

SEPASAL	Survey of Economic Plants of Arid & Semi Arid Lands
SPS	Sanitary and Phytosanitary
STD	Sexually Transmitted Diseases
SWEEDO	Samburu Women for Education and Environment Development Organization
TAC	Teachers Advisory Centres
TKK	Tujifunze Kikwetu
TLY	Tusome Lugha Yetu
TRIPS	Trade related aspects of intellectual property rights
UDHR	Universal Declaration of Human Rights
UNCCD	United Nations convention to combat desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFCCC	United Nations framework convention on climate change
UNICEF	United Nations Children's Fund
UON	University of Nairobi
UPOV	Union for the protection of plant variety
UTD	Union Catalogue of Thesis and Dissertations
VP	Vice President
WB	World Bank
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

CHAPTER ONE

Introduction and Research Background

1.1 Introduction

There is general consensus on the existence of two major types of knowledge, these being tacit and explicit knowledge (Nonaka and Takeuchi, 1998:8). Tacit knowledge or intangible knowledge is personally held and may not be recognized as knowledge by its holder. It includes subjective know-how, insights and intuitions. It is dynamic, ever changing with experience of its possessor. Explicit knowledge or tangible knowledge, on the hand, is formally held in the form of text, reports, equations, formulae and specifications (Gladstone, 2000:62). This means that the knowledge is recorded or codified. This knowledge is largely embedded in the culture and traditions of individuals or communities (Ocholla and Onyancha, 2004:247). Tangible knowledge is easily shared because of its textual or digital format.

The concept of Knowledge Management (KM) can be viewed from diverse perspectives; Skyrme, as cited by Kok (2005:4), perceives KM as the conversion of intangible knowledge to tangible knowledge where necessary. Nonaka and Takeuchi (1995:62), on the other hand, define intangible knowledge as "personal knowledge resulting from individual experiences". This type of knowledge is easily conveyed between groups and individuals. The term is also used extensively in contemporary business literature, often shifting from understanding and managing physical goods to focusing on corporate intangible assets such as information (Nielsen, 2005:1). Further on, Nonaka and Takeuchi (1995:8) state that tangible and intangible knowledge are one and the same entities and that they supplement one another. They conceptualize that knowledge is created and extended through social interaction and may be represented in the Socialization, Externalization, and Combination and Internalization (SECI) model. The World Bank (98:ii), on the other hand, suggests a six phase process of knowledge exchange. These six phases may be referred to as the knowledge management lifecycle.

Rational conclusions are based on determining whether indigenous knowledge would contribute to solve existing problems and achieving the intended objectives. In most cases, a careful amalgamation of indigenous and foreign knowledge would be most promising, leaving the choice, the rate and the degree of adoption and adaptation to the clients. Foreign knowledge does not necessarily mean modern technology, it includes also indigenous practices developed and applied under similar conditions elsewhere. These techniques are then likely to be adopted faster and applied more successfully. To foster such a transfer a sound understanding of indigenous knowledge is needed. This requires means for the capture and validation, as well as for the eventual exchange, transfer and dissemination of indigenous knowledge.

1.1.1 Indigenous Knowledge

The increasing attention indigenous knowledge is receiving by academia and the development institutions have not yet led to a unanimous perception of the concept of indigenous knowledge. None of the definitions is essentially contradictory; they overlap in many aspects. Warren (1991) and Flavier (1995: 310) present typical definitions by suggesting:

> "Indigenous knowledge (IK) is the local knowledge – knowledge that is unique to a given culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities" (Warren 1991: 151).
>
> Indigenous Knowledge is the information base for a society, which facilitates communication and decision-making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems (Flavier et al. 1995: 479).

In the emerging global knowledge economy a country's ability to build and mobilize knowledge capital, is equally essential for sustainable development as the availability of physical and financial capital. (World Bank 1997: 89) The basic component of any country's knowledge system is its indigenous knowledge. It encompasses the skills, experiences and insights of people, applied to maintain or improve their livelihood.

1.2 Research Background

Scholars have provided varied definitions for what constitutes indigenous knowledge (IK). Semali and Kincheloe (1999:3), for example, view indigenous knowledge to "reflect the dynamic way in which the residents of an area have come to understand themselves in relationship to their environment and how they organize that folk knowledge of flora and fauna, cultural beliefs, and history to enhance their lives". Smith (1999:7) suggests that 'indigenous knowledge' is a term that internationalizes the experiences, concerns and struggles of some of the world's colonized peoples. The National Research Foundation (NRF) defines IK as: "A complex set of knowledge and technologies existing and developed around specific conditions of populations and communities indigenous to a particular geographic area." Ocholla and Onyancha (2004:247) provide a similar explanation, defining IK as "a dynamic archive of the sum total of knowledge, skills and attitudes belonging to a community over generations and expressed in the form of action, object and sign languages for sharing". They lament that, "Unfortunately, for reasons largely associated with ignorance and arrogance, indigenous knowledge (IK) has been neglected, vindicated, stigmatized, illegalized and suppressed among the majority of the world's communities" (Ocholla and Onyancha, 2004:248).

There are various characteristics of IK, the most important being that it is not confined to tribal groups or the original inhabitants of an area. In other words, it is not confined to rural people. Any community possesses IK – rural or urban, settled or nomadic, original inhabitants or migrants (IIRR, 1996) - based on ideas, experiences, practices and information that have been generated either locally or elsewhere, and have been transformed by local people and incorporated into their way of life (Ina Hoi Riwa Foundation, 2000) and expressed in their local languages (Langill, 1999). This makes IK difficult to transmit to those who do not share the language(s), traditions and/or cultural experiences of a region or community (SARDC, n.d.). Characteristically, it is local because it is anchored in a specific community; established within the boundaries of broader cultural traditions and developed by a specific community; intangible and consequently not easily codified; conveyed orally; experimental rather than theoretical; learned through repetition; changes continuously; and is constantly created and recreated, discovered and lost, even though outsiders may perceive it to be static (World Bank, 1998:9). IK

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is embodied in various forms and it is through these forms **-** beliefs, medicine, knowledge technology, education, communication, agriculture, food technology, arts and crafts, etc. (Kok, 2005:7**-**8) **-** that IK is represented and expressed.

Indigenous knowledge is garnering interest because of its functions and importance. Gupta (2000:6) divides IK's functions into six groups:

- Semiotic **-** communication through symbols, art forms, crafts, etc;
- Institutional **-** providing rules coded in rituals and/or other cultural and social sanctions. Some of these rituals and cultural sanctions institutionalize incentive measures for the use of traditional knowledge. These sanctions could be material, such as fines or penalties, or ethereal, such as the fear of God;
- Configurationally **-** where the arrangement of various life processes and stages are performed according to traditional norms, generating predictability about certain social outcomes;
- The use of utilitarian knowledge of certain plants or animal products to meet various food, nutritional or health needs;
- Situational **-** during emergencies or other contingencies, codes of conduct may be specified to maintain social order and responsibility towards other life forms, including wildlife; and religious and spiritual functions which may or may not involve material objects. Since the society has to adapt to emerging situations from time to time, traditional systems of culture, technology and social exchange provide some scope for experimentation, deviance and variation. The same instrument of incentives may not help in nurturing each of these functions.

An extension of the functions of IK can be expressed through its importance.

The World Bank (2004:1) quotes the importance of IK as follows:

"Indigenous knowledge provides the basis for problem-solving strategies for local communities, especially the poor; it represents an important component of global knowledge on development issues. IK is an underutilized resource in the development process. Learning from IK by investigating first what local communities know and have, can improve understanding of local conditions; provide a productive context for activities designed to help the communities; understanding IK can increase responsiveness to clients; adapting international practices to the

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local setting can help improve the impact and sustainability of development assistance; sharing IK within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development and most importantly, investing in the exchange of IK and its integration into the assistance programs of the World Bank and its development partners can help to reduce poverty".

Various studies on IK (with diverse perspectives) have been carried out at both international and national levels. International examples that were perused during the literature review focused on religious issues (Clack, 2005), curricula (Joseph, 2005), culture (Lillejord & Sørede and Mendoza, 2001), legal issues (Gupta and Gupta, 2000), disability, agriculture (Gerritsen, 2000) and policy. Several international organizations were found to have developed some IK initiatives, most notably the World Bank, which has a special program for best practices in IK (World Bank, 2004), and UNESCO (2005) through its Management of Social Transformation Programme (MOST).

1.2.1 IK in Kenya

Although Kenya does not have a national policy dedicated to IK, there have been various initiatives by some institutions, the most notable being the National Environmental Management Authority's (NEMA's) report highlighting the status quo of IK within the country with respect to the available related legal frameworks (NEMA, 2006). The report also revealed the various laws and policies that lay the foundation for the implementation of programmes that touch on IK such as: National Policy on National Heritage and Culture; Traditional Medicine and Medicinal Plants by the Ministry of Planning and National Development; Legislation on IK folklore, Genetic Resources by the Attorney General (AG) Chambers; and The NEMA Act, Sections 43, 50f and 51f.

A major initiative by the Kenyan government took place in 1998 when an audit was taken in collaboration with a number of stakeholders, including the Centre for Indigenous Knowledge Systems and By-Products (CIKSAP), Indigenous Information Network (IIN), and the National

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Museums of Kenya (NMK). They formed the Kenya Indigenous Knowledge Working Group (KIK-WG) and proposed a strategy for mainstreaming IK into development policy.

Regionally, Kenya is party to the following conventions:
- The Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region of 1985
- The Treaty of the Establishment of East Africa (EAC)
- Inter-Governmental Authority on Development (IGAD)
- Common Market for East and Southern Africa (COMESA)
- The African Model Law for the protection of the rights of the local communities, farmers and breeders and for the regulation of access to biological resources
- Lake Victoria Environment Management Program designed to holistically address environmental problems within the lake and its catchment

Globally, Kenya is part of the following:
- Convention on Biological Diversity of 1992
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- The Convention on Wetlands or Ramsar Convention (for international cooperation)
- The Union for the Protection of Plant Variety (UPOV) (1978&1991)
- United Nations Convention on the Law of the Sea
- The Cantagena Protocol on Biosafety
- The International Treaty on Plant Genetic Resources for Food and Agriculture
- The World Trade Organization (WTO)
- Trade Related Aspects of Intellectual Property Rights (TRIPS)
- The United Nations Framework Convention on Climate Change (UNFCC)
- United Nations Convention to Combat Desertification (UNCCD)
- SPS the Agreement on Sanitary and Phytosanitary Measures (SPS Agreement)
- The Convention for the Protection of World Cultural and Natural Heritage of 1972
- The Convention on the Conservation of Migratory Species of Wild Animals of 1979

- The Born Guidelines

Chapter five outlines and highlights the various laws and policy guidelines that are in place in Kenya (some are still in draft form).

On the 27th of August, 2010, Kenya promulgated a new constitution that superseded the old one. The new constitution gives IK prominence in terms of recognition, appreciation, promotion and protection evident in the preamble of the constitution where IK is recognized as the foundation of the nation. More on IK is also found in the whole of clause 11, the Bill of Rights in chapter four (clause 19, 44, 45), and chapter five (clause 61 – part 1, clause 63 - part 1 & 2, clause 69.

The World Trade Organization's Trade-Related Aspects of Intellectual Property Rights (IPRs) covers intellectual property rights in patents, geographical indications, undisclosed information (trade secrets), and trademarks. IPRs do not pay special attention to IK (Ngetich, 2005:3). The Convention on Biological Diversity (CBD) on the other hand, makes special reference to the protection of IK by assigning the ownership of biodiversity to indigenous communities and individuals (ibid). The following are two articles that are directly relevant.

Article 8 (j): State parties are required to:
Respect, preserve and maintain knowledge innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote the wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

Article 18.4: Contracting parties should: "Encourage and develop models of cooperation for the development and use of technologies, including traditional & indigenous technologies."
Ayayo, in a UNEP meeting report (2004:40), outlines some examples of the application and use of IK that were (and still are) prevalent in Kenya:

Fish conservation. Fish breeding periods and the places and behavior of fish-eagles were closely studied to make it possible for fishermen to identify the possible movements of schools of tilapia and other types of fish and recognize different types of winds and their directions.

Land use conservation. This involved shifting cultivation to prevent land from overuse or repetitive cultivation throughout the season. Land was normally left uncultivated for manure accumulation. Mixed crop cultivation was also practiced for the restoration of nitrogen to the soil for other crops. IK enabled the farmers to understand their seasons well enough to know when to expect long and short rains, hence enabling them to plan their planting.

Biodiversity conservation. IK enabled people to appreciate and understand the importance and relationship of local birds, local trees and bushes and the knowledge that destroying such natural elements would endanger the community by leaving them without ecological indicators of the natural environment.

Disaster management from various perspectives:
Wind patterns - IK of storm routes and wind patterns enabled people to design their disaster management practices in advance through the construction of appropriate shelters, wind break structures, walls and homestead fences. Preparing for hydrological disasters was a key issue.
Cloud and rain patterns - knowledge of local rain patterns enabled people to prepare for storms. They would know the intensity of rain by cloud colour, when to expect a prolonged drought, and use messages from different birds' cries for them to take appropriate action.
Animal behavior - knowledge of an impending calamity, for instance a large swarm of butterflies was a sign of army worm infestation and famine, thus they would plant drought resistant crops like potatoes and cassava. The migration of bees would mean an oncoming dry season, pushing livestock herders to migrate to higher or lower ground in search of grass and water.

1.2.2 IK in South Africa

The management of IK in South Africa seems promising, as attested to by the presence of an Indigenous Knowledge Systems (IKS) policy and various governmental structures developed to promote, preserve, protect and disseminate IK. South Africa's involvement in IK was formally

initiated in September 1996, when the Council for the Scientific and Industrial Research (CSIR), with the support of the Portfolio Committee of Arts, Culture, Science and Technology, commissioned nine historically disadvantaged universities to conduct audits of indigenous technologies (Mosimege, 2005:1). The audits were set to determine the kinds of technologies that South Africans had used to survive over the years, especially the marginalized and the poor. The aim was to tap into such technologies for recording purposes and innovation for the benefit of IK holders.

The nine universities involved were the University of Venda, University of the North, University of the North West, Vista University (Mamelodi, East Rand and Soweto campuses), University of South Africa, University of the North (Qwaqwa campus), University of Zululand, University of Transkei, and the University of Fort Hare. [The names of some of these universities have changed as a result of mergers with other universities and technikons. For instance, the Qwaqwa campus of the University of the North is now part of the University of the Free State; see Mosimege, 2004:1]

The audits led to workshops on IKS conducted in each university, with a national workshop thereafter at the University of North West in September 1998. The government, through the Departments of Arts, Culture, Science and Technology, started getting actively involved in IKS issues. A task team was established to start drafting the IKS legislation for the protection of IK together with the IKS Policy. In order for the task team to come up with a comprehensive draft, they made various international trips to countries that had been extensively involved in IK, such as China and India (ibid). The draft documents were submitted to the department in 2002 and have since been involved in further consultation with various stakeholders to refine and further develop the legislation and policy (Mosimege, 2004:1).

The IKS policy, "is an enabling framework to stimulate and strengthen the contribution of IK to the social and economic development in South Africa" (IKS Policy, 2006:4). The policy's four main objectives or goals are summarized as follows: The affirmation of African cultural values in the face of globalization Practical measures for the development of services provided by IK holders and practitioners Underpinning the contribution of IK to the economy Interfaces with other knowledge systems

Although still in its infancy, the policy is expected to strengthen already existing IK structures. The national recognition of IK in South Africa is also reflected in the work of the National Research Foundation (NRF). The objective of the NRF is to support and promote research through funding, human resource development and the provision of necessary research facilities, in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology. The NRF was established through the NRF Act (Act No. 23 of 1998). It took over the functions of the research funding agencies that were in operation previously. Being an independent agency, "it provides services to the research community especially at higher education institutions (HEIs) and science councils with a view to promote a high level of human capacity development" (see http:www.nrf.ac.za).

The NRF is funded by the government. The Research Support Agency (RSA) of the NRF has a number of directorates that plan for and guide a variety of programmes and activities in line with the country's priorities and needs. These priorities are reflected in different focus areas, one of which is indigenous knowledge systems (IKS). It is the NRF's view that IK and its role in various communities must be understood from an integrated perspective, meaning both the spiritual and material aspects of a society and the complex relations between them. The NRF further believes that it is necessary to understand and explore the contribution of IK to local development. The aim of the IKS focus area at the NRF is to develop theoretical and methodological paradigms with which to understand the specific characteristics of IKS, to shed light on the role of IK in nation building, and to develop research capacity in the field of IKS (NRF, 2006:1).

To achieve these aims, the NRF focuses its research project funding on dealing with the production, transmission and utilization of IK and technology; the role of IK in nation building; and IK as an interface with other systems of knowledge. Not only does the NRF support IK research and in effect contribute to KM through the IKS focus area, but also the major directorate of one of its research support agencies is specifically concerned with knowledge management and evaluation. Among the many activities of this directorate are the management of research information and the provision of KM strategies for the NRF and institutions that network with it. Among the research information activities of the KMS directorate are the

development, management and maintenance of the NEXUS database. It also has records of South African experts and of research conducted by some of these (Kaniki & Mphahlele, 2000:31).

An important step towards the growth of IK is through the integration of IK in institutions of higher learning. Kaya (2004:1) outlines an IKS academic programme offered at the North West University. The programme was among various other new learning, research and community outreach programmes launched in 2001. It is an accredited programme offered at undergraduate and postgraduate levels by the Faculty of Human and Social Sciences. The programme is integrated into all spheres of all the different disciplines in the faculty. IKS is the core module and students take other modules from sociology, economics, peace studies and international relations, land reform and rural development, psychology, information systems, statistics, political science, education, communication, geography, history, development studies, agriculture, and land management (Kaya, 2004:1).

1.3 Statement of the Problem

Knowledge management is increasingly popularized in various societies, organizations and governments because of its confirmed importance in fostering knowledge creation, codification and transfer, and development of knowledge capital capability. Indigenous knowledge (IK), which forms part of KM, is also generally thought to have crucial functions and importance in the knowledge management process (creation/ production, storage, processing/ codification, transfer and utilization) and should therefore receive significant attention.

Despite emerging interests in IK, not enough is known on how IK is managed in Kenya compared to South Africa which has improved systems emanating from the implementation of an Indigenous Knowledge Systems (IKS) Policy and various government structures developed to promote, preserve, protect and disseminate IK. For example, issues relating to IK policies and legislation (e.g. IPR), governance structures, research, literacy, education and training, and diffusion and use (e.g. information centers and media), which reflect levels of IK recognition, appreciation and protection, are not readily available or for that matter, known in Kenya. Most indigenous people live in rural and marginalized areas where modern forms of communication

are relatively unavailable. This problem is accentuated by high levels of ignorance and illiteracy (Mbeva, 2000:7).

The recognition, protection and appreciation of IK are very crucial at national level. As Mbeva (2000:5) observes, the current IPR system in Kenya does not adequately recognize or protect the rights of indigenous people and local communities with respect to their knowledge and innovations. Based on the researcher's knowledge, there has not been any extensive information or knowledge-based study on IK conducted in Kenya.

The future of IK is generally considered to be uncertain, hence the need and even greater urgency to preserve it. Most IK is passed from one generation to the next orally and is therefore easily lost (Ngulube, 2002:62). Labelle, as cited by Ngulube, (2002:62), maintains that the loss of IK would impoverish society because, "Just as the world needs genetic diversity of species, it needs diversity of knowledge systems." Community development projects in rural areas improve the standard of living of the people, and this cannot be achieved without involving IK. Warren (as cited by Ngulube, 2002:62) argues that development projects cannot offer sustainable solutions to local problems without using local knowledge, and "to ignore people's knowledge is almost to ensure failure in development" (Brokensha in Ngulube, 2002:62). In other words, IK is the key to development at grassroots level (Schoenhoff in Ngulube, 2002:62).

Regardless of various studies on and interests in IK in Kenya, the issue of its protection is poorly addressed. There is no comprehensive legal provision for IK in Kenya. According to Odek (2001:4-5), only two legal provisions partly cover IK, these being the protection of folklore under copyright law and utility model provisions that protect indigenous "inventions", whereby an invention qualifies for a utility model certificate if it is new and/or industrially applicable. This poses various challenges because internationally, there are two conventions that have a direct bearing on IK systems--the World Trade Related Aspects of Intellectual Property Rights (TRIPS) and the Convention of Biological Diversity (CBD) [Ngetich, 2005:3].

1.4 Motivation of the Study

Witnessing IK in action or its practical application is perhaps the principal motivation of this study. Various examples attest to the usefulness of IK. A project as simple as the Elephant Pepper Development Trust (EPDT), established to help reduce human-elephant conflict, is a case

in point. Farmers were introduced to pepper planting following the realization that elephants hate pepper. The current famine situations in African countries, Kenya included, can also be combated through IK studies. Ayayo (2004:40) has already been cited outlining various disaster management approaches that were used to avert food shortage crises, e.g. land use conservation, biodiversity conservation, and knowledge of animal and pest behavior, among others. The same can be accepted and used in this modern era. It is pathetic to see people queuing and scrambling for food and other handouts in various developing regions when there are local resources and ways (IK) to prevent this.

The language aspect of IK is extremely important and this also prompted the researcher to pursue this study. For example, in the 1970s, Kenya's primary curriculum integrated the learning of local languages. This is no longer the case and there is a strong reason to argue that the inclusion of local languages is essential. The current generation would more likely recognize and appreciate IK if this were part of their education system. A paper presented by Momanyi (2009, 129-130) outlines various government initiatives in Kenya, such as the Ominde Commission of 1965 which advocated for the use of Kiswahili as a compulsory subject in primary schools. Similarly, the Mackay Commission of 1984 saw this recommendation implemented and Kiswahili became a compulsory and examinable subject in both primary and secondary schools. She outlines yet another commission – the Koech Commission of 1999 - which proposed that Kiswahili should be one of the five compulsory and examinable subjects at the end of primary education in addition to being one of three core examinable subjects at the end of secondary education.

Despite all these initiatives, the use of indigenous languages, Kiswahili included, is deteriorating. There are also weak management institutions for managing the growth of indigenous languages in Kenya. No wonder Momanyi (2009:128) argues that, "The language policy in Kenya has come to mean nothing more than political pronouncements, government statements, and recommendations made by Educational Commission which are rarely implemented". The researcher argues that the lack of political goodwill has hampered the recognition and acceptance of the indigenous languages nationally, regionally and also internationally. This drawback led to the Asmara Declaration that set forth ten declarations on the protection, development and global mainstreaming of all African languages. The study is therefore timely and seeks to find a ground

level or the future and sustainability as declared by the Asmara Declaration (see http//www.queensu.ca/snid/asmara.htm for details). Kenya's comparison with South Africa is desirable for two reasons: i) IK in South Africa is promising, attested to by the presence of IKS policy and various governmental structures developed to promote, preserve, protect and disseminate IK; and ii) The IK system in South Africa was initiated in 1996 and has progressed well since.

1.5 Aim of the Study

The primary aim of the study was to map and audit IK systems and management practices in Kenya and South Africa. Mapping in this instance involved undertaking a survey on what has been done with respect to IK, for example whether or not there are policies and strategies dealing with IK, while auditing focused on discovering, checking and verifying existing IKS and their ability to deal with this knowledge.

1.6 Objectives of the Study

The objectives of the study were:

- To identify the IK policies and legislation in place
- To explore and analyze IK governance structures
- To examine the IK centers and systems in terms of their roles
- To identify IK programmes and activities and when and where they are held
- To determine the status, trends and types of IK research

1.7 Research Questions

- What are the existing policies and legislation that oversee IK?
- What IK governing structures are available?
- How do these structures operate?
- What IK centers and systems are available?
- What IK programmes and activities exist and when or where are they conducted?
- What are the various IK research trends and types in Kenya and South Africa?

1.8 Assumptions of the Study

IK in Kenya has been marginalized because there have been no proper national policies and legislation to safeguard it. Due to the disparity of information resources on IK industry lacks efficiency and effectiveness in its enhancement. Illiteracy and lack of cohesive information on IK are major drawbacks to the development and promotion of IK

1.9 Scope and Limitations of the Study

This study did not go into all the factors that could influence the IK environment and its practices in Kenya and South Africa. Instead, it opted to focus on mapping and auditing the contemporary IK environment and practices in the two countries. A study on all the factors that influence IK would be highly complex. Even here, problems were encountered in the overlap of the characteristics of IK and the factors influencing IK. This was addressed by sticking to the specific objectives of the study. The availability of comparative data for Kenya and South Africa and the limited time and resources availed to the research were also other challenges encountered.

1.10 Significance of the Study

The study hopes to enlighten and inform key decision and policy makers and also act as a single point of reference for all researchers and stakeholders (including the government) in the field of IK in the two countries. It is envisioned that the study may be used as a blue print for management matters pertaining to IK in order to encourage its production, generation, storage, preservation and dissemination. The study takes a holistic approach towards IKS; legislature, governance structures, research trends, and activities and systems IK are all covered extensively and comprehensively. The approach adopted in the study (i.e. holistic) may be used as a benchmark by others when carrying out related studies, or may be customized to suit their situations.

The potential of tacit knowledge cannot be underestimated when taking into account that knowledge has become the foremost basis on which competitive advantage rests (Beijerse, 1999:94; Earl, 2001; Zack, 1999:8; Vasconcelos, n.d..; MaÊrtensson, 2000; Numprasertchai &

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Igel, 2005). The nature of the study therefore lays the foundation for other organizations that intend to evaluate their intangible assets in order to know their real wealth.

The study's recommendations for the effective management of IK not only create awareness and encourage the recognition, protection and appreciation of IK, but also highlight the importance of having an Intellectual Property Rights (IPR) system that adequately recognizes and protects the rights of indigenous people and local communities to ensure that their knowledge and innovations are not ignored.

The study illustrates why the harmonization of fragmented acts, especially in Kenya, is important. The lack of an IKS policy in the country also limits the effective management of IKS. The need for a comprehensive legal framework, specifically for IKS, further justifies the significance of the study.

1.11 Definition of Terms

Indigenous Knowledge- is local knowledge that is unique to a given culture or society. It is the basis for agriculture, health care, food preparation, education, environmental conservation and a host of other activities. Much of such knowledge is passed down from generation to generation, usually verbally. IK is the knowledge that people have gained through inheritance from their ancestors. It is a people-derived science and it represents people's creativity, innovations and skills.

1.12 Structure of the Thesis

Chapter One: Introduction and background to the study
Chapter one introduces the study and provides the conceptual and contextual settings of the study; aims, objectives and research questions; motivation; scope and limitations of the study; and the study's significance.

Chapter Two: Conceptualizing Knowledge Management and Indigenous Knowledge Based on the definitions of both KM and IK in Chapter one, related literature on how IK is conceptualized in KM is reviewed. Chapter two also discusses the current state of IK in Kenya and South Africa,

including its management and legislation. The focus is on the objectives of the study; the chapter reviews literature drawn from both print and electronic sources.

Chapter Three: Theoretical Framework

Various knowledge management models are discusses with a lot of emphasis placed on Earl's theory/model and how it informs the study.

Chapter Four: Research Methodology

Research methodology and the design of the study are discussed. The chapter describes the survey research method, the qualitative and quantitative approaches used, the study's population, the sampling methods, and the data collection instruments. Data collection procedures and analyses are also discussed.

Chapter Five: Mapping and Auditing Indigenous Knowledge in Kenya

This chapter presents and analyses data obtained on IK policies and legislation, governance structures, centres and systems, programmes and activities, and the research trends in Kenya.

Chapter Six: Mapping and Auditing Indigenous Knowledge in South Africa

This chapter presents and analyses data obtained on IK policies and legislation, governance structures, centres and systems, programmes and activities, and the research trends in Kenya.

Chapter Seven: Informetric Analysis of IK Research in Kenya and South Africa is presented in this chapter.

Chapter Eight: Discussion of the findings

This chapter discusses findings from Chapters five, six and seven based on the objectives of the study.

Chapter Nine: Summary, Conclusion and Recommendations

Chapter nine provides the summary, conclusion and recommendations based on the findings, and include suggestions for further research.

References

This shows a list of references that is, books, journals, articles and online resource material that were used to develop this project

Appendices

These are supportive materials that were used to gather the data that was used in this project. This include departmental clearance letter, Kenya permit, introduction letter, ministries authorization, interview guide, observation guide, permission guide, registration certificate, and Kenya and South Africa transcriptions.

1.13 Summary

This chapter provided the contextual and conceptual settings of IK in both Kenya and South Africa. The definition, importance, characteristics and functions of IK were outlined. Also covered were the statement of the problem, aims, objectives, research questions, assumptions, significance, brief research design, scope and limitations of the study. The next chapter conceptualizes indigenous knowledge (IK) and knowledge management (KM) and how they are related. Further definitions of knowledge and the more specific domain of tacit knowledge are also provided.

CHAPTER TWO

Conceptualizing Knowledge Management and Indigenous Knowledge

2.1 Introduction

The previous chapter briefly defined and highlighted the characteristics and functions of the terms 'knowledge', 'knowledge management' (KM) and 'indigenous knowledge' (IK). This chapter focuses on the conceptualization of IK and KM and how they are related. The chapter first provides further definitions of KM based on proposals by a range of scholars before narrowing down to the definition of knowledge and the more specific domain of tacit knowledge, and concludes with definitions of IK. The concept of tacit knowledge is dealt with in detail because of the tacit nature of IK.

2.2 Conceptualizing Knowledge Management

According to Mouton (1996:109-110), "Conceptualization refers to the clarification and the analysis of the key concepts in a study and also to the way in which one's research is integrated into the body of existing theory and research." He explains that with respect to clarification and the analysis of key concepts, 'conceptualization' is synonymous with 'conceptual analysis', which is the clear and unambiguous definition of central concepts. Neuman (2000:158) stipulates that conceptualization is the process of taking a construct and refining it by giving it a conceptual or theoretical definition. He explains that a conceptual definition is in abstract, theoretical terms, meaning that it involves thinking carefully, observing directly, consulting with others, reading what others have said, and trying different possible definitions. These definitions have to be clear, explicit, and with a specific meaning. De Vos (2005:29) portrays conceptualization as a process that is eventually expressed in words that belong to a particular language and assist people in their attempts to communicate. The conceptualization of the key concepts discussed in this study was therefore vital in order to highlight the different meanings from the basic use of the terms under normal circumstances.

2.3 Knowledge Management

The debate on what constitutes KM, knowledge and tacit knowledge, has branched out significantly since the 1950s. Scholars on KM are pulling in various directions in terms of knowledge management's conceptualization and the application of various models. As stated earlier, there is no common definition of knowledge management (Wiig, 1997:1; Botha 2001:141), meaning that there is often confusion as to which 'authentic' definition one should adopt or use. Many factors also influence one's choice and inclination, often depending on a given study's theme.

According to Munn (2001:160), KM is: "A management process involving identification, capturing, dissemination and exploitation of knowledge possessed by an organization for the benefit of both its employees and clients." A similar sentiment is expressed by Dana et al. (2005:10), who define KM as, "The integration of information, ideas, experience, intuition, skills and lessons learned that create added value for a firm." Kaniki and Mphahlele (2002:7) state that KM involves imparting and/or facilitating the acquisition of the right knowledge and information to the right person within an organization at the right time, and in a manner most appropriate to him or her. Furthermore, KM involves processing and handling intellectual capital within and between organizations and communities in addition to facilitating knowledge generation, sharing and reuse.

The latter definition (by Kaniki and Mphalele, 2002) seems most appropriate because of the use of the term 'right.' The right knowledge to the right person at the right time means that all the processes of knowledge will have an effective outcome for whatever purpose they were intended. One may have the right knowledge at the wrong time or place, and this would obviously be redundant as knowledge has to add value to an institution or individual.

KM has become somewhat of a buzzword, and the term is used extensively in contemporary business literature. We have experienced a paradigm shift from focusing on understanding and managing physical goods to focusing on corporate intangible assets such as knowledge (Nielsen, 2005:1). Throughout the early 1990s, the importance of the knowledge-based economy and the value of companies' intellectual assets grew increasingly apparent (Stewart, 1997). In the mid-

1990s, prominent thinkers, such as Peter Drucker (1995) and Nonaka and Takeuchi (1995), published influential articles about how knowledge would become a significant basis of competition in the future. Leading firms like IBM, Skandia and Ernst & Young, appointed chief knowledge officers (CKOs) to oversee the knowledge resources of their firms (Davenport and Prusak, 1998). Other companies soon followed suit. By 2000, KM had gained a foothold in many large firms and was well-established in most major consulting firms (Smith and McKeen, 2003).

In a knowledge-based economy, knowledge becomes the main production factor on which competitive advantage rests (Beijerse, 1999:94; Earl, 2001; Zack, 1999:8 para; Vasconcelos, nd.; MaÊrtensson, 2000; Numprasertchai & Igel, 2005). Organizations are presently pursuing strategies to actively and explicitly manage knowledge and ensure that they obtain, renew, and use the best possible knowledge in all areas of work. The role of people has also changed, and leading organizations see their employees as a fundamental force behind their existence and success. They are, in other words, the primary source of profitability and the drivers behind sustained viability (Wiig, 1997:5). The most appealing element of KM is that unlike total quality management, KM will become embedded in organizations and knowledge will become an obviously imperative source of value creation and competitiveness (Earl and Scott, 1999:37).

Barclay and Murray (1997:7-9) and Wiig (1997:1) identify three approaches to knowledge management, namely the mechanical, which focuses on the application of technology as a facilitator for access to information; the cultural or behavioral, which focuses on innovation and creativity as an important factor in the learning organization; and the systematic approach or comprehensive KM, as it is referred to by Wiig (1997:1), which incorporates all aspects of KM to ensure continuous evaluation and sustainability (Kok, 2005:3). Kok (2005) further cites Barclay and Murray (1997), who state that this approach is subject to the acknowledgment and application of the various cross disciplines required to develop management systems and processes. This approach evidently has its drawbacks because no individual, organization or community can possess all the knowledge required for every single situation. Since KM is about learning organizations and how to join them, the cultural approach is arguably the most suited to managing IK (Kaniki and Mphahlele, 2002:24; Kok, 2005:4).

2.3.1 Definition of knowledge

The original, sanctified definition of knowledge can be traced back to 400 BC, when Plato defined knowledge as a "justified true belief" (Boisot and MacMillan, 2004:508). This definition identifies three individually necessary and jointly sufficient components of what counts as infallible repositional knowledge - a truth condition, a justification condition, and a belief condition. However, Boisot and MacMillan (ibid:509) also point out that such a definition is too restrictive for resource allocation decisions.

According to Davenport (1998:5), "Knowledge is a fluid mix of framed experiences, 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. In organizations, it often becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices and norms." Probst et al. (2000:24) proffer that knowledge is: "The whole body of cognition and skills which individuals use to solve problems. It includes both theories and practical, everyday rules and instructions for action. Knowledge is based on data and information, but unlike these, it is always bound to persons. It is constructed by individuals, and represents their beliefs about causal relationships." Knowledge generally includes facts, ideas, understanding, experience, and the ability to explain (Dale, 2005:64). This can therefore be understood to mean that knowledge gives a person the ability to respond or react towards a certain scenario. In so doing, it gives the person the opportunity to make informed decisions.

The emphasis that is currently being placed on the importance of esoteric knowledge for business success suggests that a review of the relationship between knowledge, organizations and their management is timely (Blackler, 1993:863). Managing intangibles is not new; what is new is associating a language and processes with knowledge management by highlighting and articulating it. It is a process that identifies intellectual property, which even though always present, is hard to identify or recognize (Mullin, 1996:57). Mechanisms of tapping into this knowledge are therefore paramount.

Alavi and Leidner (2001:108) distinguish between knowledge, information and data. The authors posit that a knowledge-based perspective depends on how the services rendered by tangible resources are combined and applied. This is what they refer to as an 'intellectual asset'. They further postulate that this knowledge is embedded in and carried through multiple entities, including organizational cultures and identities, routines, policies, systems, documents and individual employees. .

Earl (1996:41) also draws distinctions between data, information and knowledge through what he refers to as hierarchies or levels of knowledge. He identifies the three main levels as: Science, which includes accepted law, theories and procedures Judgment, which includes policy rules, probabilistic parameters and heuristics. Experience, which he refers to as more than transactional, historical and observational data that is subsequently subjected to scientific analysis or judgmental preference and also that acts as a basis for building new science and judgments.

Alavi and Leidner (2001:108), in turn, define data as raw numbers, information as processed data, and knowledge as authenticated information. Kaniki and Mphahlele (2002:3) perceive or define data as 'metadata'. They argue that data and information can exist independent of a person or community. It is constructed by individuals and represented by their beliefs and their 'know-how', which is their understanding of why and how things work or should work, combined with practical skills for accomplishing a task. Knowledge, according to Nonaka et al. (2000:7), is humanistic because it is essentially tied to human action. It has the active and subjective nature represented by terms such as 'commitment' and 'belief', which are deeply rooted in individuals.

While knowledge is directly related to information and data, the terms are not synonymous (Kaniki and Mphahlele, 2002:3). The authors state that information in itself is not knowledge and does not solve problems, but simply makes one more aware of and provides possible courses of action (a decision making tool). They also argue that the ability to effectively distinguish between information and knowledge is not found in content, structure, accuracy or utility.

Nonaka et al. (2000:110) opine that knowledge is information that is personalized and contained in facts, procedures, concepts, interpretations, ideas, observations and judgments. They stipulate that information is converted into knowledge once it is processed in the mind of individuals and that knowledge becomes information once it is articulated and presented in the form of text, graphics, words or other symbolic forms Nonaka et al. (2000: 109). The implication here is that individuals have to arrive at the same understanding of either data or information for them to share a certain knowledge base.

Nonaka et al. (2006:1181), Nonaka et al. (2002:7), Huber and Nonaka (as cited by Alavi and Leidner, 2001:109), and Nonaka and Konno (1998:4), define knowledge as a justified belief that increases an entity's capacity for effective action. Knowledge is also a state of mind that individuals extend to their organization's needs (Schubert et al., as cited by Alavi and Leidner, 2001:110). Further definitions include knowledge as an object that gets stored and manipulated; knowledge as a process that is the state of simultaneously knowing and acting; and knowledge as the level of access to information, leading to the organization or arrangement of knowledge in order to facilitate better access to and retrieval of information or the ability to influence future action (ibid: 110). It is also sometimes defined as the capacity for effective action (Senge, 2004: v).

From the above, Alavi and Leidner (2001:110) expand on the following perspectives of knowledge: Knowledge viewed as an object, which leads to KM focusing on building and managing knowledge stocks. When knowledge is viewed as a process, KM will focus on knowledge flow and the process of creation, sharing and distribution of knowledge when perceived as a capability, KM will focus on building core competencies, understanding the strategic advantages of know-how, and creating intellectual capital. Von Krogh and Roos (1996: 423) postulate knowledge to have at least five dimensions, these being: Knowing is distinction making; Knowing is caring; Knowing is enhancing language; Knowing is shaping the future and Competence is not an asset, it is an event.

Shedding more light on this discourse, Chauvel and Despres (2002:12) have approached the definition of knowledge from the perspective of different time-spans and argued that meanings

shift with time and concept. For instance during the classical era, knowledge meant self-knowledge or knowing what to say and being able to say it well. During the industrial revolution, knowledge was perceived as tools, products and processes. The meaning during the productivity revolution shifted to 'applied to work' which in turn shifted to the current management revolution of 'applied to knowledge'.

Knowledge originates in the minds of individuals as they face new situations and challenges. Furthermore, knowledge is transmitted and refined as individuals communicate both their tacit and explicit knowledge to one another, and the organization is also involved in the processes of knowledge transfer from the aforementioned features. As Wiig (1997:6) contends, knowledge is indispensible in all an enterprise's activities and in ensuring its success. This explains why individuals and organizations started appreciating the increasingly important role of knowledge in the emerging competitive environment. Edvinsson (2002:75) reiterates that knowledge is a renewable resource that increases with use. International competition gradually focused on emphasizing product and service quality, responsiveness, diversity and customization.

Others, like Smith (2001:312) and Augier and Vendelø (1999:253), who view knowledge as a corporate asset, argue that there are different stages of transformation, beginning with data and ending in wisdom. They argue that knowledge creating concepts begin life as data. Data is then transformed to information, which is then transformed into knowledge, and finally wisdom, which helps shape effective strategies to manage knowledge and create new markets to serve customers. The authors underscore the value of knowledge, arguing in favour of its highly personalized humanistic character which represents the pooled expertise and efforts of networks and alliances. Expanding on the same notion, Pascual-Leone (in Kakabadse, 2003:n.p) argues that knowing how to use information in any given context requires wisdom, and it (wisdom) is a mode of symbolic processing by a highly developed will. It is a dialectical integration of all aspects of the personality, including effect, will, cognition, and life experience.

2.3.2 Tacit Knowledge

Lelic (2002; 2001:161) views tacit knowledge from a social perspective but focuses on knowledge from two angles, the first being the knowledge held by an individual, and the second being knowledge held by a group or an organization. She distinguishes the former as knowledge

about the identity of the group, meaning knowledge of being a member and how to become a member. The latter includes knowledge on work practices and also on how and when to use knowledge resources. She also emphasizes categorically that institutional knowledge is specifically institutional and is different from the knowledge held by people who make up an organization. The table below illustrates her views more elaborately.

Figure 2. 1: Types of knowledge
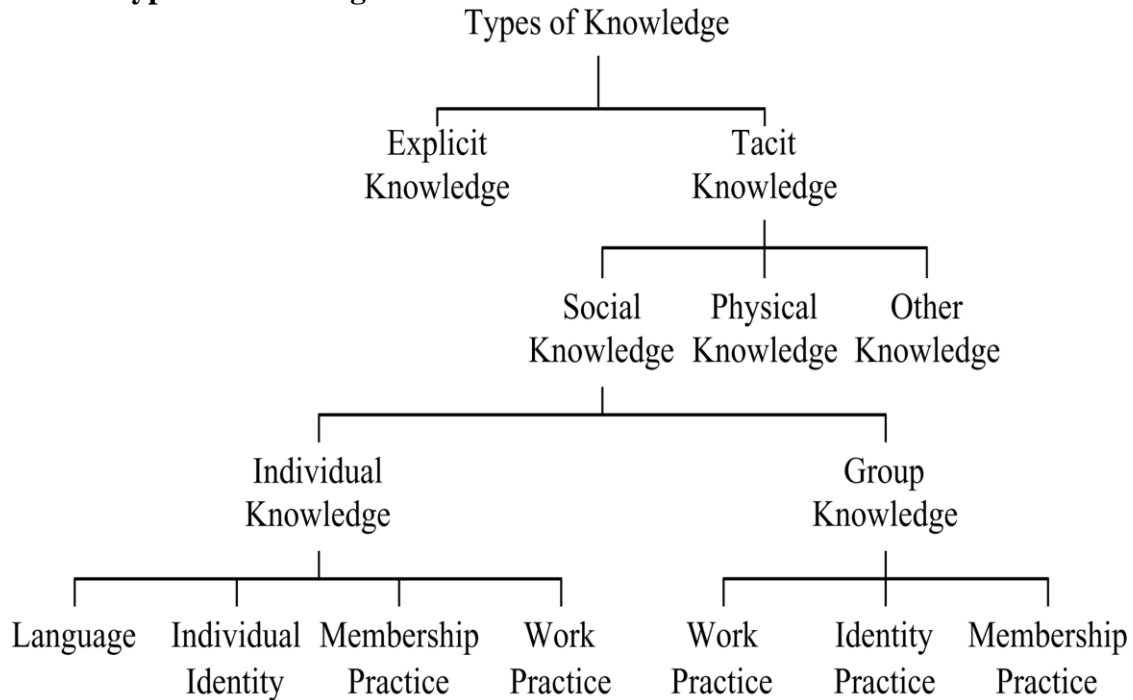
Types of knowledge, Source: Linde (2001:161)

Nonaka and Takeuchi (1995:62), in turn, define intangible knowledge as "personal knowledge resulting from individual experiences". This type of knowledge is easily conveyed between groups and individuals. The authors' belief that knowledge is created and extended through social interaction may be represented in the four basic threads of the SECI model.

Building on the distinction between tacit and explicit knowledge, Nonaka and Takeuchi link the resource and capability view of the firm with organizational learning literature. The cited model illustrates the various ways in which organizations create knowledge (Kale and Little, 2005:89). Cook and Brown (as cited by Kale and Little, 2005:89) propose that individuals and groups can possess both types of knowledge, leading to four different categories of knowledge. These four

types of knowledge can be mutually enabling in pursuit of a purposeful activity or the 'active process of knowing'. Mooradian (2008:107) argues that the distinction between explicit and tacit is structural and only describes a relationship between the kinds of knowledge. He suggests that explicit knowledge depends on tacit knowledge. That is to say, for any explicit knowledge K_e, there is some tacit knowledge, K_t, and that explicit knowledge is an extension or projection of tacit knowledge when it is raised to a heightened or new level of awareness. Hence, if there is value in identifying tacit knowledge, it is in relation to making explicit knowledge understandable.

The basic distinction between explicit and tacit knowledge is that whereas explicit knowledge is process-oriented or involves how knowledge is organized, tacit knowledge is practice-oriented or focuses on the way work is really done (Smith, 2001:318-319). Smith also adds that tacit knowledge is used to foster creativity and innovation.

According to Choo (2000:395), tacit knowledge is highly experiential and contextualized, thus making it hard to codify, write or reduce to what is referred to as rules and recipes. Bennett (1998:590-591) shares this view, suggesting that tacit knowledge can be conceptualized as an idiosyncratic, subjective, highly individualized store of knowledge and practical know-how gathered through years of experience and direct interaction within a domain. He further suggests that experience makes people aware of very strong underlying patterns that transcend a wide variety of decision making scenarios.

Due to its intuitive nature, tacit knowledge is learned independently of direct instruction. Individuals are often not able to articulate tacit knowledge directly. Someone may not be able to articulate why they 'know' something to be done or practiced in a certain way (Bennett, 1998:591). However, Lazaric et al. (2003:1832) argue that knowledge is 'articulable' (and eventually 'articulated') when the knowledge of a person or an organization can be made explicit by means of language. 'Articulated knowledge' is knowledge that has been rendered explicit through language. Language, in this context, refers to a system of signs, symbols and conventions that allow the reproduction and storage of knowledge in such a way that it can then be communicated and transferred between individuals. Since the process of articulation involves the extraction of knowledge from the person holding it and the transformation of personal

knowledge into a generic form, then parts of tacit knowledge may defy articulation and be poorly reproduced and communicated (Lazaric et al., 2003:1832; Jason and McQueen, 2007:647).

Tacit knowledge has also been observed in complex relationships with other individual internal belief systems, such as goals and expectations (Jason and McQueen, 2007:647-648). Wassink et al. (2003:528) identify three characteristics of tacit knowledge. First, it is embedded in individuals and therefore varies in amount and nature from person to person. Second, tacit knowledge is implicit by nature, and therefore difficult to study. Third, tacit knowledge is action or practice oriented. Practical knowledge is about how things work and is stored in the mind in a causal way, thus formulating the thinking process with respect to how knowledge is applied.

McAdam et al. (2007:45) have illustrated, through various themes, the diverse definitions of tacit knowledge (see Figure 2.1 below). They did this by analyzing the interpretations of tacit knowledge in a range of business and management journals.

Figure 2.2: Tacit Knowledge Descriptors
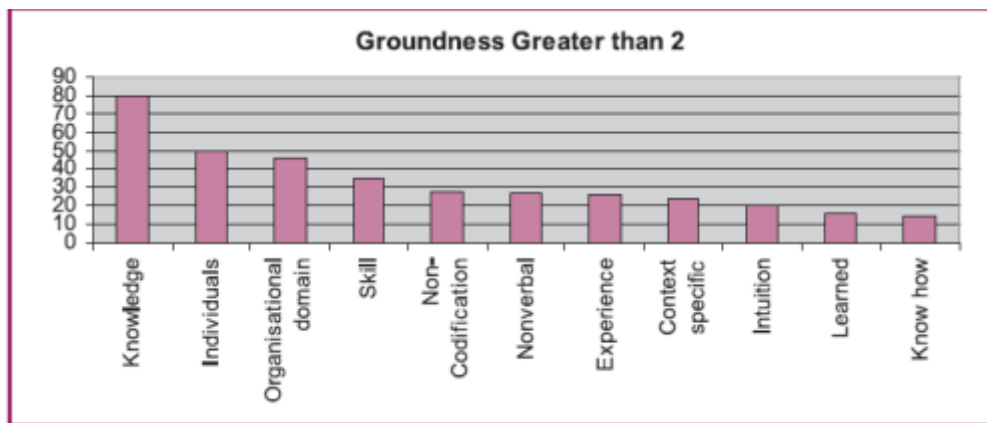
Source: McAdam et al. (2007:45)

From the literature, McAdam et al. (2007:45) noted that the aforementioned codes denoted the use of the term 'tacit knowledge' in the context of or in relation to individualistic; beliefs; oneself ; organizational; skills; and its specific context. Furthermore it tends to be practically rather than theoretically oriented in nature (practice; learning by doing; learning by using; practical intelligence, etc.), and given the nature of human competition, it is acquired in

conditions of low environmental support (Sternberg et al., 1995), which leads to it being used for competitive advantage. Many of the concepts in the list attempt to define tacit knowledge (e.g. knowledge, not-codified, know how, experience, non-verbal) and relate to its nature (e.g. learned, action, behavior, not easily communicated) [McAdam et al., 2007:45].

2.3.2.2 Role of Tacit Knowledge

"Valuable human and knowledge resources will be wasted unless management openly accepts and supports efforts to gather, sort, transform, record and share knowledge...tacit knowledge in particular is lost through outsourcing, downsizing, mergers and terminations" (Smith, 2001:311).

While Smith (2001:311) laments the loss of tacit knowledge above, she also highlights the role of tacit knowledge as the main driving force behind the survival of an organization. McAdam et al. (2007:43) concur that indeed, tacit knowledge is the kind of knowledge that is important for understanding organizational routines. Smith (2001:311) further argues that tacit knowledge is behind the overall quality of knowledge and that is why there is a high demand for imaginative, intuitive and inspirational leaders who can manage human intellect and convert it into useful products and services and keep them growing. She summarizes other roles as work practice, learning, teaching, type of thinking, sharing knowledge, motivation, rewards, relationships, technology and evaluation (Smith, 2001:314). Similar observations are made by Seidler-de Alwis and Hartmann (2008) and Saint-Onge (1996). However, in order for it to play any role, tacit knowledge must first be identified in an organization (Seidler-de Alwis and Hartmann, 2008:137). The authors point out that tacit knowledge is gained throughout the innovation and production chain of a company, and that the stage at which it is gained and used in the innovation and production process is an important strategy and policy issue, as this is where tacit knowledge could act as a viable source of competitive advantage.

Mooradian (2008:108) identifies the roles of tacit knowledge from a philosophical perspective. He argues that while tacit knowledge plays a role in all individual and group thinking, the concept of tacit knowledge does not apply to knowledge that is communicated; rather it applies to the thinking processes of individuals. When groups get together, knowledge is exchanged and

new knowledge created. The informal character of these groups raises challenges and opportunities that are different from formal group activities such as training, carrying out business processes, etc., although he laments that the transfer of tacit to tacit is confusing and impossible to model. Seidler-de Alwis and Hartmann (2008:141), on the other hand, argue that the strength and importance of tacit knowledge is that it is often very difficult for competitors to imitate, and therefore to transfer. Tacit knowledge is also often an important element in industrial collaboration, both as a factor initiating collaboration and in the collaboration's success.

Although explicit knowledge is important to an organization, Haldin-Herrgard (2000:359) argues that it is tacit knowledge that one requires to achieve excellence in a job through mastery. He opines that whereas explicit knowledge is there for everyone to find and use, tacit knowledge is specifically individualistic and therefore separates the experts from the multitude. In actual sense, an organization's core competency is more than the explicit knowledge of 'know-what'; it requires the more tacit 'know-how' to put 'know-what' into practice. This, he explains, makes work go smoothly, increases the quality of the work, and often characterizes a master of his or her profession. While the efficiency of making decisions, serving customers or production is improved through the use of tacit knowledge, the author also opines that the accuracy of task performance is improved through the use of tacit knowledge, and since time is of great importance in organizations, experts can make major time saving adjustments by using tacit knowledge. Although coded knowledge is easier to diffuse, the role of tacit knowledge is often essential and necessary in the ability to use coded knowledge. Coded knowledge can even be unusable without the augmentation of tacit knowledge (Shariq, 1999; Brown and Duguid in Haldin-Herrgard, 2000:359).

2.3.2.3 Challenges of Tacit Knowledge
The nature of tacit knowledge makes it difficult to articulate easily, hence the transfer of innovative knowledge from one person or group within an organization to another becomes problematic (Seidler-de Alwis and Hartmann, 2008:142). Alwis and Hartmann argue that people on the source side may be reluctant to share their knowledge with others for fear of losing ownership, a position of privilege, superiority, for the lack of sufficient rewards, or even

sometimes because they are unaware of the fact that their knowledge might be of interest to others.

Despite a great deal of research on the topic, Bennett (1998:589) argues that researchers and managers in the field of business still lack an understanding of tacit knowledge's nature, use, and value to decision making in organizations, even though there is evidence indicating that it is being widely utilized. He argues that lack of understanding leaves organizations in what he calls 'ill-structured decision' scenarios. This is because decisions evolve through a complex, non-linear, and fragmented process. He laments individual biases, group interactions, routines, habits, and ingrained behavior that lead to uncertainties and complexities, and notes that strategic decisions often have no precedent or guide and are often not easily modeled or analyzed. In his words, this leads to decision support models that do not offer a complete understanding about or structuring of these decision scenarios, for many decision premises, assumptions, and inputs are highly qualitative and equivocal in nature.

The personalized nature of tacit knowledge makes diffusion or sharing either very difficult or impossible (Augier and Vendelø, 1999:254; Haldin-Herrgard, 2000:361; McAdam et al., 2007:54; Nonaka and Konno, 1998; Bennett and Gabriel, 1999; Leonard and Sensiper, 1998; Zack, 1999; Holthouse, 1998). Although the main drawbacks have been attributed to the nature or characteristics of tacit knowing, such as abstraction, articulating difficulties, implicitness, individuality and practicality, perhaps the associated epitomes offer new possibilities to study tacit knowing (McAdam et al., 2007:54). Other barriers can also be attributed to perception and language, and time, value, and distance (Haldin-Herrgard, 2000:361). Haldin-Herrgard (2000) opines that a conscious use of epitomes of tacit knowing can also be useful in methods involving articulation, such as interviews.

What follows is an attempt to define indigenous knowledge (IK) and indigenous knowledge systems (IKS). IK is a form of tacit knowledge, as we shall see from its definition and also its nature and characteristics.

2.3.3 Indigenous Knowledge (IK)

"Indigenous knowledge has contributed to building solidarity in communities affected by globalization and shielded them against some of its negative impacts. There is not one of the Millennium Development Goals to whose achievement indigenous knowledge cannot contribute" (World Bank report, 2004:2).

This study bases the definition of IK on the definitions provided by two authoritative organizations, namely the World Bank and the National Research Foundation (NRF). Indigenous knowledge may be defined as a "complex set of knowledge and technologies existing and developed around specific conditions of populations and communities indigenous to a particular geographic area" (NRF, nd:np). The World Bank (1998:i) states: "IK is unique to a particular culture and society. It is the basis for local decision-making in agriculture, health, natural resource management and other activities. IK is embedded in community practices, institutions, relationships and rituals. It is essentially tacit knowledge that is not easily codifiable." Kaniki and Mphahlele (2002:3) define IK as a cumulative body of knowledge generated and evolved over time, representing generations of creative thought and actions within individual societies in an ecosystem of continuous residence, in an effort to cope in an ever-changing agro-ecological and socio-economic environment.

It is also referred to as local knowledge (Anand, 2006; Kargbo, 2005:200), traditional knowledge (IDRC, nd.; Ellen and Harris, 1996:3), indigenous and traditional knowledge (Kawooya, 2006), ethno-ecology, folk knowledge, folklore, ecology, and knowledge of the land (Kargbo, 2005:200).

2.3.3.1 Indigenous Knowledge Systems (IKS)

The definition of IK also poses questions as to what 'indigenous knowledge systems' (IKS) really means. From the Department of Science and Technology website:

Indigenous Knowledge Systems (IKS) is an all inclusive knowledge system that covers technologies and practices that have been and are still used by indigenous and local people for

existence, survival and adaptation in a variety of environments. Such knowledge is not static but evolves and changes as it develops, influences and is influenced by both internal and external circumstances and interaction with other knowledge systems. Such knowledge covers content and contexts such as agriculture, architecture, engineering, mathematics, governance and other social systems and activities, medicinal and indigenous plant varieties, arts and culture, etc.

IK cannot be defined on its own because it is embedded in the culture of a people. As Ngulube (2002:62) points out, IK pertains to experiential locality-specific knowledge and practices of medicine, healing, hunting, fishing, gathering, agriculture, combat, education and environmental conservation. Mutula (nd:129) refers to IKS as "an intricate knowledge acquired over generations by communities as they interact with the environment. Indigenous knowledge consists of cultures and traditional practices of ethnic nationalities, and indigenous technological capacity in agriculture, fishing, forest resources exploitation, environment management and knowledge transmission." While Chisenga (nd: 94) uses both IK and IKS interchangeably to connote the same, he refers to the World Bank (WB) and Southern African Research and Documentation Centre (SARDC) which define IKS as:

A body of knowledge and beliefs built by a group of people, and handed down … generations through oral tradition, about the relationship between living beings and their environment. It includes a system of organizations, a set of empirical observations about the local environment, and a system of self-management that governs resource use.

Vansina in Mabawonku (nd:50) defines IK in terms of orality and thus defines oral tradition as "testimonies of the past, which are deliberately transmitted from mouth to mouth". Oral testimony is the essential ingredient of oral tradition, and is transmitted from one generation to the next. Thus, the person who tells the tradition was not himself a participant or eyewitness. Oral testimonies are the organic expression of the identity, purpose, functions, customs, and generational continuity of the culture in which they occur.

2.3.3.2 Importance of IK

IK is important to the livelihood of people, a fact that has been demonstrated and argued by the World Bank on a number of occasions (1998:i). The DST (website) has also reaffirmed its position on IKS in the following statement:

In recognition of the importance of Indigenous Knowledge Systems and the wealth of this knowledge in South Africa, the Department of Science and Technology has been playing a leading role in the affirmation, recognition, protection and promotion thereof. Apart from the establishment of the Indigenous Knowledge Systems Unit in the Department in 2002, it has also been actively supporting research through the provision of funding to Science Councils and Tertiary Institutions as well as support to non-governmental structures working in the area of IKS.

Promoting greater awareness of IK is not enough; its application creates and elicits more meaning, hence debates of preservation can be entertained because it makes no point to preserve non-used knowledge. Taking the example of the Samburu district in Kenya, the pastoralists rely heavily on their own knowledge of the environment and have to manage it in order to survive (Onyango, nd:254). Onyango uses such examples to argue that it is of the utmost importance to first learn the knowledge of the community before any attempts to improve their situation are made through participatory activities. This is especially true when one considers that some of these communities do not have access to external information. Local knowledge is therefore the starting point for work directed towards the health of their animals, livestock production and environmental conservation. For example, at one stage tsetse flies posed a major problem in Kenya (1998), leading to the creation of community-based programmes in each village to trap them. Traditional healers in the district were involved in the project, which documented local remedies and disseminated this knowledge to local secondary schools. Onyango further elucidates how this ethno-veterinary knowledge has also been incorporated into training modules for decentralized animal health. This led to a workshop held in collaboration with the International Institute of Rural Reconstruction (IIRC) that helped the healers and veterinarians of the country accept each other's professions. The workshop's outcome was a book entitled,

"Ethno-veterinary medicine in Kenya", which has helped to increase the value of ethno-veterinary knowledge and interest in veterinary practice.

Kinama (2004:51) also highlights the diverse opportunities brought about by IK, one of them being IK as the basis for problem solving strategies in local communities, especially among the poor. He provides examples of how farmers in the semi-arid areas of Eastern Kenya prefer to plant their local maize variety (Machakos local white) as opposed to the recommended maize composite (Katumani maize). When planting their maize variety, they were observed to use wider rows and spacing than they would with the Katumani composite. Their preferred variety produced a higher yield than the recommended variety, taking into consideration the low and unreliable rainfall the community/ region has experienced over generations.

In a study carried out in the Ekiti State in Western Nigeria on whether IKS was being applied by farmers, Kolawole (2004: 285) revealed that: About 72.0 % of the farmers utilized trash burning; 58.0 %, shifting cultivation; 45.2 %, mulching; and 28.0 %, crop rotation. Only about 20.4 % and 8.0 % utilized bush fallow and organic manure application, respectively. The inference was that most farmers utilized trash burning in conserving soil fertility in Ekiti State, Nigeria. Reasons for utilizing IKS: Majority (80.0 %) of the farmers utilized IKS in conserving the fertility of the soil because they were easy to practice. Also, about 72.0 % of the population used IKS because inorganic fertilizers were not easy to come by. About 60.0 % of the farmers also reported that they utilized IKS because facilities for such practices were always available to them. Benefits of IKS utilization: Most (80.0 %) farmers were of the opinion that IKS practices were cheaper than modern methods. It was also believed that IKS practices were economically advantageous (80.0 %) and ecologically sound (30.0 %).

Although the above may have a positive bearing on IKS, the use of 'poor' does not augur well for IK. 'Poor' as a description also features on the NUFFIC website, as cited by Persens (2005:141): "IK is an important part of the lives of the poor. It is a key element of the social capital of the poor, their main asset to invest in the struggle for survival to produce food, to provide for shelter or to achieve control of their own lives". The suggestion here is that IK is only for the poor and is not of any benefit to anyone else.

IK represents an important component of global knowledge on developmental issues. The World Bank (WB) agrees that IK is an underutilized resource in the development process. According to the WB report (1998/99:3), knowledge and not capital is the main impetus behind sustainable social and economic development. The first step in recognizing this would be building on local knowledge, the basic component of any country's knowledge system. This is because IK provides the basis for the acquisition of new knowledge. For example, the Maasai of Kenya and Tanzania are known to have treated foot-and-mouth disease effectively without killing the animals (Ridley in Chisenga, 2000:96).

The importance of IK is comprehensively covered by the former Tanzanian president, Mkapa (2004:2), who summarized the functions of IK by citing various examples in which IK has been used to benefit communities, e.g.: to reduce hunger and poverty in India; improve primary education and enrollment by using local language as a means of instruction in West Africa; enabled men in Senegal to understand the impact of female circumcision on women and empowered women to move towards eradicating the practice; helped to reduce child mortality in Eritrea and maternal mortality in Uganda; provide primary healthcare to millions of Africans; has helped communities in Mozambique manage their coastal natural resources; and has helped to build partnerships between the weak and the strong in Ghana to re-distribute wealth.

2.3.3.3 Functions of IK

With the embodiment of IK within the system of its people, Gupta (nd:6-7) outlines some of its functions. The functions highlight the nature of IK and the strong bond it has with this system.

IK is semiotic, meaning that it is communicated through symbols, arts forms, crafts, etc. In Uganda, it is always easy to distinguish one community from another through their arts and crafts. Culture manifests itself through music, painting, dance, folklore, language and literature, traditions, beliefs and values, and also through its traditional legal systems, its processes of governance and participation, including the intricate links and transactions that define a society's character, as well as its pattern of human and economic development (Magara and Ikoja-Odongo, nd:2).

IK is institutional. Each community in Africa has its rules coded deeply in rituals and other cultural and social sanctions. For instance, the Embu people in the Eastern province of Kenya had a Muthamaki (leader) and a ground for the Kwanyi dance. The Athamaki (leaders) looked after the overall welfare of the people by providing laws and regulations covering issues such as marriages, beer-drinking, etc. There were Njama (group) who went to bigger gatherings of the Embu and brought information from the Embu to the leaders. The Njama in turn summoned the other members of the community within its reach and briefed them.

Configurational. Almost all communities have certain stages and processes that are followed in the lifecycle of an individual. This was part of communal life and included rites of passage like circumcision, marriage and naming. These formed part of the traditional norms and led to the prediction of social outcomes.

Utilitarian knowledge. Most communities were very well versed with their environment and knew which plants and animals they could consume and which provided various treatments. There exists a fundamental relationship between people and their land which is dependent on the nature and characteristics of the land, as well as on cultural variables such as the needs, values, traditions, and beliefs of the people who occupy it. The authors suggest that indigenous people have knowledge about all aspects of their physical and spiritual environments, including weather systems, stories of creation, and astronomy. Indigenous peoples' traditional reliance on the land for subsistence and survival implies that knowledge about the land is heavily intertwined with these other forms of knowledge. Thus the boundary between indigenous knowledge in general and indigenous knowledge of the land is difficult to establish (Magara and Ikoja-Odongo, nd: 20).

Situational. Different situations called for the best actions to be taken differently from normal day-to-day routines. Weather systems were at times induced, especially in cases of inadequacy or late occurrence. Inducement was also done for reasons such as clarification in cases of theft, argument or denial of an action, and wickedness and punishing people, for instance during a power-tussle. Weather systems that were often induced include rainfall, thunderstorms and windstorms. The occurrence of these systems could also be 'prevented' if they were not needed (Ajibade and Shokemi, 2003:41).

2.3.3.4 Knowledge Exchange

Since IK is embedded in the culture of a particular community, its transfer is also restricted to the same (World Bank, 1998/99:8). The exchange process of IK can be classified into six stages as highlighted by the World Bank (1998/99: 9-10):

Recognition and identification. This process is important because it identifies the type of IK and its strategy or technology. This stage proves rather challenging because it is sometimes difficult to isolate IK from day-to-day life, and to some extent even the practitioners themselves may not be aware of their IK.

Validation stage. This involves seeking the significance and relevance of IK, its reliability, functionality, and its effectiveness and transferability. The community should be involved at the original site of application. This is because IK is in tacit form and may prove difficult to apply since it would involve direct practice and apprenticeship. Other factors such as appropriate technology will depend on the cultural, political and economic situation and the level of technical competence of the recipients. It is also advisable to pilot test any new technologies with the recipients.

Recording and documenting. The scope is determined by the intended use of the information. Documentation may be in the form of audiovisual technology, taped narration, drawings, and other types of codifiable information.

Storage. For example in retrievable databases, involves categorization, indexing services relating to IK to other information, and accessing, conserving, preserving and maintaining IK for future retrieval. Retrieval should be user-friendly and could include electronically stored and indexed abstracts, directories of experts or applications. Retrievable forms should also include tapes, databases and IK practitioners.

Transfer. This process goes beyond conveying the information to new recipients. Factors such as testing the knowledge in a new environment, economic and technical feasibility, social and environmental impacts and other criteria need to be examined by the recipients. It can stand the test or be rejected. All stakeholders must be involved and support must be accorded by the

government and donor agencies. For a successful transfer, careful selection of cooperating partners and potential beneficiaries in a participatory process is necessary.

Dissemination. This stage is achieved after the successful transfer and adaptation of IK. Dissemination includes public awareness campaigns, public broadcasting, advertisements, seminars, workshops, distribution of information, publications, and IK incorporation into extensive programs or curricula. These activities could target a specific group or the general public.

2.3.3.5 Forms of IK

Indigenous knowledge is embedded in culture, which makes it very difficult to isolate. However, various scholars, for example Kaniki and Mphahlele (2002:4-5), Mutula (nd:129) and Kok (2005:7), identify forms in which IK is represented. These forms fall into three categories, namely ecological, spiritual and astrological (Ikoja-Odongo, 2004:174).

IK in Africa is often reflected in a community based on its religion and/or culture, ancestral worship and the belief that the ancestors can communicate with individuals (Kaniki and Mphahlele, 2002:4). Many African communities also believe that sacrificing cows, goats and sheep symbolizes cleansing (Kok, 2005:7). Frazer (in Muhando, 2005:229-230) provides this example of the Kikuyu, who reside in the central province in Kenya.

Groves of this tree (Mugumo) are sacred. In them no axe may be laid to any tree, no branch broken, no firewood gathered, no grass burnt; and wild animals, which have taken refuge there, may not be molested. In these sacred groves sheep and goats are sacrificed and prayers are offered for rain or fine weather or on behalf of sick children.

Muhando (2005:230) further provides an insight into the prayer and sacrifice offerings in the Kikuyu's beliefs.

The Irungu age set of the Kikuyu met under the fig tree when there was no rain. They offered a sheep or a goat as a sacrifice and as soon as they had completed the ceremony, rain would fall.

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The slaughtered animal would be eaten by the Irungu and not taken home; all bones and remnants were burnt to ashes.

Herbs collected in the wild are the basis of most traditional African medicine. They can be collected from both general and specific plants known to cure various ailments (Ikoja-Odongo, 2004:173; Kaniki and Mphahlele, 2002:4). Lado (2004:291), for example, highlights some of the plants that are used by the Luyha's of Kenya: "The plant species identified for medicines, including Mimosoideae, are mostly used for remedies. Indeed, the roots of the Clotalaria plant species are specifically used for human skin wounds."

Kinama (2004:52) also gives an account of a case study on the value of some of the medicinal plants in Kenya, for example the use of certain tree species for medicinal purposes. The Neem tree has been utilized by communities in Kenya for the treatment of many diseases. The aloe plant, sisal and the rare apple plants were used by my own father to extract medicines he used as disinfectants and painkillers while extracting teeth from his patients. An extract from Mutula (nd: 135) provides an insight into the application and effectiveness of some medicinal herbs.

In the KwaZulu-Natal province of South Africa, the extract from an indigenous plant, Sutherlandia frutescens (the so-called cancer bush), is said to cause a marked improvement in AIDS patients. The plant has long been known as having medicinal properties, and the Zulu warriors returning from battle would drink an extract from it. The plant was referred to in the South African Materia Media, published in 1895, as a cure for malignant tumours and cancers, a blood purifier, and a tonic to delay the progress of true cancer and prolong life.

Most communities possessed certain knowledge about the environmental resources which they used and still do for their continued benefit. The knowledge that cow dung has numerous benefits, for example, and its application on walls and floors and in sealing the lid of baking pots for heat preservation is all part of IK technology (Kaniki and Mphahlele, 2002:5; Kok, 2005:7).

Traditional means of education are still carried out today during initiation ceremonies (Maharasoa and Maharaswa, 2004). The youth are taught beliefs and moral values which they

are expected to adhere to. In the past, they would learn by observing the relationship between the environment and their community, for example, in learning to predict weather changes (Kaniki and Mphahlele 2002:5; Kok, 2005:7). Greater environmental knowledge means that there is considerable value in human livelihood strategies, in sustainable management, and in the utilization of natural environmental resources (Lado, 2004:283). This ensures environmental stability and survival, and means that rural households have the capacity to adapt to their environment and cope with increasing population pressure (Lado, 2004:283).

IK is also found in cultural festivals which were used in the past to entertain, inform and educate through songs, dance and drama. Story telling was often conducted in the evening. This would be performed by the elders, who would tell stories after evening meals and also recite proverbs based on their culture practices (Kaniki and Mphahlele, 2002:5; Kok, 2005:7).

Certain agricultural practices and farming methods were rich in IK. For instance, Amusan in UNEP (2004:15) illustrated Swaziland's IK application for soil management, e.g. shifting cultivation (lucabe) and intercropping; agro-forestry and the establishment of grass strips to promote soil preservation; traditional use of wood ash to maintain soil fertility; and traditional names for describing soil fertility, for example "sidzakeni" for fertile soil and "esihlabatsini" for sandy soil. Tanzania's example is described by Mhita in UNEP (2004:15) below.

The indigenous farming system in the Matengo highlands of Mbinga District in southern Tanzania comprised a two-year rotation that included a short-term grassland fallow. Cultivation was undertaken in the form of ridges and pits which functioned as buffers to control run-off by allowing rainwater to stand. Maize was grown on the ridges during the rainy season and because the field was covered with well-grown maize, the surface soil was again protected from runoff, thus conserving the topsoil and fertility on steep slopes throughout the year.

African communities had various effective food preservation and storage systems. Amusan in UNEP (2004:15) observes that in Swaziland, for example, the community practiced food storage by preserving vegetables in dried form (infuso); storing sweet potatoes in pits as ingungu; and storing maize in dry powdered form. Decorative and utility products were often made from

wood, clay, beads, fabrics, soil and other materials (Kaniki and Mphahlele, 2002:5; Kok, 2005:7).

Kinship in African communities also played a very important role. Community development had to occur under strict systematic guidance. Many communities were therefore guided by a chief or a village headman (Kaniki and Mphahlele, 2002:4-5).

2.4 KM in relation to IK

From the definition of KM and the systems created to facilitate these processes, there is the suggestion that there should be specific boundaries within which knowledge can be effectively utilized (Kaniki and Mphahlele, 2002:10). But as Raseroka (nd:3) claims, the advancement of modern knowledge systems (MKS) stands on the shoulders of previous knowledge. The difference between IKS and MKS was brought about by the written word, which codified thought and facilitated the transmission of ideas without reliance on memory.

Whereas some scholars prefer the cultural approach to KM, where organizational learning with a focus on innovation and creativity is the best suited KM approach for managing IK (Kok, 2005:7), a study such as this finds Earl's model of knowledge and knowing to be appropriate. The nature of this study involves mapping and auditing, which Earl takes into account in his model of knowledge and knowing. Scholars proposing the cultural approach, such as Stewart (in Kok, 2005:9), argue that it befits communities of practice, where he further defines a community of practice as a group that facilitates the transfer of knowledge and innovation in human capital development. Wenger (in (Kok, 2005:9) believes that these groups are the most versatile and dynamic sources of knowledge in an organization.

Since KM is expensive, financial, material, human and other resources are necessary in order to manage knowledge (Davenport in Kaniki and Mphahlele, 2002:10). Unlike scientific knowledge, IK has often been marginalized, treated with suspicion, or simply ignored.

An important step in recognizing the usefulness of anything in society and thus warranting the allocation of limited resources to it first involves raising awareness about the issue. In the

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introduction to this study, reference was made to the growing interest in the role that IK can play in society on a wider scale. Globally, IK-related centres came into being in the late 1980s and early 1990s. Soon after, the networks between them were intensified. Ngulube (2002:63) cites and concurs with Agrawal (1995:3), Gonzalez (1995:5), and Warren et al. (1993:2), that since IK is essential to development, it must be gathered, organized and disseminated in the same systematic way as Western knowledge. The main challenges to the management and preservation of IK are issues relating to methodology, access, intellectual property rights, and the media and format in which to preserve it. Underlying these challenges is the question of whether or not to use the Western paradigm for preserving IK. Judging by the discourse and debate among scholars on this issue, it is evident that there isn't one correct answer.

One of the main questions raised with respect to international and even national KM initiatives for IK, such as the ones described above, is the protection of intellectual property rights. In dealing with intellectual property, one of the key issues involves identifying the originator or owner of the knowledge in order for them to get their due (recognition, remuneration). A community that develops and applies particular IK in their culture generally owns the IK (Kaniki and Mphalele, 2002:11).

International conventions and agreements, like the Berne Convention on Copyright and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) as well as international patent laws, attempt to protect intellectual property from piracy and abuse internationally. There are also national intellectual property laws and regulations. However, as Quiroz (in Kaniki and Mphalele, 2002:11) notes, "The existing intellectual property rights agreements do not give full and proper recognition to the rights of indigenous and local communities to their own knowledge, innovations and practices."

Using examples, Kaniki and Mphalele (2002:12) highlight the activities of KM with respect to IK at national level. One of the critical issues of KM is the institutionalization of the process. Within organizations, there must be a unit (knowledge managers) responsible for knowledge; in a fluid environment or at macro level there must be "ownership" of the process and/or custodians

of KM. Implanting an African-rich curriculum is also another application of KM to manage IK. The following is an example from Kenya, as highlighted by Starkey (nd:181).

An example of an African-centred IK based curriculum identified in the literature is described by Mugo. It was an experiment by the Department of Literature at the University of Kenya to develop a paradigm aimed at eradicating colonial and neocolonial mentalities in Kenyan youth during the 1970s, in order to transform the curricula inherited from the British colonial legacy that placed the English heritage at the centre. The aim was to develop a learning experience that was truly African, but relevant, by situating the learning experience in the "familiar" before moving into the "unfamiliar". The new curriculum design removed English literature from the centre, replacing it with African orature and literature as cores. Next came the literature of the African Diaspora, followed by cultures that had experiences related to African peoples, such as those of Latinos, Indians and other dominated societies. At the outer core came the literatures of the European countries and the rest of the world. This literature education privileged indigenous spoken and written traditions and, in so doing, validated African cultural knowledge. Independent studies and practical projects, especially in African orature, were made part of the new curriculum. The result, says Mugo (1999:228), was "the emergence of centred students who had a solid base from which to understand themselves, their culture and surrounding reality".

Kaniki and Mphahlele (2002:13-14) are of the view that some KM principles can be applied to manage certain aspects of IK. They argue that owing to the nature of IK, not all of it can (or should) be managed like scientific knowledge. They explain that in local communities, there are "knowers" of IK who act as custodians, and that in traditional communities, intellectual property is protected through trust and not necessarily through legal frameworks. However, it is recognized that in the interaction of local or traditional communities with modern communities (and, in fact, the global community), there is a need to apply a number of principles for managing IK in order to preserve it, utilize it effectively, and protect it (ibid:14). It should, however, be noted that the issue here is not simply to collect reels of audio or video tapes as a form of folklore, but to catalogue such information so that it can be compared from different regions in the country, so that it could be brought to bear on policies for sustainable development in remote and fragile areas (Kargbo, 2005:200)

The management of indigenous information systems, as Mutula (nd:130) contends, takes a holistic approach to the environment in the sense that resources from which livelihoods are derived are not separated into distinct economic and social assets. Knowledge is acquired and passed down from generation to generation and IK is developed through sharing by members of a community, such as through elders who have gained wisdom over years. Information is in the public domain, and therefore the entire community is involved in the evolution of IK.

2.5 Summary

This chapter reviewed literature on the concept of knowledge, knowledge management, tacit knowledge, features of tacit knowledge, role of tacit knowledge, and challenges to tacit knowledge. It further provided information on the importance, functions, forms and application of IK. The next chapter presents various related knowledge management frameworks. It also provides a detailed discussion of Earl's knowledge management model which informs this study.

CHAPTER THREE

Theoretical Framework

3.1 Introduction

The previous chapter focused on the conceptualization of IK and KM and how they are related. Other definitions of KM based on proposals by a range of scholars were highlighted before narrowing down to the definition of knowledge and the more specific domain of tacit knowledge. This chapter reviews various knowledge management frameworks and provides a detailed discussion of Earl's model, which informs this study.

3.2 Knowledge Management Models

Neuman (2006:74) defines a theoretical framework (which he also refers to as theoretical systems or paradigms) as a general theoretical system that consists of assumptions, concepts, and specific social theories. He explains that theoretical frameworks cover the widest range of concepts and are on the opposite end of empirical generalizations. Nachmias and Nachmias (1996:39) state that a theoretical system consists of propositions that are interrelated in a way that permits some propositions to be derived from others. They posit that when such a theoretical system exists, social scientists can claim to have explained and predicted the phenomenon at hand.

Theories, on the other hand, play a vital and central role in research processes because they are the cornerstone offor generating research problems, hypotheses and meaning. The significance of key concepts can only be interpreted within the context of a theory (Nachmias and Nachmias, 1996:35). Organizations are pursuing strategies to actively and explicitly manage knowledge and ensure that they obtain, renew and use the best possible knowledge in all areas of work. Although knowledge in itself is a resource, the effective management of knowledge enables those within the firm to extract more from all the resources available to it (Darroch, 2005:1 para). It is for this reason, i.e. the accountability of knowledge, that various procedures have been

developed for having knowledge measured (Kakabadse et al., 2003; Sveiby, 1977; Swan and Newell, 2000).

The emphasis that is currently being placed on the importance of esoteric knowledge for business success suggests that a review of the relationship between knowledge, organizations and management is timely (Blackler, 1993:863). IK is tacit (intangible) knowledge, meaning that it is highly personal and hard to formalize and is deeply rooted in action, procedures, routines, commitment, ideals, values and emotions. One of the tenets of knowledge management is the conversion of this tacit knowledge (Indigenous Knowledge – IK) to tangible knowledge. Intangible (tacit) knowledge becomes crucial in KM research because it is viewed as a major resource that holds the key to organizations' growth in terms of spurring innovation. This resource has to be identified and leveraged in order for it to be utilized. Tacit knowledge therefore has to undergo a kind of metamorphosis in its conversion into visible and tangible formats. This process of conversion forms the driving force of KM (Nonaka and Takeuchi, 1995; Mooradian, 2005; Ocholla, 2007:2).

Kakabadse et al. (2003) categorize the number of approaches to knowledge into five, namely the philosophy-based model, cognitive model, network model, community model and quantum model. Each of these models treats knowledge in its own particular way, leading to different KM approaches (Swan and Newell in Kakabadse et al., 2003:80). The table below outlines the attributes of these models.

Table 3.1: Model Attributes

	Philosophy-based model	Cognitive model	Network model	Community model	Quantum model
Treatment of knowledge	Knowledge is "justified true belief"	Knowledge is objectively defined and codified as concepts and facts	Knowledge is external to the adopter in explicit and implicit forms	Knowledge is constructed socially and based on experience	System of possibilities
Dominant metaphor	Epistemology	Memory	Network	Community	Paradox
Focus	Ways of knowing	Knowledge capture and storage	Knowledge acquisition	Knowledge creation and application	Solving paradox and complex issues
Primary aim	Emancipation	To codify and capture explicit knowledge and information – knowledge exploitation	Competitive advantage	Promote knowledge sharing	Learning systems
Critical lever	Questioning, reflecting and debating	Technology	Boundary spanning	Commitment and trust	Technology
Primary outcomes	New knowledge	Standardization, routinization and recycling of knowledge	Awareness of external development	Application of new knowledge	Creation of multi-reality
Role of IT based tools	Almost irrelevant	Critical integrative mechanism	Complimentary interactive mechanism	Supporting integrative mechanism	Critical-Knowledge centric

 Source: Kakabadse et al. (2003:81)

The nature of the study (mapping and auditing of IK) rendered most of the existing KM models unsuitable, with the exception of Earl's model which informs this study. The next section will briefly outline different KM models and later dwell on Earl's model.

3.2.1 The N-Form Organization by Hedlund

The N-Form Corporation, a creation of Gunnar Hedland's, is based on Nonaka's earlier work on knowledge creation, exploitation and experimentation (Hedlund and Rolander, 1987). According to Hedlund (1994:73), the N-Form model builds on the interplay between articulated and tacit knowledge at four different levels, namely the individual, the small group, the organization, and the inter-organizational domains. The model is based on differences between Western and Japanese patterns of knowledge management. These are related to organizational characteristics, such as employment systems, career patterns, and organizational structure. He argues that effective knowledge management requires departures from the logic of hierarchical organization and the M-form structure.

Although it is possible to share information, the model deals with large complex projects and also lacks cohesive vision. To solve this, Hedlund suggests that organizations must understand the needs of their consumers in order to create holistic solutions for the customer. Managers must also strive to balance response flexibility in order to retain their ability to manage complex situations. Hedlund's model's main focus is on knowledge transfer and transformation which, though important, does not apply to this study.

3.2.2 Organizational Knowledge Network and the Organizational Cognition Spiral

Carayannis' Organizational Knowledge Network (OK Net) and the Organizational Cognition Spiral (OCS) acknowledge the presence of data and information that may be critical in nature but hard to manage and leverage properly. He appreciates that both information technology (IT) and KM are strategic enablers of managerial and organizational cognition.

3.2.2.1 OK Net Model

The OK Net model acts as an experimental test-bed or technology platform for designing and testing an organizational KM network for the support, monitoring, capture, measurement and enrichment of organizational cognition in an eight-stage process. He argues that this would require a database of interest or expertise profiles on the human capital of the firm.

If applied, the model would consist of individual and team knowledge repositories with competencies and skills, personnel, and team profiles in addition to records and on-going individual and team generating, acquisition, storage and renewal activities and interests as well as other categories where appropriate. He goes on to explain that for each of these attributes, hyper-links would provide access to related and useful sites, including people and teams across and within organizations with overlapping or complimentary knowledge profiles.

3.2.2.2 The OCS model

Carayannis (1999:224) introduces another model to complement the OK Net KM. He argues that the metrics of this model would serve to motivate a set of questions that would allow an organization to determine where it is on the OCS and in which direction it is moving. He argues that the OCS would allow the organization to "interpret how the transitions should be managed and how to optimize the path followed along the OCS" (Carayannis, 1999:224).

The researcher finds that Carayannis' models dwell on knowledge transition as it applies to both individuals and organizations. Although he does briefly mention knowledge identification and measurements, the eight stages he proposes and also the presence of the two models make it too complex since he concentrates more on connectivity and interactivity as well as managing the transitions from one state to another, factors that do not apply in this instance. Koh et al. (2005:59-60) challenge the models, especially because a key requirement is a database of interest or expertise profiles (maps or repositories) of the human capital of the firm that supports the OK Net model. This is because it is not made clear how this is to be achieved when the codification of explicit knowledge, let alone the codification of tacit or cultural knowledge, is in itself a difficult process. Another contentious issue involves determining the current knowledge level of the firm when it is mapped at a certain stage, an exercise that requires expertise and a process that is also time consuming. They point out that no guidelines are provided as to how this can be achieved.

3.2.3 The Three Pillars of Knowledge Management by Wiig

Wiig's framework is based on three pillars and the foundation of KM (Knowledge Board, 2002:4). KM as it is referred to here is the way knowledge is created, used in problem solving and decision making, and manifested cognitively as well as in culture, technology and procedures. The three pillars are the exploration of knowledge, its value assessment, and its active management.

Wiig (1997:1-2) opines that the underlying objectives of KM are to make the enterprise act as intelligently as possible to secure its viability and overall success and to realize the best value of its knowledge assets. He suggests that these objectives are attainable through organizations and firms that are building, transforming, organizing, deploying, and leveraging knowledge assets effectively. Arguably, the overall purpose of KM is to maximize the enterprise's knowledge-related effectiveness and returns from its knowledge assets and to renew them constantly. Although his principles are highly appropriate in the management of IKS, they do not apply to this study.

Critics of Wiig, such as Koh et al. (2005:58), fault the model for the lack of explanations on the various steps referred to in the model, especially in instances of doing things such as ''handle, use, and control knowledge'', which does not say why or how to control this knowledge, nor how to handle or control tacit or cultural knowledge. They argue that the model also lacks an implementation framework or strategy and that it is generic in nature without considering the differences in industry, organizational structure, culture, etc.

3.2.4 Edvinsson's Model of Intellectual Capital

Edvinsson and Sullivan (1996), in their model of Intellectual Capital (IC), describe the concept of IC and how it fits into the knowledge economy. They draw their definitions from the experience of eight major international firms which were actively managing their IC. They attempt to tie knowledge down to tangible business results, make distinctions between and define terminology related to intellectual capital, and present a model showing how it can be leveraged into concrete business results. The authors distinguish between human capital and intellectual assets, between physical and intangible structural capital, and between generic and specific complementary business assets, which are all fundamental sources of value for a firm. By drawing these distinctions, Edvinsson and Sullivan lay some foundations for developing a new vocabulary and way of thinking about intellectual capital (Roos and von Krogh, 1996).

Whereas the IC model describes where IC fits into the knowledge firm, what the component elements of it are and how to manage them, the model, although relevant in KM, is not directly relevant in terms of the mapping and auditing of IK which could be placed as IC. To surmise, the model is confined to the components that are identified within the sampled companies. In actual sense, an organization needs to understand where its assets might be located before it can create a plan to unlock value (Ward, 1998:10). Critics like Koh et al. (2005:59) are skeptical because the model seems to fail to accomplish the classification of knowledge in an organization and to identify the way in which to manage the resources for KM. However, they opine that the model may be more suited to an industrial environment.

3.2.5 The Ecology of Knowledge Management by Snowden

While heading Cynefin, IBM's Centre for Organizational Complexity, Snowden developed an approach to implementing KM programs in a series of articles that rest, in general terms, on a foundation of cognitive science, semiotics and epistemological pragmatics (Knowledge Board,

2002:4). He distinguishes between explicit and tacit knowledge, basing them on knowledge assets, trust, and the certainty or uncertainty of decisions relative to objectives and causal relations. Other than the model's main focus on the value of knowledge, it also acknowledges humans as vessels of tacit knowledge, and external systems and structures as the holders of explicated knowledge from the perspective of decision-making, particularly with respect to the level of certainty pertaining to means, ends and causal relations. Furthermore, he embraces the mapping of the stock of tacit and explicit knowledge in an organization, thereby creating a knowledge base.

This model resembles Earl's because it embraces the stocktaking of both tacit and explicit knowledge. What makes it unsuitable in this instance is the transformation aspect which complicates the whole process. This study is more concerned with how to identify IK and make it accessible.

3.2.6 Knowledge Management Processes and International Joint Ventures

Inkpen and Dinur (1998) introduced an empirical model of knowledge management designed to explicate learning and knowledge transfer between partners in strategic alliances. They argue that although the distinction between tacit and explicit knowledge is important, it should not be viewed as a dichotomy but rather as a spectrum with two knowledge types at either end (Inkpen and Dinur, 1998:456). The authors suggest that knowledge types must therefore be classified on a continuum that ranges from explicit knowledge, embodied in specific products and processes, to tacit knowledge acquired through experience, use and embodied in individual cognition and organizational routines (Inkpen and Dinur, 1998:456).

Their framework is an empirical examination of KM processes. The organization is viewed as a repository of various knowledge types in different organizational (Inkpen and Dinur, 1998:, 457). The key assumption underlying this model is the fact that organizations have various types of knowledge and carriers of knowledge.

This model was applied to 42 partner/ joint ventures in the automotive industry to investigate knowledge creation and transfer. The authors then outlined the various ways in which different types of knowledge may be transferred and integrated across the organizational levels of a partner participating in an alliance.

3.2.7 Intellectual Capital Management

Van Buren, who was a senior associate with the Research & Enterprise Solutions Unit in collaboration with the American Society for Training and Development (ASTD) and Effective Knowledge Management Working Group (a virtual organization composed of KM practitioners in various industries), created an intellectual capital management model whose goal was a standard set of measures that could be used to assess KM activities across different companies. The model has two sets of measures, the first being the enumeration of intellectual capital stocks, and the second being the measures of financial performance to assess effectiveness.

Van Buren (1999:73) argues that the model results in an inventory of intangible assets that account for the types and amount of assets an organization has, including the monetary value. The challenge organizations face is the approximation of the total value of their entire intellectual capital stocks. It is because of this that both stock and effectiveness measurements are necessary and important to managing IC (Van Buren, 1999:73-5). The model is based on three factors: the firms' existing stocks of IC; the firms' knowledge management processes and enablers; and the two sets of outputs achieved, i.e. changes in the stocks of IC and financial performance.

Van Buren suggests a range of financial performance measures, including market-to-book value, return on equity, revenue per employee and value added per employee. He suggests a total of 50 intellectual capital measures distributed across four categories — human capital, innovation capital, process capital and customer capital — and including items such as educational levels, time in training, the number of copyrights and trademarks, average age of patents, IT accesses per employee, and annual sales per customer.

Although Van Buren's model does involve inventories, it does so in terms of assessing value rather than identifying where the resources are located, which is a vital aspect of this study

3.2.8 Senge and the Learning Organization

While working as a senior lecturer at the Michigan Institute of Technology, Peter Senge became part of the organizational learning and change group. In his interview (Fulmer and Keys, 1998:35), Senge opines that a learning organization is simply a vision which has a life and whose purpose it is to be generative to the world. This leads to the understanding that an organization is a living community of people with shared responsibilities (Fulmer and Keys, 1998:35) Senge's model, which is also known as the fifth dimension, is based on five principles, namely:

- Building a shared vision. This is the practice of unearthing shared pictures of the future that foster genuine commitment (Fulmer and Keys, 1998:35).
- Personal mastery. The skill that continually clarifies and deepens our personal vision.
- Mental models. The ability to unearth our internal pictures of the world, to scrutinize them, and to make them open to the influence of others.
- Team learning. The capacity to think together, which is gained by mastering the practice of dialogue and discussion.
- Systems thinking. The discipline that integrates the others, fusing them into a coherent body of theory and practice.

Senges' critics, e.g. Smith (2001:9), fault this model for being too idealistic, especially when most organizations in a capitalistic environment are profit-oriented. Others, such as Harris (1992:347), felt that Senge was just out to glorify or advertise himself, and also objected to the extensive use of simulation tales which make the theory more utopian than real.

The model falls short of this study's objectives. The theory of the fifth dimension is based on a learning organization which he defines as "organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together" (Senge, 1990:3).

3.3 Earl's Model: Conceptualization

Briefly, Earl's model, which went through several revisions (1986, 1988, 1989, and 2001) since its inception in 1983, it focuses on the different stages or phases through which organizations pass in planning their knowledge systems. The study bases itself on the latest (2001) Earl revision, which is based on seven branches grouped into three major schools of knowledge management: the technocratic school, which consists of codified systems; the commercial school, which uses codified systems to manage intellectual assets; and the behavioral school, which is mainly concerned with personal knowledge (Earl, 2001: 215-233; Blackman and Henderson, 2005:152; Hicks et al., 2007: 8 para; Hicks et al., 2006: 25). Earl saw his model as a solution to what he believed to be the failure of preceding KM models. Earl was mainly concerned with the creation, provision, sharing, use, and protection of knowledge, which he believes is more often than not inadequately managed, even while being a sustainable source of competitive advantage (Earl, 2001; Zack, 1999:8 para; Vasconcelos, nd.; Martensson, 2000; Numprasertchai & Igel, 2005). Knowledge management interventions are of the utmost importance for any organization to succeed and achieve its desired goals.

What makes Earl's taxonomy more appropriate than other classification systems with respect to this study is its holistic approach towards KM. Earl focuses on five parameters or indicators that allow the model to attain its goals, i.e. focus, aim, unit and success factors, and also the philosophy behind each school which is characterized by a "C" (Codification, Connectivity, Capability, Commercialization, Collaboration, ease of Contact and Consciousness). These stand out in each school by factoring in the use of information technology for effective impact and in inventorying what is to be managed (Earl, 2001:217). The figure below summarizes Earl's Taxonomy.

Figure 3.1: Schools of Knowledge Management

SCHOOL	TECHNOCRATIC			ECONOMIC	BEHAVIORAL		
ATTRIBUTE	SYSTEMS	CARTOGRAPHIC	ENGINEERING	COMMERCIAL	ORGANIZATIONAL	SPATIAL	STRATEGIC
FOCUS	Technology	Maps	Processes	Income	Networks	Space	Mindset
AIM	Knowledge Bases	Knowledge Directories	Knowledge Flows	Knowledge Assets	Knowledge Pooling	Knowledge Exchange	Knowledge Capabilities
UNIT	Domain	Enterprise	Activity	Know-how	Communities	Place	Business
EXAMPLE	Xerox Shorko Films	Bain & Co AT&T	HP Frito-Lay	Dow Chemical IBM	BP Amoco Shell	Skandia British Airways	Skandia Unilever
CRITICAL SUCCESS FACTORS	Content Validation Incentives to Provide Content	Culture/Incentives to share Knowledge Networks to Connect People	Knowledge Learning and Information Unrestricted Distribution	Specialist Teams Institutionalized Process	Sociable Culture Knowledge Intermediaries	Design for Purpose Encouragement	Rhetoric Artifacts
PRINCIPAL IT CONTRIBUTION	Knowledge-based Systems	Profiles and Directories on Internets	Shared Databases	Intellectual Asset Register and Processing System	Groupware and Intranets	Access and Representational Tools	Eclectic
"PHILOSOPHY"	Codification	Connectivity	Capability	Commercialization	Collaboration	Contactivity	Consciousness

Source: Earl (2001:217)

Although Earl (2001:216) avoids defining knowledge and KM, he does so in an indirect manner through the various schools in his taxonomy. What follows is an explanation of the relevance of the various schools (and branches) in Earl's framework with regard to this study.

3.3.1 Technocratic School (Systems, Cartographic and Engineering)

In the Technocratic School, we find the systems, cartographic and engineering branches. Their main focus is information and communication technologies (ICTs). ICTs are used as a platform or an interface between the knowledge owners and knowledge seekers. This is best exemplified in the creation of relevant recording systems in different formats to suit each branch as they strive to achieve their goals of managing tacit knowledge. Achievement of such goals is made possible through codified systems in the form of knowledge bases, knowledge directories and knowledge processes. It is through these codified systems that aspects of tangibility, ease of sharing transferability and storability are achieved due to the tacit knowledge being converted

into explicit knowledge. Explicit knowledge thrives through its visibility, access and use (Ocholla, 2007:4).

3.3.1.1 Systems School

The conversion of tacit knowledge to explicit knowledge is the main factor that is exemplified in the systems branch. Earl (2001:218-219) poses various situations where such tacit knowledge of experts has been successfully captured and coded into explicit knowledge. A case in point is that of a Xerox engineer faced with a technical problem which he solves through trial and error. By coding the solutions and having them assessed and validated by peers and experts, he is able to share the tacit knowledge with others. So too is the instance of a database created by Skandia International that was built over several years and made accessible to the entire Skandia network worldwide.

Citing the two examples raises several points that are relevant to this study with respect to Earl's model, such as the recognition and appreciation that tacit knowledge is codifiable, that it is shareable, and that it is compatible with modern technology. So what does this mean in terms of IK? The implication is that since the future of IK is uncertain (mainly due to its oral nature), the need to preserve it is paramount, and this can only be achieved through the repository (knowledge base) advocated by this school. For example, in the South African case there is the South Africa Bibliography Network (SABINET) which hosts all the research carried out in the country, and which also captures most IK research. A similar repository in Kenya is the Greenstone database which captures all Kenyan related research carried out within and outside the country.

3.3.1.2 Cartographic School

As the name implies, the cartographic branch is concerned with mapping organizational knowledge. It aims to record and disclose who in the organization knows what by building knowledge directories. Knowledge directories are not so much repositories of knowledge as they are gateways to knowledge, and the knowledge is as likely to be tacit as explicit. Since tacit knowledge is not easily explicated or articulated, the key issue is to identify who might be a source of knowledge anywhere in the firm through conversation and contact rather than through access to a knowledge base, which may not only contain inadequate knowledge, but also have answers to overly precise questions.

The cartographic branch takes note of knowledgeable people and informing others of their existence or location. Earl (2001:220) argues that the principal idea is to make sure that knowledgeable people in the organization are available to others for advice, consultation or knowledge exchange, a point that this author concurs would or could translate to global knowledge partnerships, and this can only be achieved when people in developing countries participate as both contributors, partners and users of knowledge (World Bank, 1998:i). By mapping IK, the study undertook a survey on what has been or is being done to IK with respect to five clusters, i.e. policies and legislation, governance structures, centres and systems, programmes and activities, and research and documentation in Kenya and South Africa.

Earl bases the cartographic school on what he refers to as people connectivity, where IT plays a leading role. It is through intranets and extranets that it is possible to locate knowledge resources and providers using directories. He further explains this by illustrating how Mckinsey and Company employed knowledge mapping and developed their first guide to experts in different practices within their firm in the early 1980s (Earl, 2001:225).

3.3.1.3 Engineering School

How can IK be relevant to diverse personnel? The principle of decentralization makes the provision of knowledge relevant to the personnel available through connectivity. Earl (2001:221) provides an example of best practices through Hewlett-Packard (HP), where the products and processes department mapped key knowledge areas within divisions in order to capture and make available known knowledge to support knowledge workers. HP also mapped knowledge links between divisions so that ideas could be shared between different groups of knowledge workers. Another example is the Selective Dissemination of Information (SDI), a marketing strategy used by libraries Earl (2001) to create awareness of various resources. This showcases how knowledge can be tapped into and made accessible to knowledge seekers at their time of need. An inventory of patented products could be made available to patent offices all over the world to ensure that patents' claims that duplicate innovations contained in the register are rejected (Mutula, nd:131).

IK dissemination initiatives, such as exhibitions, conferences and workshops, provide an opportunity for what Earl refers to as connectivity. It is through these gatherings that experts in a particular discipline tend to exchange and share knowledge for their own benefit as well as their organizations. Both countries in this study have endeavoured to do this. An example is the national exhibition and workshop held in 2008 in Pretoria, South Africa, that involved all IK stakeholders. The exhibition was held courtesy of the South Africa government through the Department of Science and Technology (DST) and National Indigenous Knowledge Systems Office (NIKSO). A similar event was organized in 2006 by the National Museums of Kenya, where the key theme was to safeguard the endangered oral traditions of East Africa.

3.3.2 Economic School (Commercial School)

The commercial branch is classified as economic because the underlying success is through what Earl (2001:222-223) refers to as "protecting and exploiting a firm's knowledge or intellectual assets to produce revenue streams (or rent)", and its philosophy is t Hedlund and Rolander, he pure commercialization of intellectual or knowledge property. One of the key issues with respect to intellectual property involves identifying the originator or owner of the know-how. A community that develops and applies particular IK in its culture generally owns the IK (Kaniki and Mphalele, 2002:11).

Due to IK's potential (financial benefits) and its danger of extinction, its protection is of paramount importance. For instance, the South African government, through the Department of Science and Technology (DST), recognized the complexities and challenges associated with IKS (DST, 2004:3) and hence proceeded to develop an IKS policy. The policy provides the framework for collaboration with other regional partners in Africa facing similar problems, e.g. bio-piracy, benefit sharing, and the poor recognition of IK holders. Kenya launched a similar cultural policy in March 2010.

This study integrated information from diverse sources in the hope of improving efficiency and instigating higher productivity and an increase in the revenues of rural communities by generating data to support the creation of a national IK repository or warehouse and/or an IK database where financial benefits could be garnered by the IK holder and the community at large.

3.3.3 Behavioral School (Organizational, Spatial and Strategic Schools)

The behavioral school can be divided into three branches - organizational, spatial and strategic - and focuses more on the organization from the behavioral perspective.

3.3.3.1 Organizational Schools

The main focus in the organizational branch is the social culture component, which brings out networking and sociability through linkages (Hicks et al., 2006:25). The organizational school describes the use of organizational structures or networks to share and pool knowledge. Often described as knowledge communities, the organizational arrangement consists of a group of people with common interests, problems or experiences.

This school brings out an important feature of knowledge communities in that they bring together knowledge and knowledge owners (Earl, 2001:224). The idea is to capture what everybody knows and to connect people who know. Such communities are designed and maintained for a business purpose and can be intra- or inter-organizational. The essential feature of communities is that they exchange and share knowledge interactively, often in non-routine, personal and unstructured ways, in an interdependent network.

Earl (2001:224) cites a typical productivity-through-knowledge project in BP, named "how we work now". Knowledge or expertise on critical operational tasks was first documented, then collected, synthesized, and codified in a system. Whenever a new experience occurred or a project was completed, post action reviews were conducted to assess initial goals, explore what actually happened, and analyze the difference between the outcome and intent. In this way, new knowledge was generated, validated by those who went through the experience as well as by experts.

3.3.3.2 Spatial School

This branch specifically focuses on the provision of space to facilitate knowledge exchange. It is also relevant to the study, particularly where IKS related programmes and activities are concerned. IK, which forms part of knowledge management, has crucial functions and importance in the knowledge management process, i.e. creation/production, storage, processing/codification, transfer and utilization, etc., and therefore requires significant attention,

hence the development of knowledge capital capability. This is achieved through the various workshops and conferences that provide space and platforms and also facilitate knowledge exchange.

3.3.3.3 Strategic School

Earl (2001:227) views knowledge management from a competitive perspective, where it may be seen as *the* essence of a firm's strategy. A good example is Skandia, which positioned intellectual capital as its corporation's core capability. Also CLARICA, the Canadian insurance and financial services company, pursued a program of intellectual capital development and located it within its corporate strategy unit. Both companies developed conceptual models to articulate and explain the purpose and character of intellectual capital, and both invested in complementary knowledge management initiatives to develop human competences as well as capture and share learning and know-how. This provides mechanisms for sharing this knowledge and integrating it with modern science and technology to enhance information dissemination, thus promoting social and economic development. One other aspect that Earl and Scott (1999:29-30) highlight is the position of the Chief Knowledge Officer (CKO), arguably thought to be the driver and coordinator of knowledge management in organizations.

3.5   Criticism of Earl's Model

Various studies have been carried out either based on Earl's model or using it as a point of reference, e.g. Blackman & Henderson's (2007) "Ontological analysis of knowledge management systems from Popperian and Heideggerian perspectives"; Blackman & Henderson's (2005) "Examination of the epistemological and philosophical problems in knowledge management"; and Handzic et al. (2008) in auditing KM practices, to name a few. Others have lamented its shortcomings. For instance, Perrin and Rolland (nd: np) have argued that whereas there was evidence of knowledge transfer occurring in their study, there were problems with effectively measuring the knowledge transfer process. They therefore argued that it was clear that measures of knowledge are not universal or even generic.

Others, like Blackman & Henderson (2005:158), fault other issues in some of the schools of Earl's model, e.g. the cartographic school. According to them, the school enables the sharing of

"how, what, where and which" kinds of knowledge but doesn't address the "know why", which makes it difficult to validate the knowledge that the school alludes to. Secondly, it leaves a gap of not being able to understand why a particular problem happens, therefore relying on what is already documented. This is where intangibility poses a challenge when trying to answer questions as to "why". The issue here is lack of evidence of the validation process where the process in question has to be tested over time and be used for problem solving (Ocholla, 2007:4). Their argument is that the lack of validation explains why managers who solve problems based on expert directories could lead to poor outcomes.

This is also intensified in instances where problems are ill-specified - the language and processes deployed by the expert's knowledge may take precedence over the description of the problem as it is experienced. The net result here is the existence of an informal body of knowledge with experts likely to supersede formal knowledge management systems (KMS). Thirdly, as outlined earlier in the text about Earl's main concerns with the creation, provision, sharing, use, and protection of knowledge, he gives less attention to its transformation, which is intertwined with this process. Also missing is any mention of semi-articulated ideas which are still too immature or naïve to be entirely made explicit for the purpose of implementation and are nonetheless still consciously or unconsciously part of brainstorming activity (Gabberty & Thomas, 2007:4). Belsis et al. (2007:191) are skeptical that the technocratic school in particular is more objective by emphasizing information technology as a way of capturing, storing, and disseminating knowledge, thereby ignoring the subjective**.**

3.6 Conclusion

The important role played by information technology and knowledge management as strategic enablers have been emphasized in Earl's model. IT and KM enable organizations to shift gears in managing knowledge so that they can create and maintain what is referred to as superior organizational routines that result in competitive advantage (Kakabadse et al., 2003: 87). Earl's model is inclined to be cognitive in its approach since it focuses on certain aspects, such as the reutilization of knowledge and the adoption and efficient exploitation of IT, especially in the codification, storage, retrieval and transfer processes (Kakabadse et al., 2003:82).

Earl's model stands out as a firm guide for appreciating critical issues that face developing countries such as Kenya and South Africa. The current financial crisis facing major global economies such as the US, the UK and Japan raises many questions, especially in terms of what lessons can be learned by us - the so called weak and marginalized economies.

Global to local IK initiatives are a key indicator of the important role played by IKS. This importance is exemplified by the emphasis in Earl's organizational school on networks for pooling and sharing knowledge. This trickles down to global initiatives such as the World Bank's IK development initiative, where the bank has partnered with the Economic Commission for Africa (ECA), Centre for Information Society Development in Africa (CISDA), the International Development Research Centre (IDRC), the International Telecommunication Union (ITU), United Nations Educational Scientific and Cultural Organization (UNESCO), United Nations Development Programme (UNDP), World Health Organization (WHO), Centre for International Research and Advisory Networks (CIRAN), Netherlands Organization for International Cooperation in Higher Education (Nuffic), Southern Africa NGO Internet Provider (SANGONet), World Intellectual Property Organization (WIPO), and International Labor Organization (ILO) [World Bank, 1998:15].

The World Bank's initiative has successfully given rise to:
A promotional brochure on IK in English, French and Portuguese IK practices database (about three dozen practices are synthesized and referenced) "IK-Notes", a monthly periodical used to disseminate IK practices as encountered by the bank to external audiences (15,000 mailings per issue). An IK webpage can be accessed at: http://www.worldbank.org/html/afr/ik/index.htm.
Contributed "Box" on IK for the 1998/99 "World Development Report: Knowledge for Development" (World Bank, 1998:16).

The 1992 Convention on Biological Diversity (CBD) recognized the value of traditional knowledge in protecting species, ecosystems and landscapes and also traditional knowledge's direct bearing on conservation, sustainable use and benefit sharing. IPRs were included as part of the negotiations, and it became apparent that the issue of IPRs is contentiously viewed when the

Bush administration refused to sign the convention in Rio. This was just one of many manifestations of the challenges facing IKS, especially in its global recognition and acceptance.

More research needs to be undertaken on how to integrate, harmonize, and effectively fuse IK into the global knowledge system while also appreciating its tacitness and considering ways and means of effectively codifying it to the point that it can be effectively disseminated. This also means finding the best way to tap into IK without it losing its original value and meaning; considering other issues pertaining to its protection; and taking into consideration communal ownerships and appropriate modes of access and benefit sharing. The New Partnership for Africa's Development's (NEPAD) concept of "African solutions to African problems" (ECA, 2007:2) should also be empirically researched for future application in the effort of recognizing and appreciating IK, and especially in streamlining it into the global knowledge system.

3.7 Summary

This chapter highlighted various theoretical frameworks on knowledge management with particular emphasis on Earl's model which underpinned this study. The next chapter describes the methodology that was used to carry out this research

CHAPTER FOUR

Research Methodology

4.1 Introduction

This chapter describes the methodology, approaches and procedures that were used to carry out this research under: i) An introduction to research methodology, ii) Approaches to research, iii) Research design, iv) Research method, v) Study area, vi) Target population, vii) Data collection instruments, viii) Research tools, ix) Data analysis and interpretative approaches, and x) The problems encountered.

4.2 Approaches to Research

Nachmias and Nachmias (1996:13) define research methodology as a scientific system that consists of explicit rules and procedures upon which research is based and against which claims of knowledge are evaluated. They add that this system is neither unchangeable nor infallible. Instead, the rules and procedures are constantly being improved as scientists continue to look for new methods of observation, analysis, and making logical inferences and generalizations. The choice of research methodology is determined by different factors and/or settings, for example on whether a researcher wishes to discover some external truth in a lab environment or explore and unpick people's perspectives in their natural settings (Gray, 2004:25). Kothari (1990:10) thus states that research methodology is a systematic way to solve a research problem where a researcher adopts various steps to study the problem along with the logic behind the problem.

There are two recognized approaches to research, namely the qualitative and quantitative paradigms (Fouche and Delport, 2002 in De Vos et al., 2006:73). The quantitative approach, also referred to as the traditional, positivist, experimental or empiricist approach, is "typically used to answer questions about the relationships among measured variables with the purpose of explaining, predicting, and controlling phenomena" (Leedy, 1997:102). Leedy explains that the qualitative approach, which is also known as the interpretive, naturalistic, constructivist or the post-positivist approach, is "typically used to answer questions about the nature of phenomena with the purpose of describing and understanding the phenomena from the participants' point of

view". Additionally, in seeking solutions to problems, the qualitative paradigm allows the researcher to "get close to the data", hence developing the analytical, conceptual and categorical components of explanation from the data itself (Weingard, 1993:19). Marshall and Rossman (1999:46) offer guidelines on situations that are ideal for the qualitative approach as follows: Research that cannot be done experimentally for practical or ethical reasons; Research that delves in depth into complexities and processes; Research for which relevant variables have yet to be identified; Research that seeks to explore where and why policy, folk wisdom and practice do not work; Research on unknown societies or innovative systems; Research on informal and unstructured links and processes in organizations; and Research on real as opposed to stated organizational goals.

Weingard, (1993:19) also differentiates between the two approaches, stating that, "The most obvious distinction (between quantitative and qualitative approaches) is that quantitative methods produce numerical data and qualitative methods result in information which can best be described in words." De Vors et al. (2006:75) provide a more detailed comparison between the two, as shown in Table 4.1.

Table 4.1: A comparison of the quantitative and qualitative approaches in social research

Quantitative approach	Qualitative approach
Epistemological roots in positivism	Epistemological roots in phenomenology
Purpose is testing predictive and cause-effect hypotheses about social reality	Purpose is constructive detailed descriptions of social reality
Methods utilize deductive logic	Methods utilize inductive logic
Suitable for a study of phenomena which are conceptually and theoretically well developed; seeks to control phenomena	Suitable for a study of a relatively unknown terrain; seeks to understand phenomena
Concepts are converted into operational definitions; results appear in numeric form and are eventually reported in statistical language	Participants' natural language is used in order to come to a genuine understanding of their world

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The research design is standardized and done in a standardized manner	The research design is flexible and unique and evolves throughout the research process. There are no fixed steps that should be followed and design cannot be exactly replicated
Data sources are obtained systematically and in a standardized manner	Data sources are determined by information and richness of settings; types of observation are modified to enrich understanding
The unit of analysis is variables which are atomistic (elements that form part of the whole)	The unit of analysis is holistic, concentrating on the relationships between elements, contexts, etc.; the whole is always more than the sum

Source: De Vors et al. (2006:75)

Neuman (2006:150-151) argues that both approaches to research design and method (i.e. quantitative and qualitative) can be used together to enhance research studies, thus making this approach more comprehensive. This study used both approaches in research design, data collection, analysis and presentation. The qualitative approach was used to solicit diverse information with respect to the management of IK through interviews and focus group discussions. The quantitative approach mainly covered the IK research trends that were analyzed using bibliomerics. Since the researcher used both research paradigms, De Vors et al.'s (2006:79) Table (4.1) was of great help in the whole research process.

4.3 Research Design

Mouton (1996:107) defines research design as "a set of guidelines and instructions to be followed in addressing the research problem". He states that the main function of a research design is to enable the researcher to anticipate what the appropriate research decisions should be in order to maximize the validity of the results. In fact, it is the blueprint of the research project that precedes the actual research process. Neuman (2000:122) agrees that the "deductive approach emphasizes detailed planning prior to data collection and analysis". It can also be

referred to as a framework or a plan for a study that is used as a guide when collecting and analyzing data (Churchill, 1991:127).

The rationale for a research design is to plan and structure a research project such that the eventual validity of the research findings is maximized by either minimizing or where possible eliminating all possible error (Mouton, 1996:108). Saravanavel (1991:90) elucidates that the research design should be able to specify the sources and types of information relevant to the research question, the approach that was used to gather and analyze data, and the limitations of the study (e.g. time and cost).

The study focused on the management practices of IK in both Kenya and South Africa. This involved identifying IK policies and legislation, governance structures, centres and systems, programmes and activities, and the research trends in both countries. Individuals, particularly at senior management level, were consulted to obtain data about the above. The following listed processes were considered and consequently formed the basis for the design and planning of this study: Identifying a researchable topic; Assessing the suitability of the research approach; Formulating the problem/ research question; and finally Drafting the research proposal

Since the study incorporated both quantitative and qualitative research approaches, the third phase incorporated both strategies as indicated in the table below. An in-depth literature review was carried out while simultaneously determining the research strategy. A pilot study was also carried out through the Department of Arts and Culture.

Table 4.2: The Social Research Process

Steps common to the qualitative and quantitative processes

Phase 1: Selection of a researchable topic
Step 1: Identify a researchable problem/question
Phase 2: Formal formulations
Step 2: Assess the suitability of the research approach Step 3: Formulate the problem/question/hypothesis Step 4: Draft the research proposal

Steps unique to the Quantitative process   **Steps unique to the Qualitative process**

Phase 3: Planning	
Step 5: Undertake an in-depth literature Review Step 6: Select a research design Step 7: Select method(s) of data ccollection and analysis Step 8: Select a sampling plan	Step 5: Select a paradigm and review relevant literature Step 6: Select a research strategy or strategies Step 7: Select method(s) of data collection and analysis Step 8: Frame and develop the sample
Phase 4: Implementation	
Step 9: Conduct a pilot study Step 10: Conduct the main research	Step 9: Consider the applicability of elements in a pilot study Step 10: Collect materials, record and undertake the literature review
Phase 5: Interpretation and presentation	
Step 11: Process and analyze data and interpret results Step: 12 Write the report	Step 11: Process and analyze data and verify results. Select additional criteria for judging adequacy Step 12: Plan narratives and write the report

The research proposal was developed in consultation with the research supervisors and highlighted the following aspects of the study (among others): the research topic; statement of the problem; aim and objectives; research questions; research design; and data analysis and presentation. The objectives of the study are outlined below, including the approach to each.

Table 4.3: Objectives of the study

RESEARCH OBJECTIVE	RESEARCH METHOD	RESEARCH INSTRUMENT
Identify existing IK policies and legislation	Survey/ Interview	Interview
Explore and analyze the IK structures	Critical Literature Review/ Interview	Content Analysis
Examine the IK centres and systems in terms of their roles	Survey/ Observation	Interview/ Observation
Identify what IK programmes and activities are in existence and when they are held	Interview/ Observation	Interviews/ Databases/ Content Analysis
Determine the status, trends and types of IK research	Bibliometrics	Selected Databases, e.g. SABINET, Greenstone
Develop a conceptual model for an IK management system	Critical Literature Review	Content Analysis

The preparation and presentation of the work plan is provided in the Appendix. It tentatively outlines the estimated time span of the study and provides a breakdown of how each of the chapters in the paper was tackled each month.

The study used the survey approach, which is a non-probability research technique. Surveys are appropriate for research questions because they integrate various components involved in a

study, such as behaviour, attitudes, beliefs, opinions, characteristics, expectations, and knowledge (Neuman, 2000:247). Neuman further explains that written questionnaires and formal interviews are usually used to gather the above mentioned information.

The method of survey research is ideal when the researcher does not manipulate a situation or condition to see how people react (Neuman, 2006:43). This study sought to determine the status of IKS within Kenya and South Africa and how it is managed. A quantitative strategy was used to select subjects purposively, supported by the snowballing technique (which is a qualitative strategy). De Vors et al. (2006:357) explain that the idea of combining these approaches (quantitative and qualitative) in a single study owes much to past discussions about mixing methods, linking paradigms to methods, and combining research designs across all phases of a study. They explain that in a combined method, the researcher uses multiple methods of data collection and analysis. In this instance, the study used bibliometrics to determine the research output on IK and in-depth interviews to audit the structures and systems in place. This combination is what is also referred to as triangulation, which can be applied in various ways (De Vors et al., 2006:361-2). Dezin describes four different types of triangulation methods, namely:

Data triangulation, meaning the use of more than one data source, such as interviews, archival materials, observational notes, etc. Investigator or observer triangulation, such as the use of more than one observer in a single study to achieve inter-subjective agreement. Theory triangulation, which is the use of multiple theories or perspectives to interpret a single set of data. Methodological triangulation, which denotes the use of multiple methods to study a single topic, such as the use of both quantitative and qualitative techniques in a single study (Padgett in De Vors et al., 2006:362)

This study applied items 1 and 4. The historical approach, which encompasses their origins, growth, theories, personalities, crisis and any earlier information about a certain phenomenon, was used in this study because it assisted in the interpretation of data, which is paramount to any research (Leedy and Ormrod, 2005:161).

4.4 Pilot Study

Pilot studies are a prerequisite to any successful research. According to Van Teylingen and Hundley (2001:1), pilot studies are mini versions of a full-scale study or may be referred to as feasibility studies. The focus is often on the specific pretesting of a particular research instrument such as a questionnaire or interview schedule. This means that they are usually conducted in order to rectify any anomalies that crop us as the instruments are tested prior to the main study. They are very important because they help resolve issues that seldom appear in proposed methodologies (Selttiz et al in Thietart et al, 1999:126). Thietart et al (1999, 126) postulate that pilot cases aim to assess the feasibility of the research by evaluating the reliability and validity of the data collection tools used regardless of whether the study is qualitative or quantitative.

The following are some of the benefits of pilot studies as highlighted by Miguel et al (2010:74-75):

Pilot studies develop early contextual sensitivity through the collection of essential information for effective research design and greater awareness of dynamic events, agents and circumstances that can positively modify the flow of the research process and affect decision making

- They can be used to frame questions, collect background information, and refine a research approach in addition to tailoring efficient research instruments
- They are known to be unique in such a way that they adapt to the situation on the ground and vary from one study to the next
- They minimize problems encountered on the field that may overwhelm or confuse the researcher
- Pilot studies save time invested in unfeasible projects since most gaps emanate during the pilot testing stage
- They increase the likelihood of success of the main study
- They give the researcher the opportunity to check whether or not the sample frame is theoretically relevant or even feasible. In addition, the substantive data extracted from pilot findings can be used to design ensuing stages of data collection, thus reinforcing the researcher's audit trail and enhancing the vigor of qualitative research
- They are an invaluable source of contextual data, and have the ability of moving the researcher into the phenomenon ecology and into the core of respondents' accounts, thus

partitioning the broad emergent theory into workable and theoretically relevant conceptual units

Whitheley & Whitheley in Miguel (2010, 75-76) likewise stipulate that it is through pilot studies that insights can be gained on what to choose from different approaches: "The notion of a familiarization study entails visualization of the proposed research context in such a way that recognition is made that very often, the researchers knowledge of the context, that is the inside environment, can be improved."

Following the above, a pilot survey survey was conducted in the month of May 2007. The application of the scientific procedures proved the importance of the validity and reliability of the research instruments. The following table provides a summary of the activities that preceded the pilot.

Table 4.4: Activities prior to and after the pilot study

ITEM	DETAILS /ACTIVITY	DATES
Discussions	To revise and refine the research instrument. This exercise involved 3 researchers and three research assistants	2nd April 07
Training	Training of the three research assistants	3-4th April
Data collection protocol	Research application was submitted to the University of Zululand through the Department of Library and Information Studies, South Africa, and also to the Ministry of Science and Technology	April
Data collection protocol	Research was approved by the University of Zululand through the Department of Library and Information Studies. The Kenyan component was approved by the Ministry of Science and Technology.	May – August 2007

Pretesting of research instrument	Survey by the researcher at the Department of Arts and Culture in Pretoria	16th – 17t April
Data compilation	Pre-coding of instrument and data analysis	18th -20th
Report writing	Report writing	23rd – 30th

4.4.1 Findings and lessons learnt from the pilot study

The study revealed that the focus group discussions (FGDs) that were initially included as a data collection instrument were not ideal due to the nature of the study.

It also revealed that the interview guide could also be used as a questionnaire but needed to be customized by adding a paragraph or two to introduce the respondent to the kind of study being undertaken. The objectives of the study were included in the introduction to the study.

Some questions were ambiguous and confused the respondents. The researcher therefore had to redesign and rephrase the interview guide. The questionnaire was deemed appropriate in the data collection when the respondents could not have time for the interviews and where the researcher needed to avoid interview bias.

4.5 Study Area and Population

The study was conducted in two countries, i.e. Kenya and South Africa, but was not defined geographically. The researcher opted to restrict the study to only two cities, i.e. Nairobi in Kenya and Pretoria in South Africa. The cities were selected because the main structures or centres that manage IKS are based within them. The Ministries of Gender, Sports, Culture and Social Services are located in Nairobi (Kenya), and the Ministry of Science and Technology is in Pretoria (RSA).

A population is a collection or a set of elements, also referred to as 'population elements', which meets a certain definition or specification (Mouton, 1996:134). Mouton explains that populations in the context of sampling are always 'constructed' or 'defined' sets of elements, meaning that they are not naturally given entities. Neuman (2006:224) describes a population as an abstract

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idea of a large group of many cases from which a researcher draws a sample and onto which results from a sample are generalized. Nachmias and Nachmias (1996:179-180) also refer to a population as the aggregate of all cases that conform to some designated set of specifications and further stipulate that the specific nature of the population depends on the research problem and has to be defined in terms of content, extent, and time.

It is from a population that the researcher narrows down and defines a study group. The target population consists of the specific pool of cases that one wants to study (Neuman, 2006:224). The target population in this instance is therefore institutional, inclined as it was to IK structures such as the Ministries of Gender, Sports, Culture and Social Services (Kenya), the Ministry of Science and Technology (RSA), IK systems and centres (such as NGOs), academic and research centres, IK programmes and activities, and IK research and documentation in both Kenya and South Africa. Section 4.6 provides further detail on the sampling strategies that were used to select these five clusters and the informants within them.

4.6 Sampling Strategies

Sampling is all about representativeness, in other words 'truthfully' and 'faithfully' representing the population from which the sample was drawn (Mouton, 1996:136). Busha and Harter (1980:59) explain that once the population has been defined, a sample is drawn that adequately represents that population. This is then used in a study so that the findings can be generalized onto the larger group or population. Since the population of this study consisted of organizations, institutions, databases and activities, and because it was impractical to collect data from them all, the population was narrowed down to a representation or sample of the population.

In order to conduct an in-depth study and acquire an acceptable or precise degree of reliability and validity, the researcher used different sampling techniques to select the population sample. When selecting or sampling, the aim is to get a sample that is as representative as possible of the target population (Mouton, 1996:110). Mouton states that this representativeness is the underlying epistemic criterion of a valid, unbiased sample. Nachmias and Nachmias (1996:179) point out that since it is often impossible, impractical or extremely expensive to collect data from

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all the units of analysis covered by the research problem, sampling or a relatively small number of units (subset) can be accurately used to represent the relevant attributes of the whole set.

4.6.1. Multi-stage sampling

Non-probability sampling techniques were used to create a sampling frame through cluster and multi-stage sampling. Bless and Higson-Smith (2000:90-91) explain that multi-stage sampling involves the use of different sampling techniques at different levels depending on the research or study in question. The authors explain that the main advantage of multi-stage sampling is its application when other sampling methods fail because of the lack of a comprehensive list of all the elements in a population, and/or because of impossibly high costs. This study lacked a good sampling frame because of its diverse coverage of the management of IK, i.e. the existing legal frameworks, structures in place, various activities, research trends, etc. According to Neuman (2006:233–234), multi-stage sampling addresses the lack of a good sampling frame for a dispersed population. Gray (2004:87) elucidates that multi-stage sampling acknowledges when there is difficulty in sampling a population as a whole and when convenient sampling frames are not available. This approach was applicable in selecting some of the key informants from the Ministries of Gender, Sports, Culture and Social Services (Kenya), the Ministry of Science and Technology (RSA), IK systems and centres (such as NGOs), academic and research centres, IK programmes and activities in both Kenya and South Africa.

4.6.1.1 Indigenous Knowledge Policies and Legislation

Various government publications were initially obtained from the Kenya Government Printers Bookshop, where one is provided with a catalogue from which to select relevant items. Policies and legislation are also covered by online websites such as Kenya Law (at http://www.kenyalaw.org) and Kenya Parliament (at http://www.bunge.go.ke). The same applied in the case of South Africa through their government portal (http://www.gov.za, and also on http://www.polity.org.za).

Once found, the government publications, such as the constitution and various acts, bills, policies and development plans, were scanned for information in order to investigate the status of IK legislation in both countries and whether there were specific laws or policies in place for the management of IKS. This was also done to enhance the reliability and validity of the critical

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literature review. Apart from the methods mentioned earlier in this section, data was also obtained from interviews and focus group discussions.

4.6.1.2 Indigenous Knowledge Governance Structures

This cluster covered government structures that were formally mandated to deal with IK in the two countries. It specifically dealt with specified government ministries or departments that were overseeing national IK goals and policies (e.g. funding policies, policies on institutional collaboration, and strategic plans for future development) [Minishi-Majanja, 2004: np]. Therefore, issues such as types of coordination, collaboration, funding, and networks with other players for the development of IK were taken into account in this cluster. At the time of study, the Ministry of Gender, Sports, Culture and Social Services (renamed the Ministry of State for National Heritage and Culture) was mandated to manage IKS through the Department of Culture in Kenya.

The Department of Culture consists of five divisions:

- Visual arts
- Performing arts
- Language and traditions
- Cultural education, information and research
- Indigenous health, nutrition and environment

The researcher aimed to involve all five of the heads of the above divisions, but only three were available. However, the researcher was provided with various documents to fill in what may have been omitted during the deliberations. The researcher also visited the Ministry's website to supplement the above.

In South Africa, the Department of Science and Technology was the department that dealt directly with IK at the time of study, with an IK office in addition to an IK policy that was enforced in 2006. Interview appointments were made via email, and the researcher was able to interview two heads of departments out of the three that made up the Head Office, i.e. the National Indigenous Knowledge Systems Office (NIKSO). Efforts to secure an appointment with the general manager proved futile, but he was very helpful and decided to fill in the interview schedule when he had time on his hands.

4.6.1.3 Indigenous Knowledge Centres and Systems

This cluster represented all the other organizations that did not fall under 'structures'. Most of these were other government departments, NGOs, research institutions and academic institutions. Under this cluster, the study also looked at libraries, archives, museums, and ministries or departments. This cluster unearthed issues surrounding legal deposits, records available, coordination, and collaboration in the concerned centres and systems.

The researcher approached this cluster using the snowballing technique having been informed that most organizations exist only on paper, and do very little (if anything) to achieve their goals. A lot of emphasis was placed on observation in order to verify the outcomes of the interviews.

4.6.1.4 Indigenous Knowledge Programmes and Activities

The study investigated whether there were programmes and activities that promoted IKS. The study sought to find out what IK programmes and activities were taking place and which bodies and organizations were responsible for them. This cluster represented those who played the role of promoting greater awareness of IKS.

4.6.1.5 Indigenous Knowledge Research and Documentation

This cluster targeted recognized IK research output from organizations, databases and individuals through bibliometric analysis. The study limited itself to the period spanning from 1990 to 2008. Both international (OCLC - Online Computer Library Center, MEDLINE, AGRICOLA) and national (Southern African Bibliographic Information Network - SABINET, Current and Completed Research - CCR, Union Catalogue of Thesis and Dissertations - UTD, and Index to South African periodicals - ISAP for South Africa, and Greenstone Database for Kenya) databases were scanned for information. This cluster plays a very important managerial role because it is about the preservation, conservation and dissemination of IK.

Bibliometrics is traditionally associated with the quantitative measure of documentary materials and it embraces all studies that seek to quantify the process of written communication, i.e. the application of mathematical methods to books and other media of communication. Bibliometrics methods are used especially in studies of properties and the behaviour of recorded knowledge to analyze the structures of scientific and research areas and to evaluate the research activity and administration of scientific information (Wormell, 2001; Ungern-Sternberg, 1995). Bibliometrics can also overlap with informetrics, the mathematical and statistical study of patterns in

documentation and information, and scientometrics, the mathematical and statistical analysis of research patterns in life and the physical sciences. It is also associated with cybermetrics, the study of the quantitative analysis of scholarly and scientific communications over the Internet, and even cliometrics, the study of historical data by use of statistical techniques (Jayroe, 2008:2). Bibliometrics criteria are also especially suited to assessing research productivity and hence research performance, through: the number of publications produced; the quality of the sources in which the published material appears; how much of the work is individual, grouped, or organizational; and the quality of the citations as judged by the perceived quality of the citing journals (Lancaster, 1991:6).

Bibliometrics can also be successfully applied to the following areas (Sengupta, 1992:84):

- Quantitative growth of literature
- Obsolescence and scattering of information
- Efficiency of information products and services in science and technology and production
- Efficiency of information systems and the information establishment in general
- The role of different kinds of documents as a means of scientific communication
- Information pertinence and relevance
- Ranking of periodicals and serials by various parameters
- The role of informal channels in scientific communication
- Overlapping of subject content between periodicals and serials
- Citation habits of scientists and the growing role of citation analyses
- Interdisciplinary relations on the basis of bibliographical references

Of the studies on IK (from diverse perspectives) that have been carried out both regionally (in Kenya and South Africa) and internationally (see chapter one), there are some related studies done from a bibliometrics perspective. An example worth noting is "HIV/AIDS research and the youth: an informatics analysis of the literature" which was: "An analytical overview of the HIV/AIDS literature relevant to the youth with the view to determining and comparing the nature, trends, and type of the pandemic's research and other characteristics as indexed in the

AIDSearch database between 1982 and 2002" (Onyancha & Ocholla, 2005). More in keeping with this study is an informatics study carried out by Onyancha & Ocholla (2005) which applied descriptive bibliometrics to determine the status and trends of IK development from 1990 – 2002 in Kenya. It therefore seemed appropriate to apply bibliometrics to assess IK research output in both countries.

4.6.2 Purposive Sampling

Purposive sampling, also known as judgmental sampling, is a non-random sampling technique in which the researcher uses a wide range of methods to locate all possible cases of highly specific and difficult-to-reach populations (Neuman, 2006:222). Purposive sampling is based entirely on the judgment of the researcher, meaning that the sample is composed of elements that contain the most characteristic, representative or typical attributes of the population (Singleton et al., 1988:153).

Kothari (1990:73) likewise explains that purposive sampling is synonymous with deliberate sampling, and items for the sample are selected deliberately by the researcher. The researcher also has absolute power in terms of selecting the sample size and its suitability to the study (Selltiz, 1959:520). The purposive sampling technique was applied to select centres and activities in the Ministry of Culture, Sports and Gender that deal with IK. It was also applied to select the key informants who headed the various IK Departments of Science and Technology in South Africa and the Department of Culture in Kenya. This resulted in a fair representation of the cultural diversity of the two countries and the various levels of knowledge, management, and development of the personnel.

4.6.3 Snowball Sampling

Snowballing is synonymous with "chain referral sampling" (Bailey, 1994:96). Neuman (2006:223) defines snowball sampling as non-random sampling where the researcher begins with one case, and based on information about relationships or networks from that case, identifies other cases, and repeats the process continuously to find more subjects.

Various key personalities from the various institutions visited (interviewees) referred us to others, and those in turn referred us to other people they knew. For instance, the Department of Arts and Culture, Department of Science and Technology (South Africa), Ministry of Gender, Sports, Culture and Social Services, and KENRIK (Kenya) all suggested and recommended names of informants who they felt would shed more light on the study. It is this technique that led to the researcher's visits to personalities in the Eastern province in Kenya and also indigenous nurseries in Roodeplaat in Pretoria, to cite two examples.

4.7 Sample Size

A sample size of twenty organizations, 13 from Kenya and 7 from South Africa, was selected for this study. The sample size was different for the two countries because of the different management systems and the use of the snowball sampling technique. The key informants (senior management positions within organizations) in many cases consisted of more than one person per organization.

From Kenya, the following institutions were represented by informants in the interviews:
National Environment Management Authority (NEMA) – the Director
Kigari Teachers College - Teacher in charge of African languages
Kenya Broadcasting Corporation- Managing Director
Ministry of Education – Senior Quality Assurance & Standards (Two respondents were interviewed)
National Archives – Deputy Director
National Council of Science and Technology – Science Secretary (Agricultural and Allied Science) and a Scientist
Royal services Media – Production Manager
National Museums - Scientist
Kirigi primary school (the Head Teacher and her Deputy)
 Ministry of State for National Heritage and Culture - Assistant Director
Ministry of State for National Heritage and Culture - Chief Cultural Officer
Ministry of State for National Heritage and Culture - Senior Cultural Officer

South Africa's list consisted of:

National Archives – Outreach and Publications (Archivist)

National Office on IKS (DST) – General Manager

Department of Agriculture – Curator

Agricultural Research Centre (ARC) – Research Team Leader

Department of Science and Technology – Advocacy and Policy Development (APD)- Manager

Department of Science and Technology – Knowledge Development (KD) – Management

Museum, Northern Flagship Institution (NFI) – Deputy Director

Agricultural Research Centre (ARC) – Researcher

National Heritage Centre (NHC) – Funding Manager

Indigenous Knowledge Systems of South Africa (IKKSA) - Acting CEO

Department of Arts and Culture (DAC)- Heritage Institutions Assistant Manager

Department of Arts and Culture (DAC)– Deputy Director, Indigenous Knowledge Systems (IKS), Heritage

Department of Agriculture (DoA) – Director, Plant Production

4.8 Research Instruments

These consisted of field visits, interview guides, observation, and a document review/ critical literature review. The study used detailed interview guides with both structured and unstructured questions as the main research instrument. This was used to obtain both quantitative and qualitative data.

4.8.1 Interviews

Neuman (2006:304) informs us that interviews are used to gather information in many different settings and cites examples such as employers interviewing prospective employees, or medical personnel interviewing patients. An interview is a conversation between people in which one person plays the role of researcher (Gray, 2004:213). The main aim of an interview is to enable the respondents to express their point of view fully and in their own way (Finch, 1990:133).

The interview guide had an introduction with the researcher's name and a brief background of the study, including an explanation of the study's objectives. The researcher also clarified key terms to the interviewees that might have generated confusion, e.g. the definitions of terms such

as activities and programmes. The researcher also asked the respondents for consent in recording the interview, explaining that it was purely to assist with analyzing data and providing clarification.

Prior to conducting the interviews, the researcher made appointments with the chosen subjects telephonically. Both face-to-face and telephonic interviews were conducted. Telephonic interviews were only carried out in Kenya and largely depended on the availability and location of the interviewees. For instance on one occasion, the researcher had to interview a key informant who was attending a workshop in Kisumu and was to continue to other provinces for other official duties.

Key IK managers were interviewed. The interviewees consisted of the group that was purposively selected and other groups that were selected via snowballing sampling. The (interview) instrument assisted in drawing out the opinions, beliefs and attitudes of the recipients and also the various management practices in place.

The detailed interview guide (which was uniform for both countries) consisted of questions that covered all five clusters and was largely unstructured. Each of the covered sections had a few close-ended questions which, if answered in the affirmative, required more detailed information, but if answered negatively, required nothing further. In the latter case the time span for the interview was very short.

The interview guide consisted of six sections. Section one consisted of the name and department of the respondent. The second part covered policies and legislation, such as white/ green/ sectional papers, acts, and laws. The third part covered governance structures, i.e. ministries responsible and how they are structured from national to grassroots level. The fourth part concentrated on centres and systems, e.g. libraries, archives, museums, NGOs, ministries and departments and their roles. The fifth section covered programmes and activities, e.g. conferences, workshops, exhibitions/ displays, and festivals. And finally the sixth section covered research and documentation, e.g. local databases, recognized research output by individuals or organizations - all these in relation to IK.

4.8.2 Observation

Observations play a vital role in qualitative research (Slater, 1990:133). Observation was used simultaneously with interviews and applied more to IK centres/ programmes/ activities and also to all referred cases during the interviews. The observation method assisted the researcher in comparing and verifying what was said and what was happening in reality. Various photos were taken during the interviews. This enhanced the tangibility or reality of the various situations.

4.8.3. Critical Literature Review/ Content Analysis

Content analysis is a technique used to examine the content of information and symbols in written documents (Neuman, 2006:44). Neuman states that it helps the researcher discover and document specific features that might go unnoticed. This technique was particularly important in this instance because it allowed the researcher to identify the IK research conducted in both countries.

The literature review was carried out in order to identify relevant information. Thus libraries and resource centres in both countries were consulted. Government legislation and reports, institutional policy documents, institutional curricula, dissertations, and workshop reports were also located and relevant information extracted through content analysis. Both print and electronic resources were consulted. This research instrument was used to determine the research output on IK in both countries and the respective databases mentioned under the IKS research and documentation cluster.

4.9 Data collection techniques

To achieve the objectives of the study, the key informants at senior management level who were well versed with information pertaining to five clusters were interviewed in the Ministries of Gender, Sports, Culture and Social Services (Kenya), the Ministry of Science and Technology (RSA), IK systems and centres (such as NGOs), academic and research centres, and IK programmes and activities, which are concerned with IKS management.

Data was collected using an open-ended questionnaire and an interview schedule, a voice recorder, and a camera. Because key informants in both Kenya and South Africa understood English, the interviewer used the English language as the language of proficiency. The open-

ended responses and recorded interviews were analyzed using content analysis. Because of the qualitative nature of the questionnaire and the relatively high number of respondents in both countries, the analysis was split into two sections, each section covering each country.

Different approaches were used to collect data depending on the cluster that was being addressed (chapter five, section 5.3). For instance the cluster of legislation involved the following:

- Online access to various websites

- Title catalogue from the government printers

- Interviewing subjects from related organizations

- Materials acquired from the related institutions

- Available acts/ papers from sessions/ policies/ reports in libraries

The other clusters derived their data mainly from interviews, supplemented by catalogues and websites.

4.10 Summary

This chapter highlighted the methodology, approaches and procedures that were used to carry out this research. The next chapter presents data collected from Kenya between December 2006 and October 2008. The necessary fieldwork was carried out and IK was mapped and audited under five clusters, namely: i) Policies and legislation, ii) Governance structures, iii) Centres and systems, iv) Programmes and activities, and v) Research and documentation.

CHAPTER FIVE

The Mapping and Auditing of Indigenous Knowledge (IK) in Kenya

5.1 Introduction

The previous chapter described the research methods that were used in carrying out this study. This chapter presents data collected from Kenya between December 2006 and October 2008. The necessary fieldwork was carried out and IK was mapped and audited under five clusters, namely: i) Policies and legislation, ii) Governance structures, iii) Centres and systems, iv) Programmes and activities, and v) Research and documentation.

Mapping involved undertaking a survey to determine what policies, if any, and what strategies on IK were in place, while auditing focused on discovering, checking and verifying the IK systems and whether they were capable of dealing with this knowledge.

- The objectives of the study were to:
- Identify IK programmes and activities and when and where they are held
- Determine the status, trends and types of IK research
- Identify, unearth and map Kenya's IK environment/ practices
- Discuss the contribution of IK towards local development
- Investigate the users' and communities' IK needs
- Produce research results for policy and decision support on current and future IK development

5.2 Policies and legislation

Because Kenya is a team player in both regional and international Diasporas in diverse areas, and in this case, in legal matters, she is party to both regional and international conventions that seek to provide a legal framework for the protection of indigenous knowledge and culture.

Despite Kenya adhering to regional and international treaties, no single unitary legal framework could be identified. Furthermore, a lot of fragmentation was evident in the various acts. The table (Table 5.1) that follows highlights examples of such acts.

Table 5. 1: Policies and legislation (Kenya)

Policies/legislation	Body Responsible	Goal
Chapter 210a – Moi University Act	Moi University	Promote and develop national cultural heritage through academic programmes
Forests Act of 2005 – Cap 7	Kenya Forest Research Institute	Managing and protecting forest land
Chapter 210 – University of Nairobi Act	University of Nairobi	Promote and develop national cultural heritage through academic programmes
Antiquities & Monuments (Cap 215- 1984)	National Museums Board	Recognition, promotion protection and conservation of tangible indigenous knowledge
Kenya Cultural Centre (Cap 218 – 1979)	Kenya Cultural Centre	Management of the centre
Wildlife (Conservation and Management) Act (Cap 376 – 1985)	Wildlife Conservation and Management Service	Management and conservation of wildlife
Environmental Management and Coordination Act (Cap 8 of 1999)	Ministry of Environment and Natural Resources	Management and protection of natural resources, e.g. lakes, shores, wetlands, coastal zones or river banks or forests
Science and Technology Act (Cap 250) of	National Council for	Provision of advice to the government on all relevant

1977	Science and Technology	scientific and technological activities and research necessary for proper coordination of research and experimental development
Industrial Property Act (2001)	Kenya Industrial Property Institute	Promotion of inventive and innovative initiatives and facilitation of the acquisition of technology through grants and regulation of patents, utility models, rationalization models and industrial designs
Plant Protection Act (Cap 324)	Ministry of Agriculture	Protects plants from harmful organisms as well as protecting them from plants diseases and pests.
Agricultural Act (Cap 318)	Ministry of Agriculture	
Agricultural Produce (Export) Act (Cap 319)	Ministry of Agriculture	Promotes agricultural development ensure long term development of arable land in accordance with the sound practice of good land use and control of soil conservation
Agricultural Produce Marketing Act of 1983 (Cap 320)	Ministry of Agriculture	Control and regulation of marketing agricultural produce
Crop Production and Livestock Act of 1979 (Cap 321)	Ministry of Agriculture	Control and management of crop and livestock production paving the way for the Minister responsible to make rules for, *inter alia,* improving the cultural conditions of any crop or the methods of its production and protecting crops from destruction
Fisheries Protection Act (Cap 379)	Ministry of	Contains two provisions relevant to indigenous fisheries: it

	Agriculture	regulates trout fishing in forests, and protects fish breeding areas (of relevance to mangrove management). Section 4 promotes the development of traditional and industrial fisheries, fish culture and related industries
Seeds and Plant Varieties Act of 1979 (Cap 325)	Ministry of Agriculture	Regulation and protection of seeds and plants varieties, plant breeders
Suppression of Noxious Weeds Act of 1925 (Cap 325)		Management of noxious weed
Chiefs' Authority Act of 1970 (revised 1988) (Cap 128)	Provincial Administration	Management of various environmental conservation provisions within their jurisdiction
Witchcraft Act of 1925		This act outlawed traditional medicine, although the practice continued secretly, leading to parts of the law been revoked in 1963
Trust Land Act (Cap. 288) of 1962 (revised 1970); Land Adjudication Act (Cap. 284 of 1968 revised 1977); Land (Group Representatives) Act (Cap. 287) of 1968 revised 1970	Ministry of Lands	Provides for rights in Trust Land and controls the unauthorized occupation of land; conservation and protection/ controlled utilization of trees
Draft: National Policy on Traditional Medicine and Medicinal Plants	Ministry of Planning and National	Recognition, promotion and protection of medicine and medicinal plants

		development	
Draft: The National Policy on Culture of The Republic of Kenya	Ministry of Gender, Sports, Culture and Social Services	Recognition, promotion and protection of culture	
Development of Laws for the Protection of Traditional Knowledge, Genetic Resources and Folklore (Legal Notice No. 1415, 2006).	Attorney General	Recognition, integration, promotion and protection of culture	
National Environment Action Plan (NEAP)	National Environment Management Authority	Provides strategies and action plans for the enhancement of environmental management	
National Biodiversity Strategy and Action (NBSAP)		Management of capacity building needs for IK	
National Action Programme (NAP) for Combating Desertification in Kenya		Mainstreaming NAP into the National Development and Planning process in management and controlling desertification	
National Poverty Eradication Plan (NPEP); Poverty Reduction Framework Paper (PRSP) and Economic Strategy for Wealth and Employment Creation (ERSW&EC)		15 year plan on how to reduce poverty levels by half	
Water Act of 2002		Management and protection of water user rights and water	

		catchment areas
Copyright Act of 2001		Regulation and protection of literary, musical and artistic works, audiovisual works, sound recordings, broadcasts
Arid and Semi-Arid lands Draft Policy	Office of the President	Conducting joint expeditions to collect seeds and traditional plants

The legislation controlling IK and IKS in South Africa, gives various provisions in laws that touch on IK issues, such as industrial property, trademarks, copyright, museums, antiquities and national monuments, and science and technology. For instance, the Copyright Act ensures that intellectual property rights are respected for the benefit of IK holders on issues concerning access and benefits sharing. However there is evident that there is no single unitary legislation governing IKS in Kenya. This was also evident in the responses of the respondents when asked whether their organizations had policies, papers or regulations with respect to IK. If they answered in the affirmative, they were asked to specify them. The aim of this was to confirm what policies and regulations were in place to manage IK practices.

The Department of Culture, represented by three Heads of divisions, highlighted the presence of various initiatives such as the Draft Policies on Traditional Medicine and Medicinal Plants, Traditional Knowledge and Folklore, and Culture. Also mentioned were the Copyright Act of 2000 and Witchcraft Act of 1925.

According to the Coordinator of Mother Tongue Languages, the Kenya Institute of Education (KIE) is guided by the Gachathi Report of 1976. This report stresses that the vernacular language (mother tongue) should be used as a medium of instruction for children from 0 - 8 years. According to the respondent, the Koech Report of 1999 led to the review of the curriculum with greater emphasis on quality education and the use of local languages (Sessional Paper I of 2005).

The respondent in charge of African languages at Kigari Teachers College indicated that the college used policies from the Ministry of Education developed during the colonial era. On the presence of any Act regarding IK, the respondent said there was one based on the General Education Act with an emphasis on African languages. The college divides its trainees into two groups - urban-based and rural-based trainees. Urban-based trainees are those who do not come from the local area and do not understand the local language. These trainees normally do their internship in urban primary schools where they teach Kiswahili. Rural-based trainees are local trainees who understand and speak Kikuyu and Kiembu and are posted to local schools to be able to handle the mother tongue. The

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respondent further explained that the mother tongue is the language of the catchment area in which the training college is based.

The Inspector of Schools from the Ministry of Education at the District Education Office stated that the Department of Inspectorate operates under the policy of the Kenya Education Sector Support Programme, 2006. He noted that Sessional Paper I of 2005, Education Commissions, and the Ominde Report of 1964, all recommend an integration of educational goals that would help learners appreciate the cultural diversity of their country.

The head teacher of Kirigi Primary school in Embu said that she was aware of the presence of policies that stated that the mother tongue should be taught to children so that they could better understand and relate to their history, language, culture and origins.

The Senior Quality Assurance of Standards Officer from the Ministry of Education responded in the affirmative when asked about the presence of various reports such as Gachathi and Ominde. He also mentioned the Sessional Paper I of 2005 on Education and Training. When asked about whether there is any law or Act, the respondent cited a legal notice issued in January 1997 that provided guidelines for drama and music.

The Production Manager of the Royal Media Broadcasting Company, which is a profit making organization, responded that the media house does not have documented policies but there exist unwritten ones where only authentic languages and music can be used (i.e. no slang or 'remixing'). Programmes were aligned to the lifestyle of communities and driven by cultural value.

The public broadcasting house, Kenya Broadcasting Corporation, is guided by the Editorial Policy (draft) and the KBC Act. This was highlighted by the Managing Director.

National Museums Policies are operated through the KENRIK and Ethnography Departments. This was stated by the Assistant Research Scientist from the National

Museums of Kenya (NMK), which falls under the Ministry of Home Affairs. He highlighted the Material Cultures Policy that guides researchers who wish to leave the country with items for international exhibitions. NMK is guided by the Environmental Management and Coordination Act (EMCA).

The Deputy Director of National Archives and Documentation Services stated that there were no policies at the time of writing, but they were in the process of developing a policy that had not yet been circulated. The policy was being developed in conjunction with the Kenya Anticorruption Commission and they were in the process of merging scattered circulars into one. National Archives is operated under the Public Archives and Documentation Service Act, Cap 19 of 1965.

5.3 Governance Structures

5.3.1 Ministry of State for National Heritage and Culture:
(Formerly Ministry of Gender, Sports, Culture and Social Services)

The Ministry of Gender, Sports, Cultural and Social Services Draft Strategic Plan, 2005 - 2010, is in line with Kenya's vision to achieve the Millennium Development Goals (MDGs) by the year 2015 (Ministry of Gender, Sports, Culture and Social Services – (MoGSCSSK, 2006:6). MDGs are eight international development goals that all 192 of the United Nations member states and at least 23 international organizations have agreed to achieve by the year 2015. They include eradicating extreme poverty, reducing child mortality rates, fighting disease epidemics such as AIDS, and developing a global partnership for development. In addition, MoGSCSSK addresses IK through its core functions and policies, i.e.:

- The promotion, preservation and maintenance of a positive and diverse culture for national identity and pride
- The promotion, development and preservation of Kenya's music and dance heritage (MoGSCSSK, 2006:6).

Policies on the ministry's priority list include:

- Enhancing community capacities for self-reliance and greater participation in the development process through community mobilizations as well as initiating and supporting community-based development programmes with particular emphasis on women, children, older persons, the youth, physically challenged persons, and other disadvantaged groups

- Enhancing and sustaining literacy and lifelong education in an effort to create a functionally literate, caring and empowered society capable of adapting to the rapidly changing socio-economic and technological environment

- Initiating programmes to promote the development and practice of music and dance; spearhead the growth and development of the music industry; and to contribute to the understanding and preservation of Kenyan music, arts, and expressions

- Incorporation of information and communication technologies (ICTs) in all areas

The Ministry has a Department of Culture that is responsible for safeguarding and promoting Kenyan culture via:

- The visual arts;
- The performing arts;
- Language and traditions;
- Cultural education, information and research; and
- Indigenous health, nutrition and the environment.

Indigenous health, nutrition and the environment, for instance, are being promoted through two draft policies that were introduced in 2006, namely the Policy on Traditional Medicine and Medicinal Plants and the National Policy on Culture. These two policies are now at an advanced stage.

The Traditional Medicine Draft Policy of 2006 is subdivided into four sections:

- Conservation. This section looks at the natural goals for the conservation of traditional medicine and medicinal plants

- Domestication and cultivation of medicinal plants

- Efficacy, safety and quality assistance, whose main goal is to promote safe, effective, and sustainable quality traditional medicine in Kenya

- Commercialization and marketing. This ensures the integration of traditional medicinal products and practitioners into the commercial sector and enhances partnerships and the protection of property rights

The National Traditional Health Association, which is run nationally and regionally through the MGSCSS, is an initiative that was formed to identify genuine practitioners and ward off quacks. The various efforts to promote IK by the ministry cannot be quantified, and this has led to inadequate funding from the government. Lack of funds has curbed initiatives to record community cultural festivals. The government registers all groups that deal with culture and also provides them with grants whenever possible. It also recognizes days and celebrations that are unique to the continent, such as the 31st August, which is African Traditional Medicine day. The National Policy of Culture intends to be all inclusive and exploit the total expression of culture in all its forms, and this also includes providing practitioners with equal access to ICT.

The respondents were subsequently asked how their organizations' management was structured. They were also asked whether they collaborated with others and if so, at what level and with whom. These questions investigated the management aspect in the existing structures of IK and were guided by the following research questions:

What IK governance structures are available?

The researcher had requested for an appointment with the Director of Culture who mobilized three officers (heads of divisions) since he was out of the country. The interviewees represented the following departments:

- Indigenous Health Nutrition and Development

- Kenyan Languages and Oral Traditions

- Education, Information and Research

They informed the researcher that the departments' management is structured from national to grassroots level. At national level it is headed by a National Director, at provincial level (regionally) it is headed by the Provincial Director, while at local (grassroots) level it is controlled by District Cultural Officers.

The figure below represents the national organization structure of the DOC.
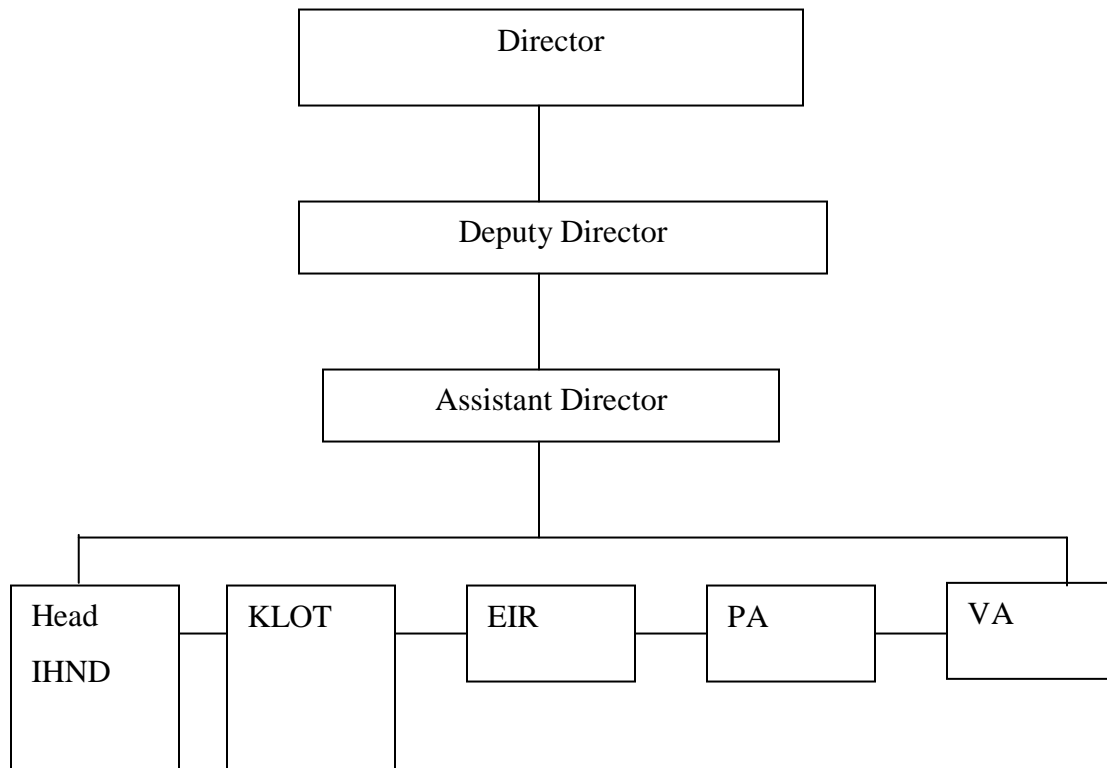
Figure 5.1: National Organization Structure

It was observed that the DOC has international stakeholders; local examples of international stakeholders include UNESCO, AU and EAC. National stakeholders include all ministries and academic institutions. At provincial level, they coordinate with branches, and at local level they coordinate with community committees, traditional associations, CBOs, NGOs and community museums.

5.3.2 Kenya Resource Centre for Indigenous Knowledge (KENRIK)

KENRIK is one of the departments at the National Museum. It was initiated at the start of the last decade. It conducts research, documentation and the recording of IK, i.e.:

Most work in KENRIK is derived from project proposals in various fields of IK, e.g:

- Anthropology, the environment, nutrition, ecology, ethno-botany, ethno-ontology, and other programs such as appropriate technology, tradition of foods, and SEPASAL/ Survey of Economic Plants of Arid & Semi Arid Lands – a database on useful wild and semi-domesticated plants of tropical and subtropical dry lands developed and maintained at the Centre for Economic Botany of the Royal Botanic Gardens, Kew) (Mogere, 2003:9)

- Proposed safeguarding of endangered oral traditions in East Africa

- Conservation of sacred sites – ongoing program

- Traditional medicine – an aspect of capacity building (policy issues being addressed)

- Formulating a policy for genetic resources, IK and folklore (policy at development stage)

5.3.3 Kenya Industrial Property Institute

The Kenya Industrial Property Institute (KIPI) is a corporate body established under the Industrial Property Act, 2001. It falls under the Ministry of Trade and Industry. The institute is headed by a Managing Director who implements two Acts of parliament, namely the Industrial Property Act (IPA) of 2001, and the Trade Marks Act Cap 506 (laws of Kenya) that provides for the trade and service marks (KIPI, 2005:2).

The institute has three departments: the legal department, technical department, and administration and finance department. The legal department takes charge of various activities such as the registration of national trade/ service marks, international registration of marks (Madrid System), anti-counterfeit measures, and arbitration in IPR disputes. The technical department is responsible for patent examination in addition to the acquisition, processing, storage, and dissemination of patent information.

5.3.4 Bomas of Kenya

The word 'bomas' means 'an African homestead'. At the Bomas of Kenya, there are several different bomas, each representing one of Kenya's major ethnic groups and built according to each ethnic group's ancestral or original traditional architecture of an African home. Visitors are always guided through the villages by trained tour guides/ information officers who offer extensive insight into the rich diversity of the culture of the people of Kenya.

Bomas of Kenya was established by the government in 1971 as a subsidiary company of the Kenya Tourist Development Corporation. It is a tourist attraction and a facility to preserve, maintain and promote the rich and diverse cultural values of Kenya's various tribal groups. Its main visitors are tourists visiting Kenya and Kenyan locals/ residents, particularly school children.

Cultural entertainment programmes and other traditional instruments are used as part of the performances. The facility has a trained group of dancers known as 'Harambee Dancers' who perform a cross-section of all the authentic traditional dance songs of Kenya. There is also an acrobatic team that performs both in-house entertainment and entertainment for hire. Traditional African dishes are also served.

5.3.5 University of Nairobi

IK and IKS at the University of Nairobi are largely conducted through the Faculty of Arts, specifically through its Institute of African, Anthropology and Gender Studies, and the Department of Linguistics and African Languages (University Calendar, 2007).

5.3.6 Institute of African, Anthropology and Gender Studies

The institute was started in 1970 and charged with the responsibility of promoting and conducting original research focusing on African prehistory, musicology and dance; traditional and modern arts and crafts; and religion and other belief systems. Apart from collaborating with the government and other institutions, it also publishes a journal of anthropology, MILA. Courses offered range from undergraduate to PhD degree levels.

5.3.7 Department of Linguistics and African Languages

In 2002, the Department of Literature at the University of Nairobi embarked on an ambitious programme to strengthen teaching and research in African oral literature--the Oral Literature Research Programme. This was in response to a number of factors, most importantly the need to preserve indigenous knowledge forms and apply them to local development needs and to train young scholars in modern ways of collecting, documenting, preserving, analyzing and disseminating the oral art forms of Kenyan communities. It was also anticipated that the programme would encourage university students taking oral literature to appreciate their cultural heritage while at the same time achieving the UNESCO objective of safeguarding intangible heritage from imminent extinction (Wasamba and Mwanzi, 2006:21).

By 2006, the department had been able to document oral literature of the Digo and Duruma in Kwale District, oral literature of the Samburu in Samburu District, and oral literature of the Luo, Luhya and Kalenjins in Vihiga District.

5.3.8 Kenyatta University

Kenyatta University began offering courses in traditional medicine through the Department of Health Sciences in 2006, and became the first of its kind in the African region. These courses are aimed at strengthening research in alternative medicine and to confront health challenges in Africa where, according to WHO, 80 % of the African population utilizes traditional medicine (Mogere, 2006:4).

The university also has other departments that complement each other in the promotion and preservation of Kenyan culture. These include the Departments of History, Archaeology, Political Studies, Kiswahili and African Languages, and Fine Art. These courses are offered from undergraduate to Doctorate levels.

5.3.9 The Centre for Minority Rights Development (CEMIRIDE)

The Centre for Minority Rights Development is a non-governmental organization (NGO) that seeks to strengthen the capacities of minorities and indigenous peoples in Kenya and the rest of Africa, and to secure their rights in all social, political and economic development processes.

CEMIRIDE provides a voice for minorities and indigenous peoples through which they can articulate their needs and aspirations and see these needs expressed in their rights and respected in the countries of their abode, allowing them to enjoy their human rights as members and part of not only their respective societies, but the global society at large. CEMIRIDE is an active player in national, regional and international efforts to improve the position of minorities and indigenous peoples.

5.3.10 National Council for Science and Technology (NCST)

The NCST is nationally/ centrally structured and networks and collaborates with various stakeholders from international to grassroots level. At international level, it partners with UN bodies and science-related organizations. It also works with all ministries and individuals at national level.

The Roles of NCST

The NCST plays the following roles:

- Formulating science related policies
- Establishing international co-operations
- Issuing research permits

Deciding on resources requested for science and what direction science could take in the country

5.4 General Comments of the Key Informants

- There is a lot to be preserved and funding should be increased
- We need to know what to safeguard in case it goes online
- We have lost a lot of benefits from verbal medicine [sic] (the respondent was saying that a lot of benefits gained through the oral transmission of medical information has been lost)
- The museums are doing a lot and more needs to be documented
- More activities in schools, e.g. music festivals; more needs to be done to improve these activities

Comments from Kenya Institute of Education

The Kenya Institute of Education respondent, who was the Coordinator of Mother Tongue Languages, said that the KIE consisted of three departments, i.e. curriculum services, media and research, and finance and administration. She said that primary languages falls under curriculum services.

She explained that the KIE is structured nationally and controlled by the Director. At provincial level, it is controlled by the Provincial Director of Education, and at local level, by the Teachers Advisory Centers (TAC). Coordination occurs at all levels, both regionally and nationally. Partners include UNICEF and UNESCO, Bible Translation and Literacy, and the Christian Children Fund (CCF). Provincial coordination is done through the Provincial Director of Education (PDE) and controlled by the college that identifies and posts trainees locally or within reach.

The college works with stakeholders at local level, such as teachers, pupils and parents. The college's role is in fact played out at national level where it works with both public and private national primary schools. The college does not involve staff in research, nor does it provide funding. The respondent made the following comments:

- Emphasis should be made on the national language, Kiswahili, instead of the various ethnic languages of various catchment areas

- The target is national unity or nationalism
- Kiswahili is a more neutral language

Comments from the Inspectorate, District Education Office

The respondent from the Inspectorate, District Education Office, stated that structurally, the implementation of the administration was managed by KIE through the curriculum and syllabi. This watered down to the teachers. It is integrated in different subjects, e.g. history, geography, CRE, literature and Kiswahili. It works with all ministries and sponsors at national and local levels. At national level, the Ministry of Culture and social heritage asks the office to request schools that can participate in the cultural dances during the national holidays.

At local level, teachers involve the local community. The department's role is played out at provincial and local levels. Regionally, it coordinates secondary schools; the ministry funds the activities of primary schools. This is replicated at local level.

An overview of the respondents' comments is provided below:
- As a country, we should build more on our culture
- Talents which can be discovered at festivals should be enhanced
- Academics are emphasized more than culture, maybe because of time or financial constraints

The head teacher of Kirigi Primary School informed the study that the school's management was locally based and controlled by the head teacher and the school's board panel who recruited teachers who could speak the local language. The school partners coordinate with other stakeholders such as zonal inspectors, Kigari Teachers College, and Assistant Educational Officers (AEOs). The school takes part in activities and programmes at local level that promote Kenya's culture.

The respondent's comments were as follows:

- Although culture is present its only left at the mercy of the people
- The government is trying to promote Kiswahili in the country, bringing unity Local languages have not had their share – on the contrary for the big tribes more research is needed
- Writers should be encouraged to publish in their languages e.g. ("Tusome Lugha Yetu") now serves in more than ten languages to meet the needs of the child in standard one to three, developing reciting and reading skills in their mother tongue by KIE

According to the respondent from Senior Quality Assurance of Standards, administratively, the department was structured from national level to local level. The national level was controlled by the Kenya National Drama Committee. The provincial committee controlled the provincial level, while locally the district zonal levels were controlled by the District Drama committee. He explained that they also dealt with other stakeholders, for example the media, NGOs, semi autonomous government organizations, banking institutions, and schools and colleges at national level. At provincial level, the above varied on a minimal scale. Schools, colleges, Parent Teachers Associations (PTAs), Board of Governors (BOG) and District education Boards (Debts) are examples of village patrons.

Its roles were felt at all levels, i.e.:
- Coming up with a calendar of activities
- Looking for funds
- Budgeting
- Training of drama producers
- Organizing festivals

These roles were replicated at both national and local levels.

The general comments were as follows:

- There is a lot of talent discovered during the festivals but lack of transition and avenues to enable the talent to sprout
- Cultural hindrances, e.g. NEP students don't practice
- Funding is a major handicap in the promotion of IK in the learning institutions

The Production Manager of Royal Media stated that the media house was home to nine radio stations broadcasting in major languages. Administratively, the media house was structured from national level to local level and controlled by the central office. It worked with other stakeholders across 3 levels. The national stakeholders consisted of the government and government agencies. At provincial level, they included the police, while at local level, local groups, villagers, elders and chiefs were the main stakeholders.

The media house's roles include:

- Educating
- Shaping opinion
- Entertaining

The respondent explained that the media house did not have any IK databases but instead they funded cultural events, commercial outsourcing, and record people from villages to partner with e.g. Royal cultural groups and other individuals who needed funding.

The media house is basically intended for commercial purposes. It has the following FM services, six of which are vernacular, and 2 of which are national.

The list of FM services is as follows:

- Musyi- Kamba
- Ramogi- Dholuo
- Chamge- Kalenjin
- Hot96-English
- Inooro- Kikuyu

- Mulembe- Luhya
- Muga- Meru
- Citizen- Kiswahili
- Wimwaro- Embu

The respondent from DQAS stipulated that there was an office for curricular activities e.g. drama and music, and that one officer was made the executive secretary of the activities. There was also a committee that cuts across the country to represent people in various fields within the education fraternity but that also has links to that activity. This stretches across all levels i.e. national, provincial and local.

She explained that the Director of DQAS ran the national level. The Provincial Director of Education controlled the provincial level, while the local level was controlled by the District Education Officer.

The respondent also stated that the department worked with other stakeholders across all levels. Examples of these partners include the Equity bank, World Bank, World Vision, Ministry of Science and Technology, and the Ministry of Culture, who also partnered at provincial and local levels. The department's role was felt across all levels in coordination, soliciting funds, and in organization.

The respondent's comments were that:
- Kenya is rich in culture. However, the government needs to work hard to preserve it considering its dynamic nature
- It's bound to be distorted, especially with this era of globalization

The Managing Director of the Kenya Broadcasting Corporation (KBC) stated that KBC fell under the Ministry of Information and Communication which was headed by the Permanent Secretary (PS), and the executive functions were headed by the Managing Director at national level. The Head of TV ran the provincial level. He explained that KBC worked with other stakeholders across all levels. At national level, it partnered with

government ministries, e.g. finance for funding, police for security, advertisers, newsmakers, politicians, advocacy Non-Governmental Organizations (NGOs), and staff. At provincial level the stakeholders were the same, in addition to Kenya News Agency (KNA), and the same applied at local level.

The Roles of KBC

It was observed that KBCs roles are played out at all levels and this is made possible through its two TV channels and 22 radio stations. Three of the 22 radio stations are in national languages, while the rest are in vernacular. The roles of the media house can be surmised as follows:

- Informing
- Entertaining
- Supporting the government in disseminating information, especially information that has no monetary value
- Highlighting areas that need government intervention
- Development of culture and local programmes
- Developing talents and the arts, especially music
- Educational programmes on health
- Broadcasting educational programmes through national service targeting both primary and secondary schools

The respondent also made the following general comments:

- Kenya is very rich in culture and cultural diversity; however education and sophistication are driving the youth away from our culture
- The effort to promote local language should be deliberate, e.g. in Uganda they eat their indigenous food and talk in their languages [sic]
- Media should play a bigger role in the advancement of cultural diversity
- Dedicate a lot of time to culture, although some practices are not dynamic

The Assistant Research Scientist from the National Museums of Kenya (NMK) at the Ministry of Home Affairs explained that NMK management was structured from national

to local levels. The national level was controlled by the Director General, while the provincial level (regional) was headed by Regional Directors. There were various local sites that fell under diverse departments that were headed by the department that was responsible for that particular activity.

In this case NMK worked with stakeholders from international to local levels. International partners include Rockefeller, Ford, Belgium and others. National partners include the Ministries of Culture and the Environment, Kenya Wildlife Services (KWS), National Environmental Management Authority (NEMA), University of Nairobi (UON), Kenya Agricultural Research Institute (KARI), and all research institutions, while provincial stakeholders include other provincial and district administrations depending on the activity, e.g. if agricultural, it would liaise with the District Agricultural Officer. At local level, it partnered with local communities, elders, church leaders, chiefs, headmen, and Community-Based Organizations (CBOs).

The respondent stated that the NMK's roles were also national, provincial and local and were similar across all levels. These roles include:
- Research
- Publications
- Information dissemination through workshops, pamphlets, seminars
- Training through education
- Preservation through ethnography, the gallery and Snake Park

The head of public relations at the KBC made the following comments:
- IK is an area that is gaining momentum due to rapidly developing policies
- It is important to develop IK because of its target beneficiaries
- Research is no longer exclusively being carried out by researchers; nowadays there is ethno-botany and are being inclusive [sic]

The Deputy Director of National Archives and Documentation Services opined that the management was structured from national to provincial levels. The national level was

controlled by the Director, while the provincial level was run by the Provincial Archivist. According to the respondent, it coordinated with stakeholders from across the national and provincial levels. The national stakeholders include the Kenya Anti-Corruption Commission, Crown Berger, and all government, academic, public and private institutions. This was also the case at provincial level.

The respondent described the organization's roles as:
- Preserving the national documentary heritage from the slave trade through colonialism to independence
- Housing
- Acquiring traditional and new materials
- Providing access to the general public, e.g. researchers

The respondent's comments were as follows:
- There are diverse institutions dealing with culture from different perspectives which may sometimes lead to some misunderstanding, e.g. the United Nations Educational, Scientific and Cultural Organization (UNESCO) may send a letter of invitation to the Ministry of Culture when it was meant for the National Archives
- No common entity that deals with culture

- Task force for heritage policy. The National Archives started something on heritage – they wanted the ministry to have an office dealing with management issues on heritage and also coordinate such issues at cabinet level – but this was taken over by the new Vice President
- Most of our culture is diverse and undocumented
- Our youth apes or mimics Western culture
- We need to develop a National Cultural week. The respondents cited that Mombasa had once started a carnival week during Balala's tenure as mayor, but this never continued
- Government should be funding these events - it would probably not have witnessed the post election violence

- People are turning to herbal remedies that had been demonized earlier. Aloe Vera has become an economic export
- Western culture is to blame for the country's present woes

The study also revealed that relationships at work can cause stress that affects overall employee performance. This study therefore recommends that institutions should ensure good relationships between the management and employees, supervisors and employees, and between the employees themselves.

The study also found that compromising employee confidentiality, lack of specific requirements at work, and the inability to contact employers were factors that affect employee performance. This study recommends that the institutions should ensure confidentiality while dealing with individuals in their organizations.

The study also revealed that pay and fringe benefits affects employees' performance to a great extent. The study therefore recommends that institutions' management should ensure their employees get a good salary and in time. They should also ensure the employees are motivated by giving them fringe benefits.

It was also observed that a comprehensive documentation on culture and traditions promoted cultures when the documents were taken back to the people at their respective sites, e.g. Muranga, Meru – Nchuri Ncheke, etc.

From these observations and comments, it is clear to say that if we look at our heroes, we have culturally come from very far, e.g. the Ngiriama uprising with the Kayas, ways of living such as the Samoi, 'Wangari wa Makeri' the legendary Kikuyu woman chief. Our heroes make Kenyans proud and enrich Kenyan culture
National Archives tries to record and disseminate what has been documented
There are certain plants that when applied to the tooth, allow them to get plucked without any pain. The same with the Gusiis', who used to practice brain surgery
Our culture and traditions are dying at a rapid rate and something needs to be done to preserve them for the future. This can be witnessed in instances where the youth always

responds in English when spoken to in local vernacular (the respondent cites an example of urban children referring to a goat as a dog).

The respondents were therefore asked to identify various programmes or activities and their time span and source of funding. This was also done to compliment the objective of unearthing the current IK management practices and their environment. Table 5.2 below summarizes their responses with respect to the diverse programmes and activities.

Table 5. 2: Programmes and activities in Kenya

PROGRAMMES/ACTIVITIES	FREQUENCY	BODY RESPONSIBLE
Visual Artist	Annual	Division of Visual Arts in collaboration with Italy
African Traditional Medicine day	Annual	Division of Indigenous Health, Nutrition and Environment (IHNE)
Kenya Pastoral week	Annual	CEMIRIDE
Kenya Music Festivals	Annual	Ministry of Education
Youth traditional cooking competition	N/A	Division of Indigenous Health, Nutrition and Environment (IHNE)
African traditional medicine day	Annual	Division of Indigenous Health, Nutrition and Environment (IHNE)
2001 – 2010: Decade for tradition declared by the African Union.	Annual	Division of Indigenous Health, Nutrition and

Kenya started to mark the decade in 2004 in Nairobi, 2005 in Nyeri, 2006 in Nakuru, and 2010 in Mombasa		Environment (IHNE)
Teaching practice	Term basis	Kigari Teachers College
Cultural ethnic groups	Annual	
Performing arts festivals	Annual	
National music festivals	Annual	
Hero days Koitalel Music festivals Public Sector week	Annual	Department of Culture
Annual music festival Cultural dances, folk songs, drama, verse Speaking in Kiswahili, vernacular or English competitions	Annual	Kirigi primary school
Kenya national music festivals at grassroots level in May and nationally in	Annual	Department of Quality

August every year		Assurance (DQAS)
Kenya national drama festivals; first locally in February and nationally in April every year		
Annual revision of rules and regulations		
National Workshop for leaders		
National festivals for schools and colleges		
SEPASAL: a database that is currently being developed (ongoing)		NMK
Individual yearly work plans where funds are sought		
Projects, e.g. medicinal plants		
Developed a curriculum with Kenyatta University with particular emphasis on records management		Kenya National Archives
Public Service week		
Trade Fair (Agricultural Society of Kenya)		
Visits by school parties, tertiary institutions and universities		
All institutions that offer information science send their students for attachment		
Whenever ministries hold workshops or seminars, they invite archives staff to explain the role of archives		

Cultural events and festivals on culture and brands Workshops - ethics and governance, staff enhancements	Every 2 months Quarterly	Citizen
Many of these activities take place on national days; the ministry participates in public holidays through traditional dance, songs and cultural displays, e.g. Nacada.	Annually and open days	Kenya National Archives
KBC receives funding to the tune of Ksh. 70 million a month from the government to air programmes that are of public interest, including special broadcasts on national days. It also participates in cultural festivals and airs drama and theatrical productions. National shows are also aired, as are musical shows and musical festivals which are budgeted for. Some transmissions are done by going to unreachable areas (marginalized) that are not of any monetary value.		KBC

5.5 Summary

This chapter presented the findings of mapping and auditing IK in Kenya with respect to policies and legislation, governance structures, centres and systems, and programmes and activities. The next chapter presents South Africa's findings.

CHAPTER SIX

The Mapping and Auditing of Indigenous Knowledge Systems in South Africa

6.1 Introduction

The previous chapter presented data collected in Kenya from December 2006 to October 2008. This chapter presents data collected in South Africa in 2007 to map and audit IK, and as in the previous chapter, the results are divided into five clusters, namely i) Policies and legislation, ii) Governance structures, iii) Centers and systems, iv) Programmes and activities, and v) Research and documentation.

6.2 Policies and legislations

South Africa's bid to promote, protect and preserve IK is demonstrated through various acts, policies and other documentation. For instance in the constitution (Act 108 of 1996), the Bill of Rights states that: "Each person also has the right to instruction in their language of choice where this is reasonably practicable. It is for this reason the constitution recognizes eleven official languages, namely Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sesotho saLeboa, Sesotho, Setswana, siSwati, Tshivenda and Xitsonga" (SA Govt. website, 2007).

The National Archives and Records Service Act mandates that recorded materials should be collected, managed and preserved in different formats (Cultural Laws Amendment Act 36, 2001: 43)

South Africa also has a well-established intellectual property framework in place. Statutes are guided primarily by equivalent British and European Patent Convention legislation (Wilson, 2001:3).

The education sector has faced various challenges since independence that prompted the government to set up various commissions, committees, and taskforces (MoST, 2004:1).

The main challenge was how to reform an education system inherited from the colonial government. This saw the inception of the first commission after independence in the Ominde Report of 1964. It proposed an education system that would promote national unity and the development of sufficient human capital for national development. Sessional Paper No, 10 of 1965 on African Socialism and its Application to Planning in Kenya, formally adopted the Ominde Report as a basis for post-independence educational development (MoST, 2004:1).

In 1976, the National Committee on Educational Objectives and Policies, referred to as the Gachathi Report, redefined Kenya's educational policies and objectives focusing on national unity and economic, social and cultural aspects of the people of Kenya. This led to government support for 'harambee' schools (funded and operated by various charities and fund-raising groups) and also the establishment of the National Centre for Early Childhood Education (NACECE) at the Kenya Institute of Education (MoST, 2004:1).

The policy of cost sharing in the provision of education between the government, parents and communities was introduced in 1988 by the Kamunge Report, Sessional Paper 6. It focused on improving the financing, quality and relevance of education. This was also an outcome of the inefficiency or failure of the government's scheme to provide instructional materials through the National Textbook Scheme which adversely affected the quality of teaching and learning (MoST, 2004:1).

On the philosophy and objectives of education and training, MoST's focus is on cultural integration through social responsibility: "Education and training integrates social responsibility, including nurturing our cultural heritage, spiritual values." The Ministry reiterates in its philosophy that formal and non-formal, as well as traditional and modern learning methodologies and approaches, are being integrated as important pillars of education and training (MoST, 2004:1).

The IKS Policy launched by the Ministry of Science and Technology 2004 is the principal guiding factor where IK is concerned. This policy is an enabling framework

created to formulate and strengthen the contribution of IK to social and economic development in the country (IKS Policy, 2004:11). The policy seeks to recognize, promote, protect and develop IK on its very own terms. The Department of Science and Technology, together with other government departments and stakeholders, embarked on the implementation of the policy while working closely with other departments, for example Trade and Industry, Health and Environmental Affairs, and Tourism. The IKS policy (2004:27) "is informed by other policies, inter alia, policies around intellectual property, technology transfer, biotechnology, biological and genetic resources, food security, culture, heritage, education, etc. By extension, all IKS legislation will be informed by inter alia, legislation on intellectual property rights, biotechnology, biodiversity, genetic and biological resources." The three key deliverables that are to emerge from this process are a recording system for indigenous knowledge, an intellectual property system that reflects IKS, and the appropriate positioning of indigenous knowledge based businesses within small business development (IKS Policy, 2004:11).

The Department of Agriculture, Directorate of Plant Production, has a policy on indigenous food crops (A & C, 2006: 1). This policy conceptualizes and proposes possible solutions with respect to agricultural issues.

Table 6.1 below summarizes the diverse laws and policies that touch on IK in South Africa.

Table 6.1: Policies and legislation (South Africa)

Acts/Policies	Body Responsible	Goal
Patent Act of 1978	Department of Trade and Industry	Promotion of inventive and innovative initiatives and facilitation of the acquisition of technology through grant and regulation of patents, utility models, rationalization models and industrial designs
Trade Marks Act of 1993	Department of Trade and Industry	Management of registration of trademarks, certification trademarks and collective trademarks
Copy Right Act of 1978	Department of Trade and Industry	Governs copyright and related rights
Designs Act of 1963	Department of Trade and Industry	Protection from exploitation by others by using the specific appearance of an article for a limited period of time
Plant Breeders Rights Act (and 1996 Amendments for Compliance With UPOV 1991)	National Department of Agriculture	Manage use of genetic resources for the benefit of society
No. 51 Of 2008: Intellectual Property Rights from Publicly Financed Research and Development Act, 2008.	Department of Science and Technology	To manage issues pertaining intellectual property through the National Intellectual Property Management Office and the Intellectual Property Fund

Act No. 55.1997 National Advisory Council on Innovation	Department of Science and Technology	To manage and promote innovation-related initiatives including indigenous technologies for the benefit of the country
No. 23 Of 1998 National Research Foundation Act	Department of Science and Technology	Establishment of the National Research Foundation that would manage and promote both basic and applied research (IK inclusive)
White Paper on Science and Technology	Department of Science and Technology	Management of science and technology by integrating IK into being a viable tool for the formerly marginalized and make it contribute to sustainable economic growth, employment creation, equity through redress, and social development
No. 26 Of 2008: Technology Innovation Agency Act, 2008.	Department of Science and Technology	To establish the Technology Innovation Agency that would oversee the promotion, development and exploitation of discoveries, inventions, innovations and improvements
Ten-Year Innovation Plan	Department of Science and Technology	Drive South Africa's transformation towards a knowledge-based economy, where the production and dissemination of knowledge leads to economic benefits and enriches all fields of human endeavour. The plan builds on previous work undertaken by the Department of Science and Technology (DST). It is not, however, a compendium of existing programmes. Instead, it is a high-level presentation of the principal challenges identified by the DST, starting not from where South Africa is today, but where we should be a

		decade from now The core projections for 2018 are summarized as South Africa's "grand challenges" in science and technology
No. 36 Of 2001: Cultural Laws Amendment Act, 2001	Department of Arts and Culture	
National Council for Library and Information Services Act, No. 6 of 2001	Department of Arts and Culture	The development and co-ordination of library and information services; the promotion of co-operation among library and information services; policies and legislation affecting library and information services; principles - criteria that should govern the allocation of public funds for library and information services
Heraldry Act 1962	National Education	To amend certain definitions and to define an expression; to provide for the vacation of office by members of the council, and the dissolution of the council; and to replace an obsolete reference
Pan South African Language Board Act, 1995	Department of Arts and Culture	Regulate the composition of the Board; to further regulate the termination of membership of the Board; to provide for the dissolution of the Board; and to empower the Minister to determine criteria for the honoraria payable to and reimbursement of expenses incurred by members of the Board
National Archives of South Africa Act, 1996	Department of Arts and Culture	Renamed the National Archives of South Africa. To further regulate the appointment of the National Archivist; to make provision for the establishment of the National Archives Advisory Council in place of the National Archives Commission; to provide

		for the submission by the Council of a business plan to the Minister; and to empower the Minister to determine criteria for the allowances payable to and reimbursement of expenses incurred by members of the Council
National Arts Council Act, 1997	Department of Arts and Culture	Extend the membership of the National Arts Council; to empower the Minister to appoint the chairperson of the Council; to further regulate the circumstances under which a member of the Council vacates office; to provide for the dissolution of the Council; to provide for the submission of a business plan by the Council to the Minister; to further regulate the composition of the executive committee; and to extend the period of tenure of a member of an advisory panel
The National Film And Video Foundation Act, 1997	Department of Trade and Industry	To empower the National Film and Video Foundation to establish a separate legal entity for purposes of investing in film and video projects; to provide for the submission by the Council of a business plan to the Minister; to provide for the dissolution of the Council; to further regulate the composition of the executive committee; and to effect a textual amendment
South African Geographical Names Council Act, 1998	Department of Arts and Culture	To empower the Minister to determine criteria for the honoraria payable to and reimbursement for expenses incurred by members of the Council; and to provide for the submission by the Council of a business plan to the Minister; and to provide for matters connected therewith
The National Environmental Management: Biodiversity Act 2004 (Act No. 10 of	Department of Environmental Affairs and Tourism	Management, control and protection of the entire bio-prospecting process

2004)		
Environment Conservation Act, 1989		Regulation of management of waste products by putting in place regulatory measures
Traditional Health Practitioners Act (No. 22 of 2007)	Department of Health	Establish the Interim Traditional Health Practitioners Council of South Africa*;* provide for the registration, training and practices of traditional health practitioners in the Republic; and serve and protect the interests of members of the public who use the services of traditional health practitioners
Draft National Policy on African Traditional Medicine in South Africa	Department of Health	Appropriate regulatory and legal framework for the institutionalization of African Traditional Medicine in South Africa (the regulation of African Traditional Medicine in South Africa); registration and regulation of African Traditional Medicines and Medicinal products in South Africa; protection of African Traditional Medicine knowledge and Intellectual Property rights; and protection of the rights of persons involved in the discipline of African Traditional Medicine in South Africa
National House of Traditional Leaders Bill, 2008	Department of Provincial and Local Government	Management of the institutionalization of traditional leadership

6.3 Governance structures

This section covers government structures that are formally mandated to deal with IK in the country. This cluster specifically deals with the government ministries or departments that set overall national IK goals and policies. For instance, these ministries or departments would implement and oversee funding policies, policies on institutional collaboration as well as strategic plans for future development (Minishi-Majanja, 2004: np).

The South African government, through the IKS Policy (2004), established the National Indigenous Knowledge Systems Office (NIKSO) with the aim of co-coordinating the South African research agenda on IKS within the country. The main players in this cluster are the Department of Science and Technology (DST) and the Department of Arts and Culture (DAC), which are directly involved. However, the DST is the main driver behind the IKS policy under which all the other departments and organizations in the country operate.

The following is the list of the departments that deal with IK either directly or indirectly besides the DST.

- Department of Trade and Industry (DTI) (http://www.thedti.gov.za/)
- Department of Arts and Culture (DAC) (http://www.dac.gov.za/)
- Department of Agriculture, now Department of Agriculture Forestry and Fisheries (DAFF) (http://www.daff.gov.za/)
- Department of Health (DoH) (http://www.doh.gov.za/)
- Department of Environmental Affairs and Tourism (DEAT), separated in 2011 into two independent departments: Department of Tourism (http://www.tourism.gov.za:8001/default.aspx) and Department of Environmental Affairs (http://www.environment.gov.za/)
- Department of Education (DoE) (http://www.education.gpg.gov.za/)
- Department of Foreign Affairs (DFA) (http://www.dfa.ie/home/index.aspx?id=8590)
- Department of Land Affairs (DLA), changed to the Department of Rural Development and Land Reform (http://www.ruraldevelopment.gov.za/)
- Department of Sports and Recreation (DSR) (http://www.srsa.gov.za/)
- Department of Water Affairs and Forestry (DWAF) (http://www.dwa.gov.za/), changed to the Department of Water affairs (DWA) (http://www.dwa.gov.za/)

6.3.1 Department of Environmental Affairs and Department of Tourism

The Department of Environmental Affairs and Tourism (DEAT) was split into the Department of Tourism and the Department of Environmental Affairs in 2011 These departments oversee environmental quality and protection, pollution and waste management, regulatory services, air quality management, and climate change. They recognize the irreplaceable and unique value of IK innovations and practices of the SA community by strengthening and protecting such systems and also preventing their loss (http://www.tourism.gov.za:8001/default.aspx; http://www.environment.gov.za/). One of the strategic objectives of the departments is to promote and conserve SA's biological diversity through the sustainable utilization of natural resources and ensuring the fair and equitable sharing of benefits arising from the utilization of indigenous biological resources associated with IK. In addition, they participate actively in international agreements such as the Convention on Biological Diversity (CBD) (http://www.tourism.gov.za:8001/default.aspx; http://www.environment.gov.za/).

6.3.1.1 DEAT Legislative Overview

The legislative framework provided by the National Environment Management Act No. 107 of 1998 (NEMA), introduced a new era of management of the environment (Government Gazette, 1998: 107). Chapter 1 of NEMA sets out the national environment management principles. Key among these is that environmental management must place people and their needs at the forefront of its agenda. Specific reference to biodiversity and associated IKS considerations include: ensuring that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardized; and decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge (Government Gazette, 1998: 107).

The National Environmental Management Biodiversity Act No. 10 of 2004 (NEMBA) provides a mechanism for consistent biodiversity management across the country. The main objectives of the Biodiversity Act are to: manage and conserve the biological diversity in SA; protect species and ecosystems that warrant national protection; and ensure the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits with indigenous communities

arising from bio-prospecting that involves indigenous biological resources and associated IK in SA (Government Gazette, 1998: 107).

While all these objectives are equally important, the last one has taken on special significance for indigenous communities. This is because IK has often been used by modern industry (e.g. pharmaceuticals) to develop new products and techniques without the involvement and consent of the holders of such knowledge, who have also received none of the resulting benefits. This has been referred to as 'biopiracy'.

The recent adoption of the regulation on bio-prospecting and the access and benefit sharing measures as described in the National Environmental Management Biodiversity Act No. 10 of 2004 (NEMBA), seek to stop biopiracy in SA.

Since the publication of the bio-prospecting, access and benefit sharing regulations, the Department of Environmental Affairs and Department of Tourism have embarked on translating the regulations into all SA's official languages and have managed to translate the regulations into Tsonga, Venda, Sepedi, and Xhosa (ibid). These translated regulations will be used to raise awareness and training as part of reaching out to indigenous communities.

6.3.2 Department of Health (DoH)

DoH established the Directorate of Traditional Medicine in 2006. It was conceived as a formal entity focusing on traditional medicine that would facilitate its institutionalization and development (Njiraine and Le Roux, 2011: 817). The directorate is underpinned by two key sub-directorates, namely Information and Knowledge Management (IKM) and Policy and Regulatory Affairs (PRA).

IKM seeks to scale up and coordinate research and development, including the development of information systems in traditional medicine. It also seeks to operate as a centre of excellence in traditional medicine by fostering collaborative networks in the area of research and development between institutions (universities, traditional health practitioners, research institutes and other stakeholders), more especially research into chronic and common diseases (ibid). It aims to document traditional medicine information, promote conservation and the sustainable supply of

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medicinal plant resources through local production, and facilitate the empowerment of traditional health practitioners through relevant education and training programmes that are critical to their professional development and growth. PRA seeks to develop an overarching national policy on traditional medicine in order to create an enabling environment for the utilization and practice of traditional medicine (ibid).

The directorate works closely with all relevant national, regional and international bodies, agencies and institutions with an interest in traditional medicine. Traditional health practitioners, including all owners of traditional medicine knowledge, are some of the most important stakeholders in the activities of the directorate.

6.3.3 Department of Trade and Industry (DTI)

6.3.3.1 Overview of the DTI

The purpose of the DTI is to: provide leadership to the South African economy through its understanding of the economy, its knowledge of economic opportunities and potential, and its contribution to ASGISA; act as a catalyst for the transformation and development of the economy and responds to the challenges and opportunities of SA's economic citizens in order to support the government's economic goals of growth, employment and equity; respond to the challenges and opportunities in the economy and society; and provide a predictable, competitive, equitable and socially responsible environment for investment, enterprise and trade (World Trade Centre, 2012).

6.3.3.2 The DTI's Strategic Objectives

One of the most important new policy developments for the DTI was the release of 5 key medium-term strategic objectives over the 2006 to 2009 period, i.e. to: promote coordinated implementation of the accelerated and shared growth initiative; promote direct investment and growth in the industrial and services economy, with particular focus on employment creation; contribute towards the development and regional integration of the African continent within the New Partnership for Africa's Development (NEPAD) framework; promote broader participation, equity and redress in the economy; and raise the level of exports and promote equitable global trade (Mbengashe, 2008: 25).

These 5 strategic objectives were to be achieved through the collective effort of the DTI's divisions and agencies, which are linked through a value chain to generate public value for economic citizens and to deliver products and services for their clients and stakeholders. These products and services include policy, legislation and regulation, finance and incentives, information and advice, and partnerships. The DTI also plans to achieve its objectives through the pursuit of a more targeted investment strategy; improved competitiveness of the economy; broadened economic participation of previously disadvantaged individuals to the mainstream economy; and policy coherence (Mbengashe, 2008: 25).

The DTI is the leading department in the protection of Intellectual Property (IP) and IK in South Africa. Internationally, organizations such as the World Intellectual Property Organization (WIPO), UNESCO, United Nations Environmental Programme (UNEP) and Food and Agricultural Organization (FAO) have been pursuing instruments that can protect the diverse constructs that fall under IP in developing countries. Included in the international spotlight are issues relating to IK. It is with this in mind that DTI spearheaded the amendments and/or introduction of various pieces of legislature subsequently passed by parliament in order to ensure the protection and commercialization of IK (ibid). These include the Copyright and Performances Amendment Act of 2001; Patents Amendment Act, 2005; and Protection of IK Bill, 2008.

It is foreseen that through these legislative interventions, the DTI, in collaboration with other departments, would contribute meaningfully to harnessing IK related initiatives of the second economy into the first economy without prejudicing the rights of the local communities (Mbengashe, 2008: 19).

6.3.4 Department of Agriculture (DOA)

6.3.4.1 Agricultural Research Council (ARC)

The ARC was established by the Agricultural Research Act, 1980 (Act No 86 of 1990, as amended), and is the principal agricultural research institution in SA. Its objectives are to conduct research and develop technology and technology transfer (dissemination) in order to promote agriculture and industry; contribute to a better quality of life; and facilitate and ensure

natural resource conservation (Mbengashe, 2008: 38). The ARC performs its functions through several research campuses, commonly known as research institutes, that are predominantly commodity based and that are strategically distributed across the country. These research campuses can be clustered into five business divisions, namely the livestock business division, grain crops division, horticultural crops division, natural resources division, and engineering. Research at these facilities is complemented by on field experimental sites distributed throughout every province of South Africa. In addition, selected farm fields are utilized to study the performance of ARC research technologies under actual farm production environments. (Mbengashe, 2008: 40).

The horticulture business division consists of three research institutes; i.e. the Vegetable and Ornamental Plant Institute and the Institute for Tropical and Subtropical Crops (World Trade Centre, 2012). The first category of mandated indigenous crops and plants includes the root crops amadumbe and cassava, and indigenous or traditional leafy crops such as amaranth, cucurbits, corchorus, cowpeas and cleome. The development and optimization of propagation and cultivation practices as well as crop improvement and economic viability are the major research focus areas. Surveys also focus on the role of these crops in food security in urban, semi-urban and rural areas. The second category consists of indigenous ornamental bulbs like lachenalia, ornithogalum, veltheimia, babiana, cyrtanthus and eucomis, and indigenous fynbos like protea, leucospermum, leucadendron, erica and buchu. The last category consists of indigenous medicinal plants such as eucomis autumnalis, sutherlandia frutescens, artmeisia afra, leonotis, merwilla natalensis, tulbaghia violaceae, hypoxix hemerocallidea, and siphonochilus aethiopicus (Mbengashe, 2008: 9).

The grain and industrial crops division consists of the Grain Crops Institute, Small Grain Institute and the Institute for Industrial Crops (Mbengashe, 2008: 9). Indigenous crops researched under this division include bambara, cowpea, millet and sorghum. Five different hemp cultivars were also tested during the 2006/ 2007 season at sites in the Eastern and Western Cape (Mbengashe, 2008: 9). The main focus of the ARC's IKS program is to promote, protect

and utilize IK in SA and to assist the ARC with development strategies and implementation programmes.

6.3.4.2 IK in the Department of Agriculture (DOA)

The DOA has developed several policies that cover indigenous crops. These include the Policy on Indigenous Food Crops, Policy on Industrial Crops, and Policy on Ornaments (Mbengashe, 2008: 9). The Policy on Indigenous Food Crops was approved by the Departmental Executive Committee and released for consultation, culminating in a national workshop and provincial workshops in eight provinces. The recommendations from the workshops led to a survey on the crops that were discussed. In promoting these crops, the Directorate of Plant Production commissioned several research and developmental projects to the Agricultural Research Council. Various other information materials were developed and distributed to the public to maintain dialogue during designated 'information days' (Mbengashe, 2008: 9).

The Directorate of Genetic Resources is involved the ongoing documentation of the use of plant genetic resources. The collection of genetic material is undertaken nationwide before being stored at the National Gene Bank (Mbengashe, 2008: 9). Communities are presently being taught how to establish and maintain gene banks.

6.3.5 Department of Education (DoE)

The North West DoE, in collaboration with DST and Center for South Africa Council for Scientific and Industrial Research (CSIR), embarked on a one year pilot project focusing on schools participating in the conservation and preservation of IK through the involvement of learners in community based research, the recording of information, and propagation activities. Thirty schools were selected from all four districts with six schools per district. 15 school coordinators were used to cover all the schools that were selected by the provincial Department of Education. These were selected from the IK Department at the University of North West (Mbengashe, 2008: 20).

The main objective of the project was to reduce the risks of extinction facing IK through the restoration of its status as a science with the capacity to innovate and unearth its potential to contribute towards sustainable socio-economic development (Mbengashe, 2008: 20). The Council for Scientific and Industrial Research (CSIR) has been involved in IK and poverty alleviation and therefore has the capacity and know how to transform IK into products and services that could benefit the people. Introducing IK in schools is aimed at providing the learners with information and knowledge that is not found in their textbooks - knowledge that could benefit them and their community.

Most of the schools that were selected were very amenable to the idea of introducing IK in schools, especially for grades 10 and 11. There was a lot of enthusiasm from the headmasters, teachers, learners, and communities at large (Mbengashe, 2008: 20). This excitement confirmed that there is a very important place or role for IK through information sharing. The successful implementation of this project was realized in 14 schools that fully embraced the concept of IK in schools. The schools participated in various events which they organized themselves or which were organized by the community, such as Heritage day, schools' cultural events, and Celebrating Africa day (Mbengashe, 2008: 20). The pride of the communities and schools were on show in these events, which highlighted the achievements of Africans in various sectors (Mbengashe, 2008: 20).

6.3.6 Department of Arts and Culture (DAC)

According to its website (http://www.dac.gov.za/), DAC's IK unit is located in the Living Heritage Directorate. The IK unit is responsible for the identification, documentation, preservation, protection and promotion of IKS and living heritage. It is also responsible for various commemorations, such as the Heritage Month Celebrations held in September of each year. As part of its mandate to preserve and promote IK, the DAC works in partnership with the Universities of Venda, Zululand and Fort Hare. These universities have been mandated to identify, document, preserve and promote IK in the provinces in which they operate (http://www.dac.gov.za/).

When it was first conceptualized, the initiative focused on indigenous music and oral history. However, preliminary findings necessitated a shift in scope, resulting in the inclusion of other aspects of intangible cultural heritage. Some of the outcomes of the initiative include, among others, the development of material for the teaching of IKS in educational institutions, the preservation and promotion of IK, the identification of experts in various aspects of IKS in communities, and the use of information collected for economic development (http://www.dac.gov.za/).

During the annual Heritage Celebrations in September, different themes are used to promote and celebrate living heritage. The 2005 theme for heritage month was, "Celebrating our food, our heritage", and its objective was to promote the cultivation of indigenous food because of its nutritional, medicinal and economic benefits (http://www.dac.gov.za/). In 2006, the DAC used the heritage month to promote music, with an emphasis on indigenous music. Poetry was celebrated in the heritage month in 2007. The choice of poetry as the theme for the 2007 heritage month celebrations marked a turning point in poetry, languages and identity (http://www.dac.gov.za/).

6.3.6.1 DAC in partnership with the African Heritage Trust

The African Heritage Trust annually hosts a series of regional, provincial and national indigenous dance and music competitions culminating in the Zindala Zombili National Dance and Music Festival that is funded by the DAC annually. A total of 193 groups participate in the regional category, 163 in the provincial category, and 32 at national level (Department of Arts and Culture, 2006: 11).

These competitions provide a platform that exposes community talent, promotes excellence in the performance of indigenous music and dance, exposes SA to indigenous music and dance of different ethnic groups in SA, contributes to the development of a sustainable indigenous dance and music industry in SA, and contributes to the breaking down of cultural barriers. Groups that receive exposure during these competitions have benefited immensely; some have been invited to perform during heritage month celebrations or received financial rewards.

6.4 Centers and Systems

With respect to centers and systems, the respondents were asked about the management structures and hierarchies and who controls them and their roles. These questions were set to identify which other non-governmental institutions deal with IK in South Africa.

6.4.1 The Department of Agriculture (DOA)

South Africa has 286 municipalities (http://www.daff.gov.za). According to the Director of the Department of Agriculture, indigenous food crops and agricultural issues at national level are controlled by the Department of Agriculture. The provincial Department of Agriculture controls the provincial level, while the local economic development unit controls the local level. The Department of Agriculture works with other stakeholders, especially at national level, for example with the Department of Arts and Culture, Department of Science and Technology, and other bodies that deal with IK, e.g. the government agency, Indigenous Knowledge Systems of South Africa (IKSSA), Freedom Trust (Menlyn), and universities that have IK programmes.
The roles of various centres

Indigenous Knowledge Systems of South Africa (IKSSA)

According to a senior officer for the Indigenous Knowledge Systems of South Africa (IKSSA), this Non-Governmental Organization's (NGO) management is structured across both national and provincial levels. The Board of Trustees controls the national level but the provincial level is controlled by the provincial Board of Trustees. The respondent stipulated that the NGO has many stakeholders at all levels. At national level, it worked with national government departments, national archives, and national coordinating committee of traditional health practitioners of South Africa. Provincially, they coordinate with houses of traditional leaders, the government provincial level, and traditional healers at provincial level. Municipalities, districts and traditional associations form the basis of local partners.

The NGO has various roles. At national level, it promotes and protects IK and its practitioners by giving them a platform to interact with the public and private sectors. It also assists them with fundraising efforts. Provincially, the role of partnership is expounded by partnering with different structures, the integration of health systems, and establishing medical plant farms.

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Integration trickles down to local level in attempts to unite traditional healers amongst the different associations fighting for recognition.

The Funding Manager of the National Heritage Council (NHC) (www.nhc.org.za) highlighted that the NHC is the main funding organization of the Department of Arts and Culture. It operates under the IKS policy. It is centrally placed, meaning that it is at national level and controlled by the Department of Arts and Culture. It coordinates with other stakeholders at the lower provincial and local levels. At provincial level, it coordinates with provincial legislature departments, and at local level it coordinates with municipalities and other entities such as museums, libraries, archives, and traditional leaders associations. Its role waters down to grassroots level. At national level, it oversees the coordination of and advises on policy matters and financial support to the sector. Provincially, it coordinates and supports issues that are related to heritage, e.g. the management of the sector and also financial support.

The research team leader of the Agricultural Research Center (ARC) contributed with the information that the ARC is structured at national level and controlled by the research and technology manager. The center works with other stakeholders from national to local levels. The national level stakeholders include the IK Office based at DST, IKSSA, and other NGOs and CBOs dealing with IK.

He listed the provincial stakeholders as the Gauteng Department of Agriculture, Culture and Environment (GDACE), the Limpopo Department of Agriculture (LDA), and all provincial government departments. He stressed that the former two are the chief players. Local stakeholders include municipalities, the Sikhukhuni and Vhembe districts, and other districts across the country. The ARC's role is felt at all levels. At local level, the ARC documents available IK, e.g. weather forecasting, IKS on the management of pests and diseases in crops and livestock, classification of soil, general production systems, and post harvest technologies.

The Deputy Director of Paul Kruger Museum stated that the museum is nationally controlled by the Deputy Director. The museum works with stakeholders at national and local levels. At national level, it works with National Archives and Records Services, South African Heritage

Resource Agency, Department of Arts and Culture, and the Freedom Park Trust. At local level, it coordinates with the City of Tshwane and community schools. At national level it is involved in documentation, which started in 2004.

The key informants from National Archives and Records Services stated that National Archives and Records Services play national, provincial and local roles. Nationally, it provides training, guidance, collection, management and the preservation of recorded material in whatever format. These roles are duplicated at provincial and local levels.

The Director of DST observed that National Archives had initiated an oral history project to promote African heritage. He further stated that the NHC funds research on intangible heritage. He also explained that all provincial archives and libraries have IKS collections while local municipalities sponsor libraries and museums with collections on IKS.

The respondent from the National Plant Genetic Resources Centre explained that management at national level is controlled by the Minister of Agriculture and Land Affairs. At provincial level, provincial agricultural and concerned Ministerial Executive Councils (MECs) run the centre, while at local level it is controlled by the local government. There is coordination across all levels, and the national level partners with Valley Trust (KZN) Research Institutions, Crop and Wild Species, South African National Biodiversity, and universities and NGOs. Provincially, they coordinate with extension services, while at local level they work with farmers' organizations. In addition to the cross-country coordination, there is regional coordination with biodiversity, FAO and Southern African Development Community (SADC). The centre plays a national role of conservation and the utilization of plant and animal.

6.5 Programmes and Activities

The respondents were first given the operational meanings of the terms 'programmes' and 'activities'. To reiterate, programmes are the regular events that an organization plans and budgets for, such as annual conferences or workshops to sensitize employees, while activities in knowledge management involve identifying, collecting, retaining and organizing information and distributing insights gained through past experiences. The respondents were therefore asked

to identify programmes or activities, their time span, and their source(s) of funding. This was also to compliment the objective of unearthing the current IK management practices and their environment.

The respondents' responses are summarized in the following table.

Table 6.2: Programmes and activities in South Africa

PROGRAMMES/ACTIVITIES	FREQUENCY	BODY RESPONSIBLE
Post-harvest activities through farmers days, seed fairs		Agricultural Research Center
Animal promotions plant	Annual	Dept. of Agriculture
On-farm conservation	Annual	
On-farm duplication project	Annual	Department. of Agriculture
Annual Heritage Month	Annual	Department. of Arts and Culture
Lithuli lecture South African Museum Association	Annual	Heritage Institutions, Department of Arts and Culture
	Annual	
National Science Week Regional Workshop SADDC on protecting IKS Interdepartmental Committee of WIPO Priority setting workshop Regional W/S SADC on policy protecting IKS workshop in response WIPO contentious and treaties Interdepartmental committee of	Annual	Department of Science and Technology

WIPO responds to the needs of IKS in the country also captures other IKS activities in the country. Intergovernmental committee of WIPO		
	Annual	
		DST
National Archives week	Annual	National Archives
Ngoma (zindala zombini) festival	Annual	National Archives
Heritage awards	Annual	NHC
Ubuntu	Annual	NHC
National Living Treasures IKS festival Establishment of medicinal plants in provinces Fundraising breakfast Human Rights of IKS conference	Annual N/A N/A	IKSSA
	Annual	
Heritage awareness	Regular	Paul Kruger Museum NFI
African windows (provincial) Cultural villages (local) Traditional attire Go traditional They also sponsor various competitions	Annual	Arts and Culture

6.6 Summary

This chapter presented the findings of mapping and auditing IK in South Africa with respect to policies and legislation, governance structures, centres and systems, and programmes and activities. The next chapter presents a bibliometrics analysis of IK research trends in both Kenya and South Africa.

CHAPTER SEVEN

Informetric Analysis of IK Research in Kenya and South Africa

7.1 Introduction

This chapter applies informetrics using descriptive bibliometrics to determine the status and trends of Indigenous Knowledge (IK) development in Kenya and South Africa. Data was analyzed according to document type; growth of literature on the subject from 1990 - 2008; document source(s); document affiliation; subject domain; country of publication; and nature of authorship, among other attributes. International databases (i.e. OCLC - Online Computer Library Center, MEDLINE, WorldCat and AGRICOLA) and national databases - the Southern African Bibliographic Information Network (SABINET databases, i.e. Current and Completed Research: CCR, Union Catalogue of Theses and Dissertations: UTD, and Index to South African Periodicals: ISAP) for South Africa, and the Greenstone Database (postgraduate students only for Kenya - were analyzed using content analysis. Two keywords, 'indigenous knowledge' and 'traditional knowledge', were used in all database searches.

7.2 Bibliometrics

Bibliometrics is traditionally associated with the quantitative measure of documentary materials and it embraces all studies that seek to quantify the process of written communication, i.e. the application of mathematical methods to books and other written media of communication. Bibliometric methods are used especially in studies of properties and the behaviour of recorded knowledge to analyze the structures of scientific and research areas and to evaluate the research activity and administration of scientific information (Wormell, 2001; Ungern-Sternberg, 1995). Bibliometrics can also overlap with informetrics, the mathematical and statistical study of patterns in documentation and information, and scientometrics, the mathematical and statistical analysis of research patterns in life and the physical sciences. It is also associated with cybermetrics, the study of the quantitative analysis of scholarly and scientific communications over the Internet, and even cliometrics, the study of historical data by use of statistical techniques (Jayroe, 2008:2). Bibliometric criteria are also especially suited to assess research productivity

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and hence research performance, through: the number of publications produced; the quality of the sources in which the published material appears; how much of the work is individual, grouped, or organizational; and the quality of the citations as judged by the perceived quality of the citing journals (Lancaster, 1991:6). Bibliometrics can also successfully be applied in the following areas (Sengupta, 1992:84):

- Quantitative growth of literature
- Obsolescence and scattering of information
- Efficiency of information products and services in science and technology and production
- Efficiency of information systems and the information establishment in general
- The role of different kinds of documents as a means of scientific communication
- Information pertinence and relevance
- Ranking of periodicals and serials by various parameters
- The role of informal channels in scientific communication
- Overlapping of subject content between periodicals and serials
- Citation habits of scientists and the growing role of citation analyses
- Interdisciplinary relations on the basis of bibliographical references

Of the studies on IK (from diverse perspectives) that have been carried out at both international and national levels (see Chapter one), there are some related studies done from a bibliometrics perspective. An example worth noting is "HIV/AIDS research and the youth: an informatics analysis of the literature" which was: "An analytical overview of the HIV/AIDS literature relevant to the youth with the view to determining and comparing the nature, trends, and type of the pandemic's research and other characteristics as indexed in the AIDSearch database between 1982 and 2002" (Onyancha & Ocholla, 2005). More in keeping with this study is an informatics study carried out by Onyancha & Ocholla (2005) which applied descriptive bibliometrics to determine the status and trends of IK development from 1990 – 2002 in Kenya. It therefore seemed suitable to apply bibliometrics to assess the IK research output of both countries.

Both informetrics and bibliometrics were used in the analysis of this research data since both describe a mathematical model to analyze and accurately map research productivity, and hence

research performance, which includes the number of publications produced; the quality of the sources in which the published material appears; how much of the work is individual, grouped, or organizational; and the quality of the citations as judged by the perceived quality of the citing journal.

7.3 Methodology

In order to determine the trends and types of IK research in Kenya and South Africa, an analysis of IK records was carried out according to their distribution by or in terms of database, document type, institution, sources, and trends of IK literature from 1990 to 2008. Two types of databases were selected for this study, the first consisting of international databases while only the Greenstone Database was selected for IK research.

Two keywords, 'indigenous knowledge' and 'traditional knowledge', were used in all the databases to retrieve relevant bibliographic information. It is, however, important to note that geographical terms (Kenya and South Africa) were added to these keywords in the case of international databases.

Generally, the steps followed to generate results were as follows:
- The relevant keywords were identified in order to download data
- Relevant variables were selected based on the objectives of the study
- The retrieved data was stored in appropriate format using Microsoft Word and Excel spreadsheets
- Data was cleaned, which involved the removal of duplicates and irrelevant records
- Data was analyzed using Microsoft Excel software according to the set objectives
- The results were graphically presented in tables and figures

7.4 Results and Discussions

This section presents the findings and discussions under the following subheadings:
- Distribution of IK records by database

- Distribution of IK records by trend
- Distribution of IK records by institution
- Distribution of IK records by document type
- Distribution of IK records by subject domain

7.5 Distribution of IK records by database

The distribution of IK records by database was determined in order to measure the extent of coverage of IK sources in the two countries. The indicated databases were analyzed as per (the number of) records generated. A total of three hundred and ninety (390) IK documents were downloaded for Kenya. Greenstone produced two hundred and ten (210) (representing 53.8 %) records, followed by WorldCat with 79 records (20.3 %) and OCLC with 63 records (16.2 %). Agricola and Medline generated 23 (5.9 %) and 14 (3.6 %) records respectively. While Greenstone Database, which yielded the most IK-related documents, deals with all Kenyan research carried within and outside Kenya, it mainly contains dissertations at Master's and Doctorate levels.

The South African IK output by databases generated a total of eight hundred and ninety six (896) IK records downloaded as follows: SAE-Publications yielded two hundred and sixty one (261) records, representing 29.1 %; OCLC followed with 163 (18.2 %); ISAP generated 163 (18.2 %); WorldCat, 111 (12.4 %); CCR, 81 (9.0 %); Medline, 66 (7.4 %); UCTD, 34 (3.8 %); and AGRICOLA, 17 (1.9 %). This is reflected in Table 7.4 below.

Table 7. 1: Coverage of IK records in databases (Kenya)

	Kenya (N=390)	
Database	Records	%
AGRICOLA	23	5.9
CCR		0.0
Greenstone	210	53.8
ISAP		0.0
Medline	14	3.6
OCLC	63	16.2
SAePublications		0.0
UCTD		0.0
WorldCat	79	20.3
Total	390	100

Table 7. 2: Coverage of IK records in databases (SA)

	South Africa (N=896)	
Database	Records	%
AGRICOLA	17	1.9
CCR	81	9.0
Greenstone		0.0
ISAP	163	18.2
Medline	66	7.4
OCLC	163	18.2
SAePublications	261	29.1
UCTD	34	3.8
WorldCat	111	12.4
Total	896	100

The inclusion of both international and national databases was primarily done to assess the visibility of IK research. With (IK) being as "neglected, vindicated, stigmatized, illegalized and suppressed among the majority of the world communities" (Ocholla and Onyancha, 2004:248) as it is, efforts are being made to counter the situation. Most of this can only be achieved through integration with other forms of knowledge.

Although local databases represented the highest number of records (e.g. Greenstone with 53.8 % in Kenya and SAePublications with 29.1 % in South Africa), international databases also yielded significant representation (e.g. WorldCat yielded 20.2 % for Kenya and OCLC generated 18.2 % for South Africa). In fact the total international representation for Kenya took a significant portion of 46.2 %, while the figure for South Africa was lower at 39.8%. This indicates a higher visibility internationally for both countries, although it is a bit lower in the case of South Africa. However, it should be noted that although Greenstone had the most records, it is not an IK database; it was developed to cover all research being undertaken in or by the country.

7.6 Trends of publication of IK literature

A total of three hundred and ninety (390) records were downloaded for Kenya and eight hundred and ninety six (896) for South Africa for the period between 1990 and 2008. The results (see Figure 7.1) show the remarkable progress of South Africa, particularly in the period between 2001 and 2007, before a drop in 2008. The drop could be attributed to processing procedures when updating databases. On the other hand, the rise of publications from 2001 could be attributed to government interventions such as institutionalization and legislation, e.g. the development of the National Indigenous Knowledge Systems Office (NIKSO) which advocates the promotion and protection of IK, and the efforts of the National Research Foundation (NRF) which oversees funding for IK research. On the international arena, IK has also received international attention through initiatives such as the World Bank's special program on best practices in IK (please refer to http://worldbank.org/afr/ik/default.htm), and UNESCO through its Management of Social Transformation Programme (MOST; see http://www.unesco.org/most/bpikreg.htm).

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The Kenyan trend does not seem to be progressive; there were no signs of growth, perhaps stemming from obstacles such as the lack of any legislation and funding, lack of coordination of research in the country, and also the lack of an IK database.
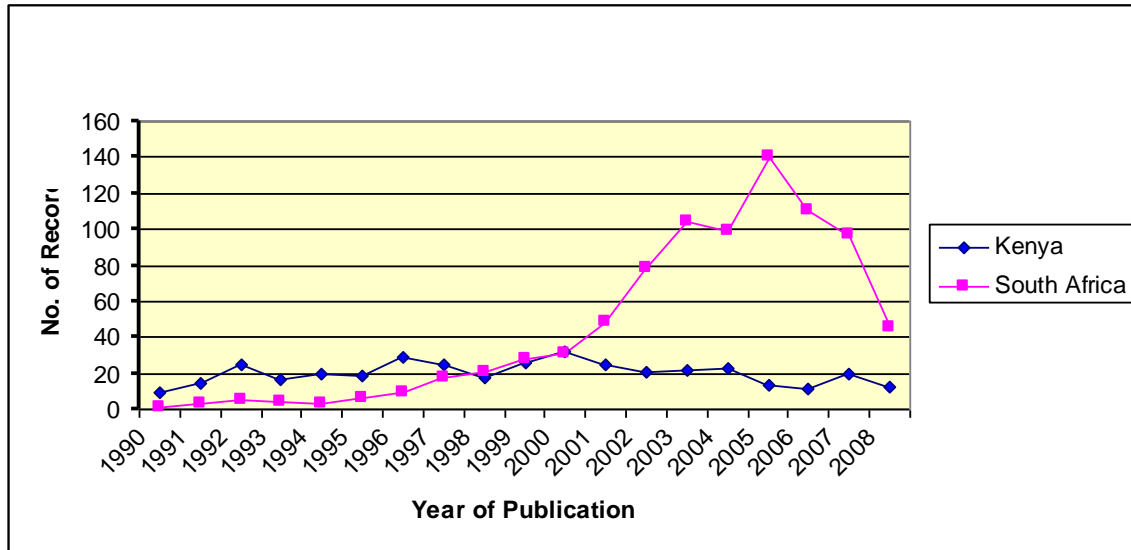
Figure 7.1: Trends of publication of IK literature, 1990-2008

7.7 Distribution of IK by institution

Institution here refers to the source of the record, in other words the institution that produces the publication. 210 records were generated through 52 universities, of which 6 were Kenyan. These include Kenyatta University, which had the highest number of records at 85, followed by the University of Nairobi with 31, Moi University with 5, Catholic University of East Africa with 2, and the Jomo Kenyatta University of Agriculture and Technology and Daystar with 1 record (11.5 %) each. The remaining institutions were foreign universities based in the USA, the UK and Canada, which together generated 88.5 % of the research output. The inability of the Greenstone Database to capture research undertaken elsewhere in Africa, and particularly South Africa, makes it seem rather incomprehensive. Table 7.3 illustrates which universities contributed the 210 records (40.5 %) via the Greenstone Database.

Table 7. 3: Distribution of Kenya's IK records by institution (N=210)

INSTITUTION	No. of Records	%
Kenyatta University	85	40.5
University of Nairobi	31	14.8
University of Toronto, Canada	7	3.3
Moi University	5	2.4
McGill University, Canada	4	1.9
Saint Mary's University, Canada	4	1.9
Asbury Theological Seminary	3	1.4
Pennsylvania State University, USA	3	1.4
University of Florida, USA	3	1.4
University of California, Berkeley, USA	3	1.4
University of South Florida, USA	3	1.4
Florida State University	2	1.0
Catholic University of Eastern Africa	2	1.0
Cornell University, USA	2	1.0
Mid-America Baptist Theological Seminary, USA	2	1.0
Howard University, USA	2	1.0
Open University, UK	2	1.0
Rice University, USA	2	1.0
Southwestern Baptist Theological Seminary, USA	2	1.0
United Theological Seminary	2	1.0
University of Alberta, Canada	2	1.0
University of British Columbia, Canada	2	1.0
University of London, UK	2	1.0
University of Cincinnati, USA	2	1.0
University of Edinburgh, UK	2	1.0
University of Oregon, USA	2	1.0

University of Pittsburgh, USA	2	1.0
University of St. Michael's College, Canada	2	1.0
University of Virginia, USA	2	1.0
Andrews University, USA	1	0.5
Bowling Green State University, USA	1	0.5
Daystar University	1	0.5
East Angelia University, UK	1	0.5
Fuller Theological Seminary	1	0.5
Makerere University, Uganda	1	0.5
Northwestern University, USA	1	0.5
University of Arkansas, USA	1	0.5
Stanford University, USA	1	0.5
Trinity Evangelical Divinity School, USA	1	0.5
Tufts University, USA	1	0.5
Jomo Kenyatta University of Agriculture and Technology	1	0.5
University of New Brunswick, Canada	1	0.5
University of Pennsylvania, USA	1	0.5
Universitat fur Bodenkultur, Austria	1	0.5
University of California, Santa Cruz, USA	1	0.5
University of Chicago, USA	1	0.5
University of Strathclyde, UK	1	0.5
University of Connecticut, USA	1	0.5
University of Essex, UK	1	0.5
University of Western Ontario, Canada	1	0.5
Wageningen University, The Netherlands	1	0.5
West Virginia University, USA	1	0.5
	210	100.0

Table 7.4 that follows shows South Africa's institutional affiliations through the CCR database, which specifically deals with research. 16 universities contributed IK records to the database. North-West University (Mafikeng Campus) topped the list with 13 (16.0 %) publications, followed by the University of Natal and the University of South Africa (each with 9; 11.1 %). The University of the Witwatersrand and Stellenbosch University tallied with 7 (8.6 %) records each, followed by three universities with 6 (7.4 %) records each, i.e.: Rhodes University, University of Natal (DBN), and the University of Pretoria. These were followed by three universities with 4 (4.9 %) records each, i.e. Nelson Mandela Metropolitan University, University of KwaZulu-Natal (Westville) and the University of Port Elizabeth. The University of Zululand produced 3 (3.7 %) records, while Rand Afrikaans University, Technikon Pretoria, and the University of the Western Cape each generated 1 (1.2 %) record. However, it should be pointed out that indexing the research output of an institution could paint quite a different picture. For example, a recent analysis of indigenous knowledge research output at the University of Zululand from 1981 – 2007 by Ocholla and Onyancha (2008) revealed that there is evidence of IK research publication from that institution that constitutes 5.9 % (153 of 2598) of the total number of publications captured by the research unit from 1981 - 2007.

Table 7. 4: Distribution of South Africa's IK records by institution (N=81)

	Institution (N=16)	No. of Records	%
		81	100
1	Nelson Mandela Metropolitan University (Summerstrand Campus South)	4	4.9
2	North-West University (Mafikeng Campus)	13	16.0
3	Rand Afrikaans University	1	1.2
4	Rhodes University	6	7.4
5	Stellenbosch University	7	8.6
6	Technikon Pretoria	1	1.2
7	University of KwaZulu-Natal (Westville)	4	4.9
8	University of Natal (DBN)	6	7.4
9	University of Natal (PMB)	9	11.1
10	University of Port Elizabeth	4	4.9
11	University of Pretoria	6	7.4
12	University of South Africa	9	11.1
13	University of the Western Cape	1	1.2
14	University of the Witwatersrand	7	8.6
15	University of Zululand	3	3.7

While SABINET's UCTD could be analyzed in this category, it did not qualify because of lack of information pertaining to institutional affiliation. As for Kenya, Greenstone Database qualified because it provides information on institutional affiliations that resemble the CCR due to its specific research orientation. The only difference in Greenstone's case is that it takes into account theses and dissertations that reflect research undertaken in Kenya and by institutions located outside of Kenya (Kenya Information Preservation Society, 2008).

7.8 Distribution of IK Records by Document Type

Most of the records from Kenya consisted of theses and dissertations, amounting to 235 (60.3 %) out of a total of 390. Other document types included journals (79; 20.3 %), books (55; 14.1 %),

government publications (7; 1.8 %), videos (5; 1.3 %), e-books (6; 1.5 %), and conference publications (3; 0.8 %). In South Africa's case, journals topped the list with 587 (65.5%) records out of 896, followed by theses and dissertations (176; 19.6 % records). Further down the line were books (68; 7.6 %), conference publications (21; 2.3 %), videos (11; 1.2 %), government publications (11; 1.2 %), and international government publications (12; 1.3 %). There were also a few publications in the form of e-books (7; 0.8 %) and computer files (1; 0.1 %) (Table 7.5).

Table 7. 5: Distribution of IK records by document type - Kenya (N=390) and South Africa (N=896)

	Kenya		South Africa	
Document type	No. of Records(N=390)	%	No. of Records(N=896)	%
Thesis/Dissertation	235	60.3	176	19.6
Journal Articles	79	20.3	587	65.5
Books	55	14.1	68	7.6
Government Publication	7	1.8	11	1.2
Video	5	1.3	11	1.2
Conference Publication	3	0.8	21	2.3
E-Books	6	1.5	7	0.8
International Government Publication	0	0.0	12	1.3
Computer File	0	0.0	1	0.1
Anon	0	0.0	1	0.1
	390	100.0	896	100.0

In Kenya's case, theses or dissertations topped the list with 235 (60.3 %) records, most of which were yielded by the Greenstone Database (i.e. 210). Although there were other document types, these were quite minimal, possibly because of poor contribution or the non-participation of scholars in publication. Journal articles topped the list in South Africa, perhaps because of the government's support (for academic institutions) through funding incentives and also because of universities' stringent requirements that both students and staff publish. Financial support

(whether full or partial) is a strong motivating factor that has led to a rise in journal publishing, especially in South African Post Education (SAPSE) accredited journals.

7.9 Distribution of IK Records by Subject Domain

IK research is diverse and varies a lot in terms of subject coverage. IK was therefore divided into six broad categories to facilitate easier identification and to discover the nature of research undertaken in terms of popular and neglected areas, and how the latter can be addressed in order to avert any foreseeable crises. The categories were classified as agriculture (IK in crops, plants, the ecosystem, extension, pastures, fisheries, etc.); culture (religious issues, ceremonies, customs, folklore, language, traditions, diet, social aspects, people, gender, etc.); education (child or adult education, i.e. primary, secondary and tertiary education; history - pre- and post-colonial aspects; philosophy and psychology); the environment (all that pertains to biodiversity, bio-prospecting, forestry, etc.); law (issues of Intellectual Property Rights, innovation, patents, governance, policies, legislation, etc.); and health and medicine (alternative medicine, healing, herbal medicine, medicinal plants, and all factors that affect human and animal health).

In Kenya's case, culture-oriented records yielded the most number of records (160; 41.0 %), followed by health and medicine (89; 22.8 %), the environment (49; 12.6 %), education (40; 10.3 %), agriculture (37; 9.5 %), and law related records (15; 3.8 %). For South Africa, the leading subject was culture (271; 30.2 %), followed by health and medicine (222; 24.8 %), education (180; 20.1 %), law (103; 11.5 %), the environment (64; 7.1 %) and agriculture (56; 6.3 %). This is reflected graphically below.

Table 7. 6: Coverage of IK records by subject - Kenya (N=390) and South Africa (N=896)

Kenya			South Africa	
Subject	No. of Records	%	No. of Records	%
Culture	160	41.0	271	30.2
Health & Medicine	89	22.8	222	24.8
Environment	49	12.6	64	7.1
Education	40	10.3	180	20.1
Agriculture	37	9.5	56	6.3
Law	15	3.8	103	11.5

IK records with a cultural focus topped the list in both countries, presumably because the majority of the publications touch on issues that are crucial to the social wellbeing of people. Traditions also still play a very important role in everyday life, which explains the interest in the subject. Take for instance Kinama's (2004:51) earlier cited examples of the problem solving strategies used by local communities, particularly in the case of the rural poor, such as land use conservation where shifting (from area to area) was done to prevent land from overuse or repetitive cultivation throughout the season. Land was normally left uncultivated for vegetable or plant manure accumulation (Ayayo, 2004:40). Besides achieving food security, this practice was and is still used today to ensure continuous soil fertility.

Although it was observed that the document types that dominated in IK publication were theses or dissertations for Kenya and journal articles for South Africa, it was deemed necessary to identify the journals in which most articles are published. Following graduation, journals are generally the most productive sources in which scholars publish their research. (Notes: briefly explain why journals are important, as opposed to books, theses, dissertations, etc.)

In Kenya there were only 30 journals that published IK-related articles, with the *Journal of Ethnobiology and Ethnomedicine* producing 10 (13.9 %), the highest number of articles. This was followed by the *East African Medical Journal* with 7 (9.7%) articles, followed by the

International Journal of Pest Management (5; 6.9 %) and *International Journal of STD & AIDS (4; 5.6 %)*

Reflecting on the Kenyan trend in terms of research output from 1990 to 2008, stagnation may have been caused by the introduction of private course programmes in 1998 in all public universities, which may have reduced scholarly research output because of the financial gains teaching staff could make by doing these modules, leaving most exhausted after teaching (Kiamba, 2003:5). The private program, otherwise known as Module II, was designed to operate from 5.30 to 8.30 pm from Mondays to Fridays and full days on Saturdays; some faculties also opted to extend their teaching to include Sundays. This module would generally have left scholars with little or no opportunities to publish and caused delays in the supervision of research.

Table 7.7 below provides a breakdown of all 30 journals and their contribution to IK literature.

Table 7. 7:Distribution of IK records by journal in Kenya

	Kenya Source (N=72)	No. of articles	%
	Journal of Ethnobiology and Ethnomedicine	10	13.9
	East African medical journal	7	9.7
	Agriculture and Human Values	5	6.9
	Biodiversity and Conservation	4	5.6
	International Journal of Pest Management	4	5.6
	International journal of STD & AIDS	4	5.6
	Curare	3	4.2
	Agroforestry systems an international journal.	3	4.2
	Environmental Monitoring and Assessment	3	4.2
	Comparative Education Review	2	2.8
	Canadian Journal of Environmental Education	2	2.8
	Human ecology. Hum Ecol Mar	2	2.8
	Indigenous Knowledge and Development Monitor	2	2.8
	Tropical and geographical medicine	2	2.8

	Tropical medicine and parasitology	2	2.8
	African Journal of Health Sciences	2	2.8
	American Fisheries Society Symposium	2	2.8
	International Journal of Sustainable Development and World Ecology	1	1.4
	Journal of arid environments	1	1.4
	Journal of soil and water conservation. J. soil water conserve	1	1.4
	JSD	1	1.4
	Kenya past and present	1	1.4
	Land degradation & development	1	1.4
	Medical and veterinary entomology	1	1.4
	Studies in family planning	1	1.4
	The Journal of Development Communication	1	1.4
	Tropical Animal Health And Production	1	1.4
	AIDS care	1	1.4
	Annals of tropical medicine and parasitology	1	1.4
	Biological agriculture & horticulture : an international journal. Biol. agric. Hortic	1	1.4
	Total	72	100

The table below presents South Africa's journal sources of IK literature for the period. The results contrast starkly against Kenya's 30 journals, with a hundred and eighty journals (180) covering IK in South Africa. The most prolific journal was *Indilinga,* which is specifically intended for IK publications. *Indilinga* topped the list with 65 articles (11.2 %), followed by the *South African Journal of Higher Education* with 48 articles (8.3 %), the *South African Journal of Libraries and Information Science* with 31 (5.4 %), the *South Africa Rural Development Quarterly* with 17 (2.9 %), and the *South African Journal of Education* with 15 (2.6 %).

The rise in the number of publications from 2001 in South Africa could be attributed to diverse government interventions, such as ensuring that SAPSE financial gains at university level water down to individual level and motivate publication (see Ocholla and Omwoyo, 2008:10).

Table 7. 8: Distribution of IK records by journal in South Africa

	South Africa Source N=579	No of Articles	%
	Infilling: African Journal of Indigenous Knowledge Systems	65	11.2
	South African Journal of Higher Education	48	8.3
	Curationis	31	5.4
	Africa Insight	17	2.9
	Journal of Ethnopharmacology	15	2.6
	South Africa Rural Development Quarterly	13	2.2
	South African Journal of Education	11	1.9
	Science Scope	9	1.6
	Social Dynamics	9	1.6
	Social Work	8	1.4
	SAMAB	7	1.2
	Farmer's Weekly	6	1.0
	Perspectives in Education	6	1.0
	Tydskrif vir Letterkunde	6	1.0
	Agrekon	5	0.9
	AIDS Care	5	0.9
	Journal of the South African Veterinary Association	5	0.9
	South African Journal of African Languages	5	0.9
	South African Journal of Agricultural Extension	5	0.9
	South African Journal of Science	5	0.9
	African Wildlife	4	0.7

	Africanus	4	0.7
	AIDS Analysis Africa	4	0.7
	De Arte	4	0.7
	Digging Stick	4	0.7
	GeoJournal	4	0.7
	Health SA Gesondheid	4	0.7
	International Journal of Disability, Development & Education	4	0.7
	International Journal of Science Education	4	0.7
	Mousaion	4	0.7
	South African Historical Journal	4	0.7
	South African Journal of Ethnology	4	0.7
	South African Journal of Plant and Soil	4	0.7
	South African Journal of Psychology	4	0.7
	Without Prejudice	4	0.7
	Africa Education Review	3	0.5
	African Journal of AIDS Research	3	0.5
	African Journal of Range and F South African Journal of Libraries and Information Science orage Science	3	0.5
	African Journal of Reproductive Health	3	0.5
	Alternation	3	0.5
	Bulletin of The World Health Organization	3	0.5
	Development Southern Africa	3	0.5
	Ethnicity & Disease	3	0.5
	Geneeskunde	3	0.5
	Health Education & Behavior	3	0.5
	Journal of Ethnobiology and Ethnomedicine	3	0.5
	Journal of Theology for Southern Africa	3	0.5
	MRC News	3	0.5
	SA Family Practice	3	0.5

	SA Journal of Industrial Psychology	3	0.5
	Social Science & Medicine	3	0.5
	South African Family Practice	3	0.5
	Southern African Field Archaeology	3	0.5
	The American Journal Of Nursing	3	0.5
	The Social Work Practitioner – Researcher	3	0.5
	Tropical Medicine & International Health	3	0.5
	Acta Academica	2	0.3
	Acta Criminologica	2	0.3
	Acta Juridica	2	0.3
	Acta Tropica	2	0.3
	African Journal for Physical, Health Education Recreation and Dance	2	0.3
	African Journal of Research in Mathematics, Science and Technology Education	2	0.3
	Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine	2	0.3
	Anthropology Southern Africa	2	0.3
	Arte	2	0.3
	Australian Family Physician	2	0.3
	Communicatio: South African Journal of Communication Theory and Research	2	0.3
	Comparative Education Review	2	0.3
	Dinteria	2	0.3
	Education & Urban Society	2	0.3
	Educational Philosophy and Theory	2	0.3
	Forests, Trees and Livelihoods	2	0.3
	Interim: Interdisciplinary Journal	2	0.3
	Journal of Arid Environments	2	0.3
	Journal of Psychology in Africa	2	0.3
	Journal of the South African Dental Association/ Tydskrif van die Suid-	2	0.3

	Afrikaanse Tandheelkundige Vereniging		
	Journal of World Intellectual Property	2	0.3
	Landbouweekblad	2	0.3
	Missionalia: Southern African Journal of Mission Studies	2	0.3
	Mitigation and Adaptation Strategies for Global Change	2	0.3
	New Agenda	2	0.3
	Politeia	2	0.3
	Rhodes Journalism Review	2	0.3
	SAMUS: South African Journal of Musicology	2	0.3
	SATJ: South African Theatre Journal	2	0.3
	South African Journal of Wildlife Research	2	0.3
	South African Psychiatry Review	2	0.3
	Southern African Journal of Environmental Education	2	0.3
	Southern African Review of Education with Production: Assessment and Educational Standards	2	0.3
	The Onderstepoort Journal Of Veterinary Research	2	0.3
	The Water wheel,	2	0.3
	Tydskrif vir Geesteswetenskappe	2	0.3
	Social Science & Medicine	1	0.2
	Acta Commercii	1	0.2
	Africa Journal of Nursing and Midwifery	1	0.2
	African Entomology	1	0.2
	African Panorama	1	0.2
	African Plant Protection	1	0.2
	Agriculture and Human Values	1	0.2
	AIDS and Behavior	1	0.2
	AIDS Education and Prevention: Official Publication of the International Society for AIDS Education	1	0.2
	American Journal Of Community Psychology	1	0.2
	Annals Of Botany	1	0.2

	Business IT Africa	1	0.2
	Cardiovascular Journal of South Africa	1	0.2
	Career success	1	0.2
	ChildrenFIRST	1	0.2
	Communicare	1	0.2
	Cultural Studies of Science Education	1	0.2
	Developing World Bioethics	1	0.2
	East African Medical Journal	1	0.2
	Environmental Monitoring and Assessment	1	0.2
	EPM: Environmental Planning and Management	1	0.2
	Esarbica Journal	1	0.2
	Finance Week	1	0.2
	Forest Policy and Economics	1	0.2
	Health Education & Behavior: The Official Publication of The Society For Public Health Education	1	0.2
	Health Education Research	1	0.2
	Historia	1	0.2
	HR Future	1	0.2
	Human & Experimental Toxicology	1	0.2
	Human Reproduction (Oxford, England)	1	0.2
	In die Skriflig	1	0.2
	Indo-Pacific Journal of Phenomenology	1	0.2
	Innovation	1	0.2
	Institute of African Studies Research Review	1	0.2
	International Information and Library Review	1	0.2
	International Journal of Social Economics	1	0.2
	International Review of Education	1	0.2
	International Review of Education	1	0.2
	Journal for Language Teaching/ Tydskrif vir Taalonderrig	1	0.2
	Journal of Clinical Forensic Medicine	1	0.2

	Journal of Education	1	0.2
	Journal of Endocrinology, Metabolism and Diabetes in South Africa	1	0.2
	Journal of Human Lactation: Official Journal of the International Lactation Consultant Association	1	0.2
	Journal of International Agricultural and Extension Education	1	0.2
	Journal of Public Administration	1	0.2
	Journal of The International Association of Physicians In AIDS Care	1	0.2
	Journal of the South African Institution of Civil Engineering Joernaal van die Suid-Afrikaanse Instituut van Siviele Ingenieurswese	1	0.2
	Koedoe	1	0.2
	Land: the Budding Farmer's Key to Prosperity	1	0.2
	Law, Democracy & Development	1	0.2
	Martin Creamer's Engineering News	1	0.2
	Meditari: Research Journal of the School of Accounting Sciences	1	0.2
	Nature Reviews. Genetics	1	0.2
	Orchids South Africa	1	0.2
	Parks and Grounds	1	0.2
	Pediatric Rehabilitation	1	0.2
	Plant Protection News	1	0.2
	Practical Theology in South Africa/ Praktiese Teologie in Suid-Afrika	1	0.2
	Proceedings of the Nutrition Society	1	0.2
	Public Health	1	0.2
	SA Archives Journal	1	0.2
	SA Family Practice	1	0.2
	SADJ: Journal of the South African Dental Association/Tydskrif van die Suid-Afrikaanse Tandheelkundige Vereniging	1	0.2
	Social Psychiatry and Psychiatric Epidemiology	1	0.2
	South African Dental Journal	1	0.2
	South African Journal of Animal Science	1	0.2
	South African journal of Botany	1	0.2

	South African Journal of Economic and Management Sciences/Suid-Afrikaanse Tydskrif vir Ekonomiese en Bestuurswetenskappe	1	0.2
	South African Journal of Musicology	1	0.2
	South African Journal of Obstetrics and Gynaecology	1	0.2
	South African Journal of Philosophy/ Suid-Afrikaanse Tydskrif vir Wysbegeerte	1	0.2
	South African Medical Journal/ Suid-Afrikaanse Tydskrif Vir Geneeskunde	1	0.2
	South African Pharmaceutical Journal	1	0.2
	Southern Africa Political & Economic Monthly	1	0.2
	Southern African Business Review	1	0.2
	Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie	1	0.2
	Synopsis: Newsletter of the Governance Programme of the Centre for Policy Studies	1	0.2
	The International Journal of Tuberculosis and Lung Disease	1	0.2
	Water SA	1	0.2
	Wild & Jag: Game & Hunt	1	0.2
	Wildlife Research	1	0.2
	Without Prejudice: South Africa's Corporate Legal Magazine	1	0.2
	Without Prejudice: South Africa's Corporate Legal Magazine	1	0.2
	Without Prejudice: South Africa's Corporate Legal Magazine	1	0.2
	Southern African Ethno botany	1	0.2
	Timbila	1	0.2
	Total	579	100

7.10 Summary

IK research appears to be gaining momentum, albeit at a slow rate. The cited databases in South Africa are part of a much larger number of databases. Many institutions have a database of some kind related to medicinal plants and traditional medicines, including the CSIR, National Botanical Institute (NBI), Medical Research Council (MRC), Agricultural Research Council

(ARC), as well as most universities and technikons (universities of technology). Often, these databases have no reference or network that links one to the other.

Kenya lacks a single cohesive IK database and therefore has to rely on the few Kenyan databases that exist, e.g. the Greenstone Database which, as already stated, includes all the research carried out in Kenya and by Kenyans within or outside the country. In the case of South Africa, there is no dedicated IKS database, but there are quite a number of local databases under SABINET for local research (896 records). In addition, the presence of an IK journal, *Indilinga,* is a major boost.

International databases captured a significant number of publications from Kenya (171 or 45 % out of 381), an indication that Kenyan research is gaining visibility on the web and that Kenyan scholars prefer publishing in international journals as opposed to local journals. This can also be interpreted differently, as it could also indicate that there may be some inadequacies with respect to technical IT skills (e.g. technophobia, ICT illiteracy), and the lack of formal, well defined processes for knowledge management, e.g. knowledge generation, capturing and recording, to name a few. As for South Africa, the international databases captured 307 (36 %) records, suggesting the confidence scholars place in local databases and also the significant visibility of IK content on the international scene. However, there was also evidence that even while IK research was being carried out, some of it was not being captured by the local databases, suggesting loopholes and inconsistencies in the recording systems in both countries.

Research output by document type indicates that theses topped the list with 231 records out of a total of 381 (60.6 %), a reflection of the poor publishing and reading culture in Kenya. The South African case is quite different, with journals topping the list with 391 records out of 851 (45.9 %). Culture-oriented research topped the list in both countries, with Kenya's culture-oriented records amounting to 157 (41.2 %), followed by health and medicine related records (80; 21.2 %). South Africa contributed 264 (31 %) culture-oriented records and 182 (21.4 %) health and medicine records. Indigenous knowledge, which is embedded in culture and is also part of health and medicine, proved very difficult to isolate.

As for South Africa, the rise in the number of publications from 2001 could be attributed to diverse government interventions, e.g. how the South African Post Education (SAPSE) financial gains at university level trickle down to individual level and motivate publication (see Ocholla and Omwoyo, 2008:10). The presence of an IKS policy also places a lot of emphasis on research (see sections 2.4, 4.5, 5.1, 7.3, 8.6).

This chapter presented the bibliometrics analysis of IK research trends in both Kenya and South Africa. Chapter 8 discusses the findings from both countries as presented in Chapters five, six and seven.

CHAPTER EIGHT

Discussion of the Findings

8.1 Introduction

This chapter discusses emerging issues from the findings obtained through interviews and content analysis as presented in the previous three chapters: (i) Chapter five, which presented findings from data collected in Kenya, (ii) Chapter six, which presented findings from South Africa, and (iii) Chapter seven, which provided informetrics findings on the trends in indigenous knowledge (IK) research for both Kenya and South Africa.

The discussion is based on the aim of the study, which was to map and audit indigenous knowledge and IK management practices in the two countries, and is guided by the specific objectives of the study, which were to: identify the IK policies and legislation in place; explore what IK governance structures are in existence; identify the IK centres and systems in place, and in terms of their roles; identify what IK programmes and activities are available and when they are held; and finally determine the status, trends and types of IK research.

The objectives were reflected in the following research questions:
- What policies and legislation on IK are in place?
- What IK governing structures are available?
- How can the centres and systems be examined in terms of their roles?
- What programmes and activities on IK exist and when or where are they conducted?
- What is the status, trends and types IK research in Kenya and South Africa?

Each objective addressed one of five clusters, namely: i) Policies and legislation, ii) Governance structures, iii) Centres and systems, iv) Programmes and activities, and v) Research and documentation. The study's methodology is reflected in Chapter four. The discussion is organized according to the five clusters and the research questions in each case.

8.2. Policies and Legislation

The current global emerging trends are dynamic and require the ability to embrace the relevant changes. The same is expected of IK. Legislation and policies are important in ensuring accountability and transparency in IK management. It is, however, critical that legislations and policies are also guided within relevant IK governance structures. IK governance structures in this study refer to government mandated organizations that deal directly with IK. Their role is to promote the implementation and monitoring of IK policies and legislation. This is one of the main reasons for mapping IK in developing countries. The results demonstrated that the development of IK in South Africa could be attributed to the presence of IK's recognition in the constitution and promulgation of legislation that supports its development (Constitution of the Republic of South Africa No. 108, 1996).

A number of fundamental IK issues emerge in the constitution of South Africa. The constitution's preamble is presented in diverse languages, including indigenous African languages. Chapter one lays out provisions that recognize nine indigenous languages, namely Sepedi, Sesotho, Setswana, Tshivenda, Xitsonga, IsiNdebele, Isixhosa and Isizulu, on par with Afrikaans and English (Constitution of the Republic of South Africa No. 108, 1996). The constitution goes on to stipulate the intent to develop, recognize and elevate marginalized languages that are the vehicle through which IK is dispensed. The recognition of indigenous languages in South Africa is demonstrated through Article 7 of the constitution. Article 7 mandates all government officers in South Africa at all levels (local, regional and national) to use at least two official languages (Constitution of the Republic of South Africa No. 108, 1996:4). The Constitution further dedicates an entire chapter (twelve) to recognizing the institution of traditional leaders and their roles at both local and national levels.

The situation is quite different in Kenya because the country's former Constitution (1963 - 2009) did not give IK any preference or enough coverage despite the numerous indigenous communities and languages that rely heavily on IK in their everyday life. The former constitution seldom mentions the strategies and issues that would promote the transformation of culture and indigenous knowledge into mainstream knowledge. Sadly, it was also silent on issues of IK management in general. Kenya's constitution (and the institutions that it brought forth) was structured along the colonialist paradigm that is heavily informed by Western influence and

ethos, giving little room for mapping indigenous knowledge and slowing down its growth. The new constitution, instituted in 2010, looks promising, and the arguments in its reference are in the hope that its frameworks and institutions will be effectively implemented.

As noted by Owuor (2007:25), the education system that emerged after independence also neglected indigenous knowledge. Most efforts were mainly about civilizing society rather than finding ways to harness the diversity of culture in the country and the knowledge contained in different IK groups. This led to the suppression of indigenous knowledge development and caused fragmented IK systems in Kenya that require urgent mapping and recognition. According to Dei (2002:vii), indigenous knowledge is handed down from one generation to the next through symbols, art, oral narratives, proverbs, riddles, and performance such as song and dance, but most of these were neglected in the education system in Kenya. Indigenous knowledge was also severely neglected in South Africa during the apartheid era. In both cases, there was a loss of identity and place in the case of local people who are defined by their local environment and interactions. Kenya has been slow in redefining the identity of her people by developing infrastructure that promotes IK transmission and management.

The new constitutions of both countries have paved the way for optimism that all indigenous knowledge and its related contents will be identified, recognized, validated, processed, stored, disseminated and used. The preamble of Kenya's new constitution recognizes culture, stating that Kenyan citizens should be "proud of our ethnic, cultural and religious diversity and determined to live in peace and unity as one indivisible sovereign nation" (G.o.K, 2010:12). The new constitution further stipulates that the use of indigenous languages will be promoted and developed. There is now a whole clause (eleven) dedicated to culture. This clause recognizes culture as the foundation of the nation and as the cumulative civilization of the Kenyan people and nation (G.o.K, 2010:12). Culture will also be promoted, compensated and protected from any form of exploitation. The Bill of Rights also emphasizes the recognition of culture; all cultural related policies are to be treated on par with other policies in the country, such as the economic and social policies. More is also stipulated in the same chapter regarding indigenous languages and culture, where every person has the right to use the language and participate in the cultural life of their choice and maintain it at the same time.

During observations and interviews with IK management in both countries, it was found that although the policies and guidelines seemed very articulate on paper, most of the persons charged with the responsibility of developing and managing IK lacked awareness about the key features and characteristics of indigenous knowledge. The regulatory framework within the former constitution concerning IK preservation was also very weak. Issues relating to culture, which is a key aspect and ingredient of indigenous knowledge, were not well anchored in the IK management framework within the former constitution. The constitution was also silent on issues of knowledge management in general.

By and large, the management of indigenous knowledge has not been conclusively addressed, and this has undoubtedly created gaps and confusion as to whether the available initiatives are commercially or non-commercially oriented. For instance, the media houses have invested a lot in broadcasting in vernacular languages and it becomes difficult to draw the line between the business intentions and cultural intentions of the media. Royal Media Services (RMS) for instance, is a private media company that owns one of the largest networks of radio and television stations in Kenya. It was established in 1999 and its stations include Radio Citizen, Inooro, Ramogi, Mulembe, Mulembe Bukusu, Musyi, Muuga, Chamgei, Egesa, Wimwaro, Bahari FM, Hot 96, and Citizen TV (RMS website: http://www.royalmediaservices.co.ke/corporate/about_rms.sss).

During the interview session, the production manager of RMS found it difficult to respond to many of the questions. He admitted that most of RMS' programmes, in terms of music and language, were aligned to the culture and lifestyles of the regions they represent. He further indicated that no single regional radio station was a duplicate of any other because of the degree of cultural diversity in Kenya. A visit to the RMS website (http://www.royalmediaservices.co.ke/corporate/about_rms.sss) does not provide the reader with an elaborate picture of IK related issues, but rather highlights how, "All the stations have a format that conforms around the lives of the audiences focusing on their everyday surrounding and environment". This throws into focus the definition and perception of IK in the media industry.

Kenya Broadcasting Corporation (KBC), on the other hand, is a government parastatal that runs two TV stations and around twenty two radio stations. Three radio stations were operating using national languages while the rest used vernacular languages. During the interview, the managing director reiterated that the main objective of the organization was to disseminate information and educate and entertain the people. KBC also sometimes aired programmes that had no monetary value but that in some way either supported the government or highlighted areas that would require government intervention (see http://www.kbc.co.ke/).

There are other issues that were either being ignored or being taken for granted by people. The study noted that most of the officers and custodians who are charged with the development and management of IK in both countries did not mention the Maasai and the Ogiek communities which are synonymous with indigenous knowledge in Kenya, or the Khoi San in South Africa. The Ogiek have vast knowledge in ethno-medicine (Yeoman, 1933:27-34; Ngari et al., 2010:136-150) and forestry management (Rambaldi, et al., 2009). The Maasai, in turn, are famed for their prowess in ethno-veterinary care (Miaron et al., 2004:43-48; Ole-Miaron, 1997:160-167) and crafts such as beadwork and weaving (Ocholla, 2007:26), among other practices. The fact that the respondents in this study did not mention these communities further reinforces the observation that there is a lack of knowledge among the IK managers on the development and management of IK. The issue of addressing the criteria of auditing IK among the Kenyan and South African management personnel should be revisited taking into consideration availing possible awareness opportunities to all stakeholders.

As indicated earlier in this chapter, Kenya's new constitution, which was promulgated on August 27, 2010, stresses the recognition of indigenous knowledge. It has a chapter on culture and the way forward with respect to the preservation of culture in Kenya. Article 7 of the new constitution compels the state to promote and protect the diversity of the language of the people of Kenya. The state is also compelled to promote the development and use of indigenous languages. Article 11 distinguishes culture as the foundation of the nation, forcing the state to promote all forms of cultural expression through the arts, literature, traditional festivals, science, communication, information, media publications, libraries and cultural heritage.

The Samburu Women for Education and Environment Development Organization (SWEEDO, 2010:np) lauds the new constitution as "a fresh break with the past as it offers several avenues for the pursuit and strengthening of indigenous peoples' personal and collective rights". SWEEDO further observes that the new constitution defines a "marginalized community" as one that:

Out of need or desire to preserve its unique culture and identity from assimilation, has remained outside the integrated social economic life of Kenya as a whole, or an indigenous community that has retained and maintained a traditional lifestyle and livelihood based on hunter or gatherer economy; or pastoral persons and communities whether they are nomadic or a settled community that because of its relative geographic isolation has experienced only marginal participation in the integrated social and economic life of Kenya as a whole.

It obligates the state to provide for adequate representation of 'marginalized groups' in all levels of government, execute affirmative action on behalf of these groups, and promote the use of indigenous languages and the free expression of traditional cultures.
While the state is also required to realize the role of local technologies in the development of the nation, promotion of the intellectual property rights of the people of Kenya is equally paramount. This can only be achieved through defined laws which would ensure communities have a system in place for compensation or royalties for the use of their cultures and heritage. An example is the existence of the legislation that recognizes and protects the property of indigenous seeds and plant varieties and different genetic characteristics and their use by communities. There is also the Declaration of the Bill of Rights, Article 44, which gives everyone the right to use the language and participate in the cultural life of their choice. Article 100 is supposed to complete provisions of Article 56 by allowing the parliament to enact laws that would help recognize, promote and protect the interests of marginalized groups.

What transpired during the new constitution promulgation ceremony in Kenya was a sign of a shift from the past and a step in the right direction in the promotion of indigenous knowledge. The master of the ceremony extensively used Kiswahili throughout the event. The most notable action was the invitation of a Maasai elder to open the ceremony with a word of prayer in the Maasai language. This could point to a shift among governmental circles in Kenya in the

endeavour to recognize indigenous knowledge. However, a lot still needs to be done. The required laws that need to be enacted by the government regarding various aspects of IK development and management must be based on holistic consultation and participation of the various players concerned in the management and development of IK in Kenya. The country needs to borrow from South Africa and incorporate the lessons learnt in the preparation of the IKS Policy in South Africa. Kenya can also learn how to overcome the challenges that will come up in the process of drafting the laws and bills to govern IK issues.

While culture is recognized and appreciated in the new constitution, a few gaps do seem to occur. First and foremost, the issue of standardization is a problem; Kenya has more than 40 indigenous languages and each language is distinct from others, so the choice of having Kiswahili as both a national and official language will marginalize other languages to the point of pushing some to extinction.

There is a provision for promoting and protecting the diversity of the languages of Kenyan people. While the idea is positive, there isn't an explanation of how this is to be achieved, leaving even more languages prone to extinction. A people's culture and language form the foundation of any community or society. Based on this, it would have helped if the constitution addressed the issue of culture more comprehensively. Instead, there are fragments of clauses on culture spread over different parts in the constitution. For instance, besides the preamble that highlights the various philosophies of the new constitution, culture is also covered in other areas of the constitution, such as chapter 2 clauses 7 (1) (2) 3 (a) & (b), clause 11, chapter 4, Bill of Rights, and chapter 5. This puts the management of IK in a fix. There are also no laid down procedures on how all the intended processes, such as recognition, protection, sustainability and dissemination, will be achieved and also measured in terms of any intended output.

Likewise, the issue of funding has not been addressed. It is common knowledge that without a well defined financial framework, especially on how funds are generated, management is impossible. A case in point can be found in the Bill of Rights - the implementation of rights of fundamental freedoms states that all state organs and all public officers have a duty to address the needs of vulnerable groups, including members of cultural communities (GoK, 2010:21). First, there is no defined dedicated state organ to look into cultural affairs, and second, there is

no dedicated staff for the said management matters. Third, the previous two aspects (i.e. a state organ for cultural affairs and dedicated staff) cannot be realized without funds. Exposing cultural issues to any statutory organ and to all public officers means culture, as much as it is recognized, is not a priority and might be ignored, leading to further marginalization and hence derailing the various efforts and initiatives for IK development.

The nomadic nature of Kenya's Department of Culture does not reflect enough stability. Policy and legislation should provide administrative structure, management structure, and the financial basis for the department to run its activities. As it stands, there are two policies in place, and the generic policy is more focused on IK. There are also others such as:

- Draft Paper on Medicinal Plants
- Sessional Paper on Traditional Medicine
- Draft Bill on Traditional Medicine Practice

All these are domiciled by different institutions, for example the Cultural Policy is fronted by the Office of the Vice-President, Ministry of State and Heritage, while the Draft Policy on Genetic Resources is domiciled under the Copyright Board. The two policies also duplicate each other in some areas. There is also a structural weakness in that two distinct institutions are competing to handle the same policy. Lack of implementation capacity and inadequate staff and finances are all critical issues. A challenge that may be faced by the Copyright Board in dealing with the policy is the diversity (wide coverage) of genetic resources, bio-prospecting and cultural expressions, which may turn out to be a challenge to the Copyright Board, which is more oriented and limited to IP-related issues.

The Draft Medicinal Policy and the Sessional Paper on Traditional Medicine are driven by the National Population Council under the Ministry of National Planning, which lacks the capacity and the understanding of the main issues placed under their domain. There are also disjointed efforts coordinated by various international agencies, such as the UNEP, UNESCO and the World Bank. The same disjointed efforts and programmes are being implemented by various government and semi-autonomous government agencies, e.g. the National Museums, NEMA, and Institute of Economic Affairs.

There is no comprehensive list covering all the IK centers and institutions that exist in Kenya. Each institution runs its own affairs independently with a lack of professional IK staff. It is evident that there is no coordination mechanism. Lack of information and knowledge sharing can make a country poorer because it does not know what it has. Conflict of policies due to the lack of a harmonized framework sometimes leads to competition amongst various groups in pursuit of guarding and protecting their own. Ideally, national structures should be the primary documenting institutions, but in Kenya's case there are other players in the field such as universities, museums and ministries.

The South African government, through the Department of Science and Technology, launched its IKS Policy in 2004, with the aim of guiding the recognition, understanding, integration and promotion of South Africa's wealth of IK resources and innovations (Kaya, 2008:1). In light of the above, the study's concern was the inadequacy to recognize, protect and appreciate IK due to the lack of appropriate mechanisms to accord it the necessary attention. It should be noted, however, that not all that is old is relevant and likewise not all that is new is significant (Marvel, 2004:1). Caution is therefore necessary to adopt mechanisms that do not water down IK.

The findings indicate that the South African government used a consultative approach to come up with the IKS Policy (see Fig 8.1 below). At the centre of Figure 1.8 is the IKS Policy, and its central location signifies the role it plays - that of bonding or simply unifying all the stakeholders that took part in formulating it.

Figure 8.1: South Africa IKS management structure, informed by the IKS Policy (2004:46-47)

Besides the IKS Policy, the study established other numerous IK related initiatives that run under the umbrella of IKS Policy in South Africa. Examples of these are the White Paper and the Heritage Policy on Research for the Department of Arts and Culture. At the time of collecting data, plans were underway for yet another policy on intangible cultural heritage. Another example is the Department of Agriculture which also has a policy on indigenous foods. There are many policies and acts in South Africa that are related to IK in one way or another. On a lesser scale, a similar situation is also reflected in Kenya. The relevant tables can be viewed in sections 5.3.4 and 6.5.

Figure 8.2 shows the establishment of the national policy of culture and heritage that was launched in March 2010 in Kenya.
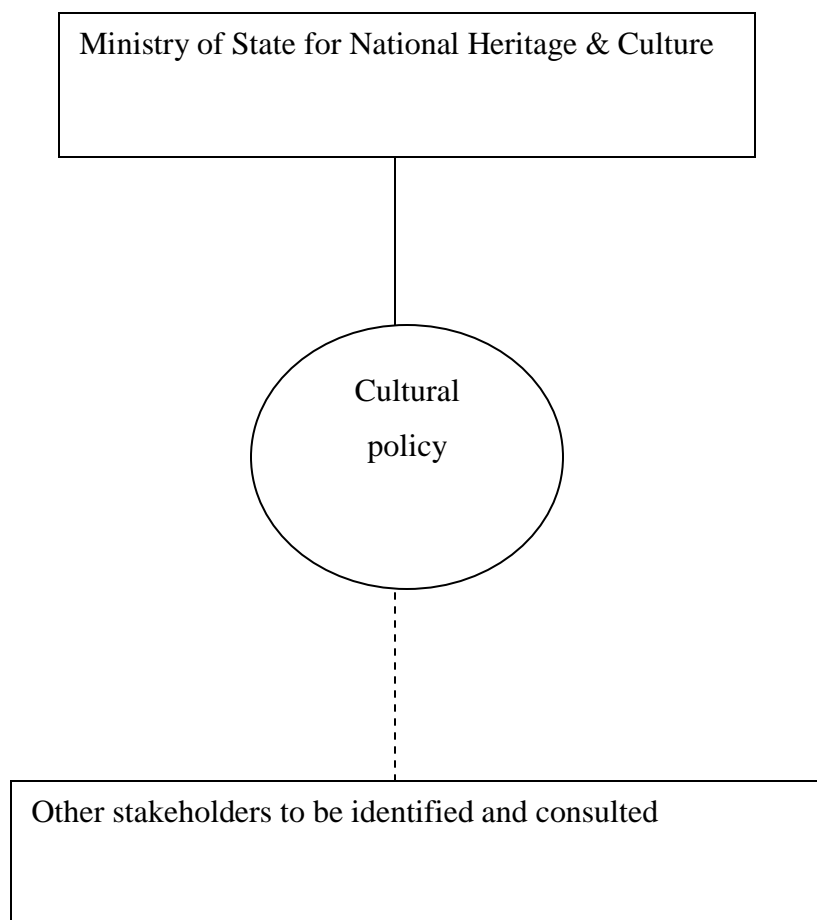
Figure 8.2: Kenya IKS management structure, informed by the National Policy on Culture and Heritage (2009:42-43)

Figure 8.2 shows how the Department of Culture in Kenya came up with the policy, and it is only after its launch that it intends to involve other stakeholders as is stipulated in the policy (see http://www.nationalheritage.go.ke, pages 42-43).

During content analysis, twenty six (26) acts and policies were identified for Kenya and twenty four (24) for South Africa. The issues of sensitization and awareness creation were extremely important. The various fragments in the legislation need to be addressed because they highlight the weakness in the management of IK, such as the lack of a dedicated structure to overlook IK. Earl's model highlights a very important aspect of networking and socializing through linkages in organizations (Hicks et al., 2006-25). The organizational school, as noted in Chapter two, recognized the need for organizational structures to share or integrate knowledge.

Earl's (2001) model notes the importance of having well defined legislation that would adequately protect and exploit knowledge or intellectual assets for revenue benefits. Without such legislation in place, there is fear of IK extinction and, as opined by Mbeva (2005), that the current Intellectual Property Rights (IPR) in Kenya do not adequately cater for (recognize or protect) the rights of indigenous people and local communities with respect to their knowledge and innovations. IK is further challenged by current technological and communication advancements, e.g. Facebook, Twitter, email, etc.

Perusing through the two IK policies in SA and the cultural policy in Kenya, it appears that all is not lost, and what matters now is the implementation stage, especially for the newly launched Kenya policy. The Kenyan Cultural Policy on Culture and Heritage (2009) falls under the Office of the Vice-President, Ministry of State for National Heritage and Culture. In the case of South Africa, the IKS Policy is under the Department of Science and Technology. This implies that the policies that will be pursued by the ministries are completely different. The National Heritage and Culture Policy is primarily interested in preserving or conserving what is already there, as opposed to the Science and Technology IKS Policy which aims to conduct research to advance the field of IK.

Kenya's Natural Heritage and Culture Policy consists of 14 chapters and focuses on diverse sectors of culture and their applications and implications. Chapter one consists of an overview of the cultural and national heritage policy. Its aims are cohesion, sustainable development, economic democracy, environment, international cooperation, and information or the transfer of technology. Chapter two looks at various aspects of culture and heritage, such as tangible heritage like arts and crafts, Kenya national dress, design, health or medicine, food and drinks, historical sites and monuments, and the physical environment. This chapter also addresses intangible culture which encompasses the performing arts, games and recreation, and language and literature. Chapter three takes a stand on cultural industries which include the publishing industry, the cinema or audio visual industry, and multi-media or recorded music industries. Chapter four is dedicated to the family, chapter five looks at heroes and heroines, while media is covered in chapter seven. Media in chapter seven is broken down into 3 categories, namely cultural information, print media and electronics media. Chapter eight is on education, chapter nine's focus is cultural tourism, chapter ten focuses on capacity building, chapter eleven covers

diverse implementation strategies, and the findings are covered in chapter twelve. The institutional and administrative framework is covered in chapter thirteen. This looks at the existing framework and provides recommendations for setting up the natural commission on culture and heritage. Chapter fourteen covers the monitoring and evaluation of IK-related activities. South Africa's IKS Policy consists of nine chapters as described in chapter nine.

One may wonder why this study had to include this cluster of policies or legislation. Having an enabling legal framework not only stimulates IK growth, but also strengthens its contribution to social and economic development (IKS Policy, 2004:9; World Bank Report, 2004:2; 1998 and DST website). Having a policy, as Kandiri (nd:3) highlights, also saves time, prevents managerial mistakes, improves consistency of decision making and focuses decisions towards organizations' business goals.

8.3 Governance structures

The cluster of governance structures took into consideration the government mandated organizations that take charge of IK related issues in the countries under study. The study identified the IK structures that were available and how these structures functioned. Despite the absence of a consensus on the definition of governance, this term in the study refers to the government departments that are solely mandated to deal with IK, although the same may not be practically observed. The term 'governance' can be pegged to diverse meanings depending on the discipline, such as politics, sociology, geography and history (Kersbergen and Warden, 2004:143). This diversification augurs well for IK "since it covers diverse disciplines such as agriculture, architecture, engineering, mathematics, governance and other social systems and activities, medicinal and indigenous plant varieties, arts and culture, etc." (http://www.dst.gov.za). South Africa, for example, has various departments that deal with IK in one way or another and that all took part in the creation of IKS Policy (IKS Policy, 2004:10). These departments were the Departments of Science and Technology; Arts and Culture; Trade and Industry; Agriculture; Health, Environmental Affairs and Tourism; Education; Foreign and Land Affairs; Sports and Recreation; Water Affairs and Forestry; and other respective relevant statutory agencies.

While most departments operate autonomously, they each have their own in-house policies on IK or a document outlining how to manage IK. However, there was no identified mechanism for networking with related departments on a continuous basis. This was more evident in South Africa than in Kenya.

In Kenya, there had never been a dedicated ministry of national heritage and culture until the recent coalition government established the Ministry of State for National Heritage and Culture under the Office of the Vice President. Previously its role was played by the Ministry of Gender, Sports, Cultural and Social Services, and prior to this it kept being shifted from one ministry to another. For example, it had earlier been housed by the Ministries of Culture and Social Services, Women and Youth, Home Affairs, and National Heritage, among others (Nkumbuku, 2006:9). Unfortunately, the impression is that the present ministry was created as a political move to accommodate the expanded government.

Figures 8.3 and 8.4 that follow provide a summary of the organizations that fall under this cluster in both countries. Figure 3, representing structures in South Africa, was conceptualized from the IKS Policy. Chapter three of the policy stipulates how the DST, through the Interdepartmental Committee on IKS, would coordinate the running of the office with respect to IK matters. In Kenya, the National Policy on Culture and Heritage informed the conceptualization of the status quo of IK governance (Fig 8.4).

Figure 8.3: South African structures informed by the IKS policy (2004:46-47)
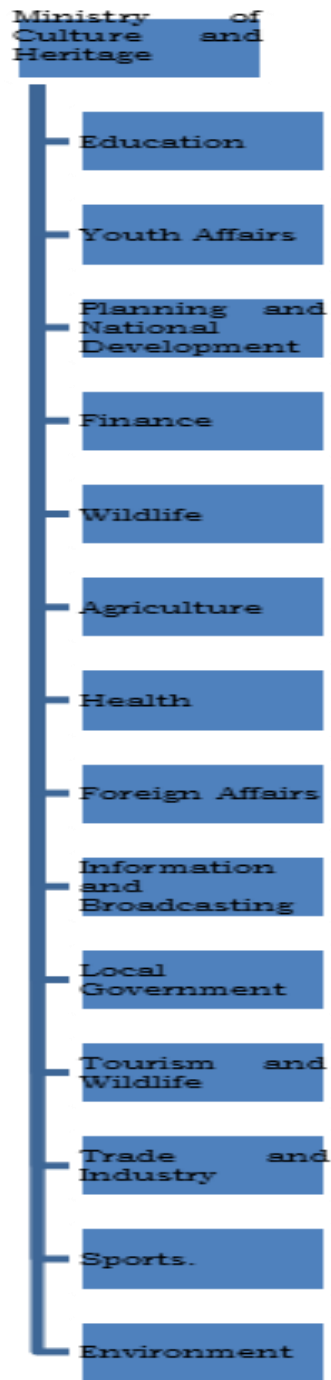
Figure 8.4: Kenyan structures informed by the National Policy on Culture and Heritage (2009:42-43)

Although the aforementioned departments in South Africa were never covered in the interviews, findings from the content analysis did identify them. All fall under the auspices of the Department of Science and Technology (DST) as the team leader. All were aware of the binding interface: the IKS Policy.

Does having multiple players in the IK field have a negative or a positive impact? Bearing in mind the myriad problems facing Africa in general, such as poverty, illiteracy and the HIV/AIDS pandemic, decentralization may pose a challenge because it can be viewed from a multi-dimensional perspective. In many ways, this is a double edged sword. Although decentralization enables specialization, it may pose a challenge when trying to bypass red tape on issues that demand urgent decisions and responses. It is would also be important to further investigate whether the identified structures effectively got involved in KM processes.

Earl (2001) stipulates that an effective organization is one that effectively creates, provides, shares, leverages and also protects knowledge and views it as a sustainable resource for competitive advantage. Knowledge is a resource that places other organizations at a higher competitive level. This calls for research that would look into IK players and/or stakeholders and their roles in various processes and impact on society and countries as well.

8.4 Centres and Systems

Centres and systems play a central role in complementing government efforts in managing IK. These organizations include all institutions that don't have a government mandate to manage IK. Examples of these are libraries, museums, government departments or ministries and non-governmental institutions.

The Department of Culture in Kenya appeared to have many organizations, but the officials informed the researcher that the majority of the organizations were non-existent. The findings also revealed that only those organizations that had government affiliation were involved in the management of IK. The Kenya Resource Centre for Indigenous Knowledge (KENRIK) in Kenya and IKSSA in South Africa, for instance, were very vocal in generating IK through research and active in preservation through databases.

The study found that these periphery institutions contribute positively to the management of IKS. However, various issues emerged, especially in Kenya. While there were many organizations dealing with IK, there was no known coordination or thread to their diverse roles in the country. The main reason for this was the lack of dedicated legislation that would clearly stipulate how the management aspect would be carried out and the various procedures to be followed, and who would be responsible or accountable at each crucial stage. This creates new problems, such as the duplication and overlapping of roles, leading to wastage with respect to time, labour, finances, and bypassing red tape.

The majority of these institutions relied on donor funding. It was also noted that there were various non-governmental and governmental departments that dealt with IKS in both countries. They primarily interacted with and reached out to the regions or areas where IK is heavily relied upon. This means that they focus more on rural areas with the agenda of empowering them with the futurist agenda of sustainability.

8.5 Programmes and Activities

This cluster sought to unearth what programmes and activities on IK were available and how often they were being carried out in the two countries.

The findings identified many events (both programmes and activities) that were said to take place in both countries. Most of these events were not known to the researcher either, and also probably to the population at large. One of the main functions of KM is the dissemination of knowledge (Munn, 2001:160), and for this knowledge to add value, it has to combine ideas, experience, intuition, skills and the lessons learned (Dana et al., 2007:10). Programmes and activities are meant to disseminate information and provide wider access to knowledge.

The study established that there were many events taking place in the promotion or dissemination of IK, such as Kenya Pastoral Week, musical festivals, traditional cooking competitions, and others in Kenya and South Africa. The issue here is whether these events are known to the common public.

The aspect of intangibility is very crucial, especially when it comes to IK. Besides being an asset, IK has to be effectively managed to bring about transformation in the society or organization concerned. The inclusion of this cluster was important because most of the institutions that were visited

involved themselves in IK in one way or another. These events were basically used to promote IK and help it regain its lost status.

None of the programmes or activities were identified in the content analysis of both countries. This may mean that there are many events that take place that need to be identified and marketed properly. In a similar study carried out by the National Environment Management Authority (NEMA) in 2006, there was a lot of involvement by the government and other institutions in promoting IK awareness through various events. Organizations from Kenya involved in programmes and activities included Kenya Wildlife Services (KWS), National Museums of Kenya (NMK), and NGOs. The study highlighted that the government mainly opted for cultural festivals. Other stakeholders involved included the media through the TV and radio, posters, and newsletters. The study identified thirty six events under this cluster in Kenya. Thirty events were identified in South Africa.

These programmes and activities play various roles in communities and in organizations. They have been used as best practices by international organizations such as the World Bank and UNESCO's Management of Social Transformation Program (MOST), which documents IK for future generations (UNESCO (nd). The latter publication has managed to achieve the sharing and transfer of knowledge, experience and expertise by documenting best practices. The publication explains that the practices described are illustrations of the intrinsic value of IK as it is used in its specific local settings, and that they are examples of strategies that help people (members of ethnic minorities) in their daily struggle to survive, and develop and promote their cultural identity. This shows that these events (programmes and activities) are agents of change at social, economic and political levels, meaning that governments should embrace them.

MOST manages to illustrate and showcase how the use of IK has enabled people in development related aspects, such as acting as an enabling interface in decision-making processes and also as a powerful resource for rural people and important ingredient in fighting poverty and social exclusion in many rural communities worldwide (ibid). The publication, which is almost a decade old, identified twenty two best practices as a model that contributed to the welfare of the livelihoods of the communities in question. It further highlighted how IK was used as an alternative solution by these local communities but ignored by those living in mainstream society or with mainstream

access to knowledge. IK is recognized as a positive factor that can improve development planning by providing policy makers and development practitioners with deeper insights into the many different aspects of sustainable development and the interrelated role of local people and their cultures.

Issues of Intellectual Property Rights (IPR), storage and access were also raised because it was realized that there was a need to protect this knowledge and keep it for future generations. The publication addressed these issues by trying to establish a record of the "rightful owners" of the practices while stressing the importance of a contextual approach. (ibid)

Another important aspect that was observed in the publication was that IK is more practical and real in sustainable development approaches, and the many cases presented, established or proved that there are no general technical Western solutions to solving specific local problems. There is still the issue of development interventions failing to induce people to participate because they lack both the will and the instruments to allow the communities to use their own languages. All the cases were published with the full consent of the people involved, making the publication "theirs"; Nuffic and MOST were just facilitators. (http://www.unesco.org/most/bpik1-2.htm)

The best practice from Kenya in the publication is illustrated in the manufacture of water storage pots through the use of local materials (clay). This project allowed the community to store water safely and reduce water-borne diseases while improving the community's self reliance, thus reducing poverty levels. With the traditional pot costing around two US dollars, it became affordable to a large community of people. The project was based in Nyanza province in Kenya, specifically in the Homa Bay, Rachuonyo and Suba districts. The livelihoods of these districts are based on subsistence farming, petty trading, agricultural and wage labour, and small-scale commercial fishing. Local infrastructure and access to services in the region is poor.

8.6 Research Trends and Documentation

Informetrics analysis was done on IK records based on their distribution by or in terms of database, document type, institution, sources, journals, and trends of IK literature from 1990 to 2008. Greenstone Database, which principally deals with Masters and Doctoral dissertations and theses, yielded the most IK documents. For South Africa, SAE-Publications yielded the highest number of IK records (261 records, representing 29.1 % out of 896). It is evident that South Africa has its IK

research evenly distributed on a host of available databases, unlike Kenya with more than half of its IK records on one database.

On the trends of publication of IK literature, South Africa has shown a lot of progress, perhaps due to intervention by government through NIKSO and NRF. This could also be as a result of initiatives by the World Bank and UNESCO through their programmes that target IK research. On the other hand, Kenya did not show growth or progress in its IK publications. This could be attributed to the lack of a concrete legislation on IK, lack of funding and coordination on IK research, and the lack of an IK database.

In Kenya, universities generated the highest number of IK records, with Kenyatta University and University of Nairobi generating the lion's share of these records. The rest of the institutions were universities in the USA, UK, and Canada. Only a small number of publications were from universities in South Africa. The North-West University, the University of Natal and the University of South Africa topped the list of universities in South Africa generating IK publications. The small number of IK publications exhibited by South Africa could be misleading due to the lack of a comprehensive recording process of publications by these institutions, particularly of Masters and Doctoral research. This calls for a more accurate method to capture and document research and publications done in universities.

On the types of records and document types in Kenya, theses and dissertations formed more than half of all the records. Journals and books also formed a considerable percentage. In South Africa, journals topped the list, followed by theses and dissertations. This shows a marked difference between the two countries with respect to their publication environments. In Kenya, support for publications in accredited journals could be lacking, hence the lesser publication in journals compared to South Africa. South Africa appears to be availing necessary incentives for journal publications.

Based on subject domain, Kenya's records mainly focused on culture, health and medicine. The same applied to South Africa. The least number of publications on IK in Kenya was under the subject domain of law, while in South Africa, the least number of records focused on agriculture. The high focus on culture suggests a general trend of what the society in the two countries associates

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IK with. Nevertheless, it also shows that culture is regarded highly for the wellbeing of the citizenry in both countries.

8.7 Summary

This chapter discussed the findings based on the objectives of the study that revolved around the legislation and policies, governance structures, centers and systems, programmes and activities, and research and documentation of IK in Kenya and South Africa. The next chapter provides the summary, conclusion and recommendations of the study.

CHAPTER NINE

Summary, Conclusion and Recommendations

9.1 Introduction

It is worth reminding ourselves that IK today plays a central role in problem solving, especially where modern science seems inaccessible and unaffordable. It is therefore imperative for the management aspects of IK to be vibrant in order for meaningful progress to be made. To reiterate, the primary aim of the study was to map and audit IK systems and management practices in Kenya and South Africa. Mapping in this instance involved undertaking a survey on what has been done in these countries with respect to IK, for example whether or not there are policies and strategies that deal with IK, while auditing focused on discovering, checking and verifying existing IKS and the ability to deal with this knowledge. This chapter provides a summary of the results, conclusion, and plausible recommendations. The summary of the findings that follows is organized according to the five objectives of the study.

9.2 IK Policies and Legislation

The study sought to establish the various IK policies and legislation in Kenya and South Africa. A summary of the findings is tabulated in Chapters five (Section 5.2 for Kenya) and six (Section 6.2 for South Africa). Both countries have IK policies in place. Kenya's IK Policy is largely a product of its new constitution, which was launched in March 2010 (http://www.nationalheritage.go.ke/).

South Africa's IK Policy goes back to 2004 when the country's cabinet adopted a clearly defined policy on IKS (DST, 2004). The Department of Science and Technology (DST) in conjunction with other departments (see 6.1) is the main driving force behind IKS development in South Africa. With respect to Kenya, there had been no specific IK legislation prior to the newly promulgated 2010 constitution. The post-colonial constitution of 1963, like the 1910 post-colonial and later apartheid constitutions of South Africa made no specific reference to indigenous knowledge or indigenous knowledge systems. However, there have been various initiatives in Kenya since 1998 when an IK audit was undertaken by the Kenyan government in collaboration with other stakeholders - the Centre for Indigenous Knowledge Systems and By-Products (CIKSAP), Indigenous Information

Network (IIN), and National Museums of Kenya (NMK). This resulted in the formation of the Kenya Indigenous Knowledge Working Group (KIK-WG) which proposed a strategy for mainstreaming IK into development policy (NEMA, 2006:6). Subsequently the National Environment Management Authority (NEMA) coordinated the formulation of the action plan for mainstreaming IK into development with other partners, including the then Ministries of Culture and Social Services, Agriculture, Health, Planning and National Development, Kenya Industrial Development Research Institute (KIRDI), Kenya Medical Research Institute (KEMRI), Kenya Agricultural Research Institute (KARI), and other NGOs such as the African Centre for Technology Studies (ACTS) (NEMA, 2006:6).

Since 1994, similar initiatives were also taking place in South Africa. In September 1996, the Council for the Scientific and Industrial Research (CSIR), with the support of the Portfolio Committee of Arts, Culture, Science and Technology, commissioned nine historically disadvantaged universities to conduct audits of indigenous technologies (Mosimege, 2004:1). The audits were done to determine the kinds of technologies that South Africans had used to survive over the years, especially in the case of the marginalized and the poor. The aim was to tap into such technologies for recording purposes and innovation for the benefit of IK.

South Africa's IKS Policy consists of nine chapters; chapter one provides an introduction that looks at the affirmation of African cultural values in the wake of globalization, traditional leaders' services, contribution of IK towards the economy, and possible ways of interfacing with other knowledge systems. Chapter two covers IK and the national systems of education and innovation in detail, including issues such as its integration in education and the national qualification framework, and the national system of innovation of the country, the private sector, traditional leaders, and women. Chapter three addresses the issue of governance and administration, taking into account the scope of IK in government legislature and administrative frameworks and also the accreditation of IK holders. Chapter four looks at the institutional framework. This encompasses the rational for the institutional framework, creation of a national IK office, creation of an advisory committee on IK, relationships of IK management with other structures, the role of research institutions, and the IK of the South Africa Trust. Principles of funding IK are covered in chapter five, while chapter six takes into account the policy and legislative regulatory framework at both national and international levels. Chapter seven focuses on human resource development and capacity building. Chapter eight

addresses IK information and research infrastructure, such as databases, libraries, museums, oral forms of IK, and IKS laboratories and centres.

9.3 IK governance structures

The study found that in Kenya, the Ministry of State for National Heritage and Culture Services (formerly the Ministry of Gender, Sports, Culture and Social Services) was the only mandated institution in the country dealing with IK. The management of IK in Kenya was made possible through the following five departments:

- The Department of Visual Arts
- The Department of Performing Arts
- The Department of Language and Traditions
- The Department of Cultural Education, Information and Research
- The Department of Indigenous Health, Nutrition and Environment

In terms of IK development in South Africa, the study found that compared to Kenya, no less than twelve (12) core institutions were involved in the management of IK and IKS in South Africa, departments are equivalent to ministries in Kenya), i.e.:

- The Department of Science and Technology (DST)
- The Department of Trade and Industry (DTI);
- The Department of Arts and Culture (DAC);
- The Department of Agriculture (DoA);
- The Department of Health (DoH);
- The Department of Environmental Affairs and Tourism (DEAT);
- The Department of Education (DoE);
- The Department of Foreign Affairs (DFA);
- The Department of Land Affairs (DLA);
- The Department of Sports and Recreation (DSR);
- The Department of Provincial and Local Government (DPLG); and
- The Department of Water Affairs and Forestry (DWAF).

All the structures mentioned in both countries operated at national, provincial and local levels.

9.4 IK Centres and Systems

This cluster involved all other institutions or bodies that were not directly mandated to deal with IK in both countries. This list included both governmental and non-governmental institutions as well as semi-governmental bodies and institutions such as universities and departments.

The following ten institutions were identified in Kenya:
- Ministry of Science and Technology (MoST)
- Kenya Resource Centre for Indigenous Knowledge (KENRIK)
- Kenya Industrial Property Institute
- Bomas of Kenya
- University of Nairobi
- Institute of African, Anthropology and Gender Studies
- Department of Linguistics and African Languages
- Kenyatta University
- The Centre for Minority Rights Development (CEMIRIDE)
- National Council for Science and Technology (NCST)

The following six institutions were identified in South Africa:
- Indigenous Knowledge Systems of South Africa (IKSSA)
- National Heritage Council (NHC)
- Agricultural Research Center (ARC)
- Paul Kruger Museum
- National Archives and Records Services
- National Plant and Genetic Resources Centre

Although this was a comparative study, it should be noted that the findings were based on the purposive sampling and snowball sampling techniques.

9.5 Programmes and Activities

The study sought to unearth what IK programmes and activities were available and how often they were being carried out.

A total of seventy two (72) programmes and activities were identified in both countries (42 for Kenya and 30 for South Africa; see sections 5.3 and 6.2). Most were conducted annually, save for five in Kenya and one in South Africa.

The five in Kenya were as follows:
- Traditional cooking competition for the youth by the Division of Indigenous Health, Nutrition and Environment (IHNE). This activity did not have any specific time frame.
- Teaching by Kigari Teachers College conducted each term.
- Cultural events and festivals on culture and brands by the Royal Media Company held every two months.
- Workshops on ethics and governance by the Royal Media Company held on a quarterly basis.

IK activities by Kenya National Archives; besides being conducted annually, IK activities were also held during open days.

In South Africa's case, the Paul Kruger Museum was identified for holding heritage awareness activities on a regular basis.

9.6 IK research trends and types in Kenya and South Africa

In order to determine the status, trends and types of IK research, descriptive bibliometrics was applied covering the period between 1990 and 2008. Various variables were taken into consideration. In terms of document sources, document affiliation, subject domains and international and national databases were consulted. The international databases included the following:
- Online Computer Library Centre (OCLC)

- MEDLINE
- WorldCat
- AGRICOLA

The national databases included the Greenstone Database for Kenya and the Southern African Bibliographic Information Network (SABINET) for South Africa. SABINET hosts the following listed databases:

- Current and Completed Research (CCR)
- Union Catalogue of Thesis and Dissertations (UTD)
- Index to Southern African Periodicals (ISAP)

9.6.1 Distribution of IK records by database

The distribution of IK records by database was carried out in order to measure the extent of IK coverage in both countries. In Kenya, the Greenstone Database yielded the highest hits with 210 (54 %) out of the total 390 IK records. This was followed by WorldCat with 79 (20 %) records, OCLC with 63 (16 %) records, and AGRICOLA and Medline with 23 (6 %) and 14 (4 %) records respectively.

A total of 896 South African IK records were generated. SAE-publications topped the list with 261 (29 %), OCLC followed with 163 (18.2 %), ISAP generated 163 (18.2 %), WorldCat, 111 (12.4 %), CCR, 81 (9.0 %), Medline, 66 (7.4 %), UCTD, 34 (3.8 %), and AGRICOLA, 17 (1.9 %).

9.6.2 Trends in the publication of IK literature

The study observed that IK research appeared to be gaining momentum, albeit at a slow rate. The cited databases in South Africa are part of a much larger number of databases. Many institutions (in South Africa) have a database of some kind related to medicinal plants and traditional medicines, including the CSIR, National Botanical Institute (NBI), Medical Research Council (MRC), Agricultural Research Council (ARC), as well as most universities and technikons (Universities of

Technology). Often, these databases have no reference / network that links one to the other. In contrast, Kenya lacks a single cohesive IK database and therefore has to rely on the few Kenyan databases that exist, e.g. the Greenstone Database which covers all the research (irrespective of subject) carried out in Kenya and by Kenyans within or outside the country. In the case of South Africa, there is no dedicated IKS database, but there are quite a number of local databases under SABINET for local research (851 records). The presence of an IK journal, *Indilinga: African Journal of Indigenous Knowledge,* is also a major boost.

Based on data obtained from international databases, there was a significant number of publications from Kenya (171 or 45 % out of 381), which suggests that Kenyan research is gaining visibility on the web and that Kenyan scholars prefer publishing in international journals as opposed to local journals. This can also be interpreted differently, as it could also indicate that there may be some inadequacies with respect to technical IT skills (e.g. technophobia, ICT illiteracy), and the lack of formal, well defined processes for knowledge management, e.g. knowledge generation, capturing and recording, to name a few.

As for South Africa, the international databases captured 307 (36 %) records, suggesting the confidence scholars place in local databases and also the significant visibility of IK content on the international scene. However, there was also evidence that even while IK research was being carried out, some of it was not being captured by the local databases, suggesting loopholes and inconsistencies in the recording systems in both countries.

Reflecting on the Kenyan trend in terms of research output from 1990 - 2008, stagnation may have been caused by the introduction of private course programmes in 1998 in all public universities (Kiamba, 2003:5), which may have reduced scholarly research output because of the financial gains teaching staff could make by doing these modules, leaving most exhausted after teaching. The private program, otherwise known as Module II, was designed to operate from 5.30 pm to 8.30 pm from Mondays to Fridays and full days on Saturdays. Some faculties also opted to extend their teaching to include Sundays. This module would generally have left scholars with little or no opportunities to publish and caused delays in the supervision of research.

In South Africa's case, the rise in the number of publications from 2001 could be attributed to diverse government interventions, for example how SAPSE financial gains at university level water down to individual level and motivate publication (Ocholla and Omwoyo, 2008:10). The IKS Policy also puts a lot of emphasis on research (please refer to Sections 2.4, 4.5, 5.1, 7.3, 8.6).

Research output by document type in Kenya indicates that theses topped the list with 231 records out of a total of 381 (60.6 %), a reflection of the poor publishing and reading culture in the country. The South African case is quite different, with journals topping the list with 391 records out of 851 (45.9 %); reasons have been touched on in the previous paragraph.

Culture-oriented research topped the list in both countries, with Kenya's culture-oriented records amounting to 157 (41.2 %), followed by health and medicine related records 80 (21.2 %). South Africa contributed 264 (31 %) culture-oriented records and 182 (21.4 %) health and medicine records. Indigenous knowledge, which is embedded in culture and is also part of health and medicine, proved very difficult to isolate.

Kenya has sound existing research and academic institutions that could potentially play a vital role in promoting, recognizing, developing and protecting IKS within national, regional and international Diasporas. This would water down to grassroots level, ultimately leading to economic benefits. The lack of an IK database and legislation poses obstacles to the development of IK in terms of research and development. With this in mind, an IK database that acts as a single point of entry to all IK research carried out in Kenya is in urgent need of development. Further research should be carried out on the most effective ways and means to link various institutions in Kenya, the government, and all related stakeholders.

9.7 Conclusion

Indigenous knowledge is part and parcel of many countries and communities around the world. Research on IK related subjects exposes researchers to live performances, contributes fresh knowledge to the discipline, verifies existing collections of oral literature, strengthens the capacity of researchers in the use of modern equipment, develops and preserves local languages, and promotes dialogue between scholars and oral communities (Wasamba and Mwinzi, 2006:23).

Both Kenya and South Africa have active IK policies and management in place to ensure its sustainability. A defined institutional framework is vital for the effective management of IK. A case in point is the existence of the South African National Indigenous Knowledge Systems Office (NIKSO) under the Department of Science and Technology (DST) (http://nikso.dst.gov.za/). The functions and rationale for NIKSO are stipulated in the IKS Policy (DST, 2004:22-23). However, such a mechanism cannot be said to exist in Kenya, especially because of the nomadic nature of the Department of Culture. The department has been shifting from one ministry to another, as explained by Nkumbuku (2006:9) when he gave its historical background since its inception in 1980. Ministries that housed the department include the Ministries of Culture and Social Services, Women and Youth, Home Affairs, and National Heritage, among others. It is presently referred to as the Ministry of State for National Heritage and Culture.

There was an aspect of lack of coordination that emanated from the study, especially in Kenya. The presence of the various IK-related policy initiatives by different institutions within the same government was a key indicator. Examples of such duplicated initiatives include the National Policy on Culture of the Republic of Kenya by the then Ministry of Gender, Sports, Culture and Social Services; Development of Laws for the Protection of Traditional Knowledge, Genetic Resources and Folklore (Legal Notice No. 1415, 2006) by the Office of the Attorney General; and the Draft National Policy on Traditional Medicine and Medicinal Plants by the Ministry of Planning and National Development (refer to 5.3.1).

The eminent danger of IK extinction should no longer pose a threat due to IK's oral nature. It is now evident that the existing technological channels are capable of capturing, storing and disseminating IK in conventional formats (Hunter, nd:113). A South African initiative through the Department of Science and Technology (DST) is an excellent example. DST established a pilot project with the University of Zululand where an IKS centre was established. The IKS centre is mandated to collect and record information, codify and register the information, protect the information by giving the owner recognition, and store and provide access to the information in a database (Murray, 2008:6).

9.8 Recommendations

The recommendations are provided under the five objectives of the study. The objectives were reflected in the following research questions:

- What are the existing policies and legislation that oversee IK?
- What IK governing structures are available?
- How do these structures operate?
- What IK centers and systems are available?
- What IK programmes and activities exist and when or where are they conducted?
- What are the various IK research trends and types in Kenya and South Africa?

9.8.1 To identify the IK policies and legislation in place

Based on the study's findings, policies and guidelines seem to be very articulate on paper, and yet most of the persons charged with the responsibility of developing and managing IK were not even aware of the key features and characteristics of indigenous knowledge (refer to Section 8.2). This study therefore recommends an IK awareness program or campaign targeting those charged with the management of IK as well as the citizenry of the two countries.

The existing IK policies, especially in Kenya, should be well defined and inclusive. They should be threaded together or coordinated by a main or primary policy on which all other related policies are based. For instance, if the government agrees to recognize the recently launched National Policy on Heritage and Culture as the key or main policy, then all the other policies being formulated should be highly informed by it. The South African IKS Policy is an example.

The harmonization of the various fragments of related IK legislation, especially in Kenya, would pave the way forward for a definitive legal framework. This can be achieved through a recognized coordination body to oversee all IK-related activities. This body would bring about the national cohesiveness covering the diversity of IK, such as the IK clusters identified in this study. The South African National Indigenous Knowledge Systems Office (NIKSO) can be a benchmark for Kenya in this respect.

9.8.2 To explore and analyze IK structures

In order to explore the IK structures in place, it was necessary to interview the management staff. The study therefore used the interview guide (see Appendix).

The findings of the study also indicate that IK is challenged by current technological and communication advancements, e.g. Facebook, Twitter, email, etc. (refer to section 8.2). IK policies in both Kenya and South Africa should therefore be reviewed to reflect the changing environment in which the two countries are operating. There should be heightened efforts to create an independent department in a vibrant ministry that deals with IK to ensure that indigenous knowledge is put into the best possible use. Further research should be done in order to find ways in which indigenous knowledge can blend with modern technology to solve current problems.

9.8.3 To examine the IK centres and systems in terms of their roles

Based on the findings of the study, numerous institutions that deal with IK were identified in both countries, including libraries, archives, museums, and government ministries or departments. These institutions were found to play complimentary roles to the structures' cluster, such as integrating social responsibility through education and training, IK generation through research, safeguarding endangered oral traditions, conserving IK, capacity building, policy formulation, and preservation and maintenance, among others. The two countries are making progress in IK management but these efforts would garner more success if there was coordination and a sense of collaboration in implementation that would see them help each other in knowledge management. Cooperation in IK management should involve all African countries and tap into all their indigenous knowledge resources. Research should be done to establish the modalities of such collaboration.

Although there is no single cohesive IK database in Kenya, which is in stark comparison to South Africa, there are research and academic institutions that could potentially play a vital role in promoting, recognizing, developing and protecting IKS within national, regional and international Diasporas. This study therefore recommends that academic institutions should play a more proactive in promoting IK in Kenya.

9.8.4 Identifying what IK programmes and activities are in existence and when and where they are held

Culture-oriented programmes and activities topped the list, while other types of IK-related programmes / activities were minimal in both countries. This study recommends diversification in IK initiatives. The study recommends that IK programmes and activities should focus on all features and aspects of IK rather than capitalize on culture only.

9.8.5 Determining the status, trends and types of IK research

Further research should be carried out to establish the reasons behind the research trends in Kenya and South Africa. There was a high number of records in international databases and significant records captured by local databases in the case of South Africa compared to Kenya, which had experienced stagnation in research output. This was partly attributed to the introduction of a Module II programme that resulted in exhausted scholars and a preference for international journals as opposed to local journals.

9.8.6 The conceptual knowledge management model

Finally, this study recommends that other models of knowledge management should be brought on board as they have their own unique roles to play. This study was informed by Earl's KM model, which is based on seven different branches of KM divided into three schools, namely the technocratic school, which consists of codified systems; the commercial school, which uses codified systems to manage intellectual assets; and finally the behavioral school, which is concerned with personal knowledge. Aspects of the KM models that seem to dominate in the two countries are the cognitive school from Earl's KM model, where knowledge is objectively defined and codified as concepts and facts, and the community school where knowledge is constructed socially and is based on experience. Improvement in technology has seen the creation and storage of knowledge by communities and individuals. Universities, for instance, have increased their research and access to materials through the use of information technology. A holistic approach to knowledge management would ensure that nothing is left out. Holistic models include the philosophy-based model, network model, and quantum model. The holistic model should have some of the aspects listed in the table that follows.

Table 9.1: Holistic model

Aspects	Indicators
Treatment of knowledge	Knowledge to be classified into justified true beliefs, concepts and facts, as external to the adopter; knowledge as constructed socially and based on experience; and knowledge as a system of possibilities
Dominant metaphor	Knowledge
Focus	Knowledge acquisition and storage, knowledge creation and application in solving paradoxical and complex issues
Primary aim	To codify and capture explicit knowledge and information, promote knowledge sharing and learning systems, and exploit knowledge to gain competitive advantage
Critical lever	Questioning, reflecting, and debating with commitment and trust in the community. Employing technology in knowledge management
Primary outcomes	New knowledge, application of knowledge, awareness of external development and creation of multi-reality
Role of IT based tools	Critical integrative, complementary, and supporting mechanisms

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APPENDIX I: DEPARTMENTAL CLEARANCE LETTER

Department of Library & Information Science

University of Zululand

Private Bag X1001
KAWADLANGEZWA
3886
Tel (035) 902-6484
Cell: 0823724638
E-mail:docholla@pan.uzulu.ac.za
Web: http://www.lis.uzulu.ac.za

11th May 2007

To Whom It May Concern

This is to confirm that Dorothy Njiraine is a registered PhD student in our department. The topic of her study is '**Mapping and Auditing the Indigenous Knowledge Systems (IKS) and their Management Environment: a Comparative Study of Kenya and South Africa.'** The aim of her study is to map and audit Indigenous Knowledge Systems and management practices in both Kenya and South Africa. The supervisors for her PhD programme are: Prof. Dennis N. Ocholla (docholla@pan.uzulu.ac.za) and Prof. Jerry Le Roux (Jleroux@pan.uzulu.ac.za) of the University of Zululand.

She is currently conducting auditing of IKS as part of her thesis and any assistance accorded to her in this respect will highly be appreciated.

Thanks

Prof. DN Ocholla
Head of the Department of
Library and Information Science

APPENDIX II: KENYA PERMIT

PAGE 2

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss DOROTHY MUTHONI NJIRAINE

of (Address) P.O. BOX 9340-00100 NAIROBI

has been permitted to conduct research in ....

.... Location,

ALL .... District,

ALL .... Province,

on the topic MAPPING AND AUDITING THE INDIGENOUS KNOWLEGE SYSTEMS AND THEIR MANAGEMENT ENVIRONMENT: A COMPARATIVE STUDY OF KENYA AND SOUTH AFRICA

for a period ending 31ST DECECEMBER, 20 09.

PAGE 3

Research Permit No. MOST 13/001/37C 523

Date of issue 8.8.2007

Fee received SHS 1000.00

PERMANENT SECRETARY
MINISTRY OF EDUCATION
SCIENCE AND TECHNOLOGY

M.O.ONDIEKI

Applicant's Signature

FOR: Permanent Secretary
Ministry of
Science and Technology

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REPUBLIC OF KENYA

MINISTRY OF SCIENCE & TECHNOLOGY

Telegrams: "SCIENCE TEC", Nairobi
Telephone: 02-318581
E-Mail:ps@scienceandtechnology.go.ke

JOGOO HOUSE "B"
HARAMBEE AVENUE,
P.O. Box 9583-00200
NAIROBI

When Replying please quote
Ref. MOST 13/001/ 37C 523/2

8th August 2007

Dorothy Muthoni Njiraine
P.O. Box 9340-00100
NAIROBI

Dear Madam,

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on, *'Mapping and Auditing the Indigenous Knowledge Systems and their Management Environment: A Comparative Study of Kenya and South Africa'*

I am pleased to inform you that you have been authorized to carry out research in All Districts for a period ending 31st December 2009.

You are advised to report to the District Commissioners and the District Education Officers before embarking on your research project.

On completion of your research, you are expected to submit two copies of your research report to this office.

Yours Faithfully,

M.O. ONDIEKI
FOR PERMANENT SECRETARY

The District Commissioners

The District Education Officers

APPENDIX IV: INTRODUCTION LETTER

Dear Respondent,

My name is Dorothy Njiraine, pursuing a doctorate in Library and Information Science at the University of Zululand, Department of Library and Information Science. The topic of my study is '**Mapping and Auditing the Indigenous Knowledge Systems (IKS) and their Management Environment: a Comparative Study of Kenya and South Africa**'. My PhD supervisor's are Prof. Dennis N. Ocholla (docholla@pan.uzulu.ac.za) and Prof. Jerry Le Roux (Jleroux@pan.uzulu.ac.za) of the University of Zululand.

The aim of the study is to map and audit Indigenous Knowledge Systems and management practices in both Kenya and South Africa.

The objective of this particular part of the study, which will be used in one of the chapters in the thesis, is to unearth and map the current IK environment/practices.

I am interested in getting information and your opinion on the following focus areas in regard to IK

- Policies and legislation (e.g. white/green/ sessional papers, acts, laws)
- Structures (e.g. governance – ministries responsible and how its structured from national to grass root levels)
- Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)
- Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)
- Research and Documentation (e.g. local databases, recognized research output by individuals/orgs,)

Any other suggestions on focus areas are welcome.

Thank you.

Regards,

Dorothy M. Njiraine
Dept. of Library & Information Science
University of Zululand, Private Bag X1001,
KwaDlangezwa, 3886
South Africa
Email: dnjiraine@yahoo.co.uk or dnjiraine@uonbi.ac.ke
Cell: **0722 649 860**

APPENDIX V: INTERVIEW GUIDE: INDIGENOUS KNOWLEDGE (IK) MANAGEMENT

Interviewee Name:………………………………………………………………………….

Department:……………………………………………………………………………………

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

                                                              Yes   No

1.1. Do you have policies guiding IK development/management?   ☐   ☐

1.2. If **YES** what are these policies?...

…………………………………………………………………………………………………

…………………………………………………………………………………………………

1.3. Do you have any sessional/white/green paper regarding IK development/management?

                                                              Yes   No

                                                              ☐   ☐

1.4. If **YES** what are these papers?:……………………………………………………….

…………………………………………………………………………………………………..

…………………………………………………………………………………………………..

                                                              Yes   No

1.5. Do you have an act/law on IK development/management?   ☐   ☐

1.6. If **YES** which one?...

…………………………………………………………………………………………………

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

  2.1. How is the implementation of IK development and management structured?

      National ☐   Provincial ☐   Local ☐

2.2. If **National** who controls them? ………………………………………………………….

2.3. If **Provincial** who controls them? …………………………………………………………..

2.4. If **Local,** who controls them? …………………………………………………………...

                                                                      Yes   No

2.5. Do you coordinate with other stakeholders?   ☐   ☐

2.6. If **YES** at what level? National ☐   Provincial ☐   Local ☐

 2.7. If **National,** who are they?……………………………………………………………

    ………………………………………………………………………………………………..

    …………………………………………………………………………………………………

 2.8. If **Provincial,** who are they? …………………………………………………………….

    …………………………………………………………………………………………………

    …………………………………………………………………………………………………

 2.9. If **Local,** who are they? …………………………………………………………………..

    …………………………………………………………………………………………………

    ………………………………………………………………………………………………..

 3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

 National   ☐   Provincial   ☐ Local   ☐

3.2. If **National,** what are they e.g. Libraries/Archives/Museums/NGOs?.................................

…………………………………………………………………………………………………

…………………………………………………………………………………………………

3.3. If **Provincial,** what are they?...

…………………………………………………………………………………………………

…………………………………………………………………………………………………

3.4. If **Local,** what are they?...

………

………

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

	Yes	No

4.1. Do you have programmes/activities that you offer in regard to IK?

4.2. How often do you hold programmes/activities regarding IK and at what level?

For questions 4.1 and 4.2 refer to the table below (Please tick appropriately)

No	Programme/Activity	Level			Frequency			
		National	Provincial	Local	Annual	Bi-annual	Quarterly	Monthly
1	Conferences							
2	Workshops							
3	Festivals							
4	Exhibitions/Displays							
5	Expos							
6	Commemorations							
7	Open days							
8	Competitions							
9	Cultural Dances							
10	Other…………………… ………………………….							

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

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5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

Yes

No ☐ ☐

5.1. Do you coordinate resources on IK?

Yes

No ☐ ☐

5.2. Do you have databases of research on IK?

5.3. If **YES** what are these databases?..

5.4. Where are they located?

National ☐   Provincial ☐   Local ☐

5.5. If **National,** who manages/controls/maintains these databases?..

………………………………………………………………………………………………………
...

………………………………………………………………………………………………………
…

5.6. If **Provincial,** who manages/controls/maintains these databases?..

………………………………………………………………………………………………………
...

………………………………………………………………………………………………………
…

5.7. If **Local,** who manages/controls/maintains these databases?..

………………………………………………………………………………………………
....

……………………………………………………………………………………………… [ ]
…

5.8. How are these databases accessible? Open access [ ] Restricted access/fee based

5.9. Is access manual, electronic or both? Manual [ ] Electronic [ ] Both [ ]

5.10. If **Manual** specify e.g.

Card Catalogue [ ]

Book [ ]

File catalogue [ ]   Other………………………

5.11. If **Electronic,** specify e.g.

Website [ ]

Online Public Access Catalogues (OPACs) [ ]

Compact Disc-Read Only Memory (CD-ROM) [ ]

Microfiche [ ]

Floppy [ ]

Yes

No **5.12.** Do you provide specific funding s for IK research? [ ] [ ]

5.13. If **YES** how is it managed?

National [ ]   Provincial [ ]   Local [ ]

5.14. If **National,** who manages/controls the funds?..

……………………………………………………………………………………………
...

……………………………………………………………………………………………
…

5.15. If **Provincial,** who manages/controls the funds?..

………………………………………………………………………………………………………

...

………………………………………………………………………………………………………

…

5.16. If **Local,** who manages/controls the funds?...

………………………………………………………………………………………………………

....

………………………………………………………………………………………………………

…

5.17. What criteria do you use to fund research? **(Please indicate as appropriate)**

5.17.1. Category e.g. individual, organizations or both……………………………………….

5.17.1.1. Please indicate which group you give priority when funding. **(Please indicate 1 as most**

Priority, 3 as least, if no priorities indicate so by 0 in all boxes)

5.17.1.1. Individual ☐

5.17.1.2. Organizations ☐

5.17.1.3. Both ☐

5.17.2. Subject (Please indicate by numbering the priority 1 top priority, 9 least priority if

No priority is given indicate so by 0 in all boxes)

5.17.2. 1. Traditional medicine (e.g. various Herbs) ☐

5.17.2. 2. Religion (e.g. beliefs) ☐

5.17.2. 3. Knowledge Technology (e.g. heat preservation) ☐

5.17.2. .4. Education (e.g. during initiation activities) ☐

5.17.2. 5. Communication (e.g. Story telling) ☐

5.17.2. 6. Agriculture (e.g. farming methods) ☐

5.17.2. .7. Food Technology (e.g. effective food preservation) ☐

5.17.2.8. Arts and Craft (e.g. utility products are made from wood, clay, beads) ☐

5.17.2.9. Human Resources (e.g. kinship style of leadership) ☐

5.17.3. Scope e.g. geographic: National, Regional, Rest of Africa and International **(Please indicate**

by ticking whether funding is restricted to the aforelisted geographical scopes. If not indicate so in the given space below).

……………………………………………………………………………………………………

……………………………………………………………………………………………………

6.   General

comments……………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

THANK YOU FOR YOUR SUPPORT IN THIS RESEARCH

APPENDIX VI: OBSERVATION GUIDE: INDIGENOUS KNOWLEDGE (IK) MANAGEMENT

Purpose:

To note IKS management aspects

To counter check answers given in interview schedules

Observer ……………………………………………. Sign: ………………………………...

Name of observer:…………………………………………………………………………

Date of observation:………………………………………………………………………

Location of observation:…………………………………………………………………..

Verification (if organization/activity/documentation: print/electronic format)

Type of organization……………………………………………………………………………

Type of activity…………………………………………………………………………………

Type of documentation…………………………………………………………………………

If any of above type is IKS reflected?   YES…………………. NO………………………

If YES note what observed…………………………………………………………………..

……………………………………………………………………………………………..

……………………………………………………………………………………………

If NOT explain………………………………………………………………………………...

……………………………………………………………………………………………

……………………………………………………………………………………………

What role does the Organization/Activity/Documentation Play?

National……………………….Provincial…………………..Local……………………….

APPENDIX VII: PERMISSION TO CITE

13-04-07

Dear Dorothy,

You have my permission to cite this paper. You might like to know that a slightly revised version appears as the Introduction to Ellen, R. P. Parkes and A. Bicker 2000. Indigenous environmental knowledge and its transformations, published by Harwood (Routledge/Taylor and Francis).

Best wishes,

Roy Ellen

APPENDIX VIII: REGISTRATION CERTIFICATE

Department of Library &   Private Bag X1001

Information Science   KAWADLANGEZWA

University of Zululand   3886

Tel (035) 902-6484

Cell: 0823724638

11th May 2007

To Whom It May Concern

This is to confirm that Dorothy Njiraine is a registered PhD student in our department. The topic of her study is 'Mapping and Auditing the Indigenous Knowledge Systems (IKS) and their Management Environment: a Comparative Study of Kenya and South Africa '. The aim of her study is to map and audit Indigenous Knowledge Systems and management practices in both Kenya and South Africa. The supervisors for her PhD programme are: Prof. Dennis N. Ocholla (docholla@pan.uzulu.ac.za) and Prof. Jerry Le Roux (Jleroux@pan.uzulu.ac.za) of the University of Zululand.

She is currently conducting auditing of IKS as part of her thesis and any assistance accorded to her in this respect will highly be appreciated.

Thanks

Prof. DN Ocholla

Head of the Department of

Library and Information Science

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name:

Department: department of culture

1. Policies and legislation (e.g. white/green/ Sessional papers, acts, laws)

Do you have policies guiding IK development/management?

    No

But there is a draft medicinal and traditional plant policy in place to cater for that and it's headed by ministry of planning and national development

There is another policy that is spear headed by traditional knowledge, genetic resources and focal headed by task force appointed by attorney chamber and has a zero draft and I am part of the task force

Though we don't have policies we have the government policies that govern IK like Kenya is a state party to UNESCO and it has policies that govern IK so we are bound by the international legal frame work

Draft cultural policy is in the process of development

   1.3. Do you have any Sessional/white/green paper regarding IK development/management?

    Yes

    There is a Sessional paper

   1.5. Do you have an act/law on IK development/management?

    No

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

    There are national provincial and district level and local level

At national we have the director, deputy director and assistant director

At provincial we have provincial director of culture

At district we have cultural office

Head of education information and research

Head of visual and performing arts

2.5. Do you coordinate with other stakeholders?

Yes

At international, national, provincial, and at local level

At international we have UNESCO, AU, and observation of national conservation

At national we work with the communities, NGOs dealing with culture like NATCO based at ministry of education. We also deal with ministries and Kenya music and national festival

At provincial the stakeholders above deal with them at provincial level

At local level we have communities and cultural committees, CBOs.

3. Centers and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

We work with community museums at all levels

3.2. If **National,** what are they e.g. Libraries/Archives/Museums/NGOs

Kenya national theatre and national museums of Kenya and KLNS

3.3. If Provincial, what are they

Provincial libraries, regional museums and cultural centers

3.4. If **Local,** what are they

Individual museums, district cultural museums and community museums

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Conferences are like activities that come in times of need like in 2006 we had all minister in culture in Africa, in 2005 we had a regional one, WIPO conference

Workshops are the most common

Exhibitions

Festivals like cultural festivals and dances. We have also the international cultural music

Commemoration of heroes like koitalel, African cultural day

Most of them occur annually

Open days which is general for the government

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

Government

International donors

NGOs

National donors

Individuals

Community

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

No

5.2. Do you have databases of research on IK?

Yes

Every department has their own databases of what they do

Database for artist and traditional practitioner and even traditional food recipe, PMC, and languages spoken in Kenya and even acrobats

5.4. Where are they located?

At all levels

They are managed by director of cultureat national level

At provincial they are managed by c

5.8. How are these databases accessible?

Restricted access

5.9. Is access manual, electronic or both?

Both

The once that are manual are in file catalogue and book catalugue

5.11. If **Electronic,** specify e.g.

    Website

5.12. Do you provide specific funding s for IK research?

    No

6. General comments

The problem when promoting IK is that we face a lot of opposition because of the colonial power and it's difficult to convince donors that it's necessary to revive our culture. Many people don't understand the need to develop culture and people who take the culture as of interest is considered "mshamba"

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: patrick Haemba

Department: Ministry Education, department of quality assurance.

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

　　　Yes

1.3. Do you have any sessional/white/green paper regarding IK development/management?

　　　Yes

Sessional paper number 1of 2005 on educational training and other reports like gachavi report in 1976, the omide report.

1.5. Do you have an act/law on IK development/management?

　　　Yes

Legal notice of January 1997

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

 National, provincial, district and zonal level

Kenya national drama festival which is the administerial committee

Then we have provincial and district drama committee at provincial and district levels respectively

2.5. Do you coordinate with other stakeholders?

Yes

At all level but mostly we deal with national level

They are like media, like NGOs, semi autonomous government institutions and the banking institutions at national level

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At provincial and local level we work with schools and college.TPA's (teachers, parents association) and DEBs

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management? National role is like coming up with the calendar of activities, looking for funds, budgeting, and training of drama producers

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?
Yes
   4.2. How often do you hold programmes/activities regarding IK and at what level?
Mainly at national provincial and at district level and mainly annually
The programmes are mainly three
Reviving of rules and legislation
Working on themes from drama festivals
Workshops for drama teachers
Annual drama festivals

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)
Government mainly ministry of education and institutions
Patners

  G5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

   5.1. Do you coordinate resources on IK?
Yes.
   5.2. Do you have databases of research on IK?

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No

5.12. Do you provide specific funding s for IK research?

No

6. General comments

We witness a lot of talents during festival but we lack a transition and avenue to enable these talents to advance

Some parts of the country are not actively involved because of cultural beliefs

Funding the major handicap in promoting IKs in learning institution

Interview Guide: **Indigenous Knowledge (IK) Management**

Interviewee Name: Julian mbaria macharia

Department   Programs loyal media

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

Yes.

If YES what are these policies

When broadcasting, if its luo, all broadcast is in luo, all songs are in luo. No Swahili, no sheng, slug or mix. The news is skewed to the region. We won't tell you irrelevant stories. On the programming, they are aligned in their lifestyle.

We are driven by the cultural values of that region. If they are not comfortable with talking about certain subjects on certain period, then it's ok. While in other communities they work.

Do you have any sessional/white/green paper regarding IK development/management?

No

1.5. Do you have an act/law on IK development/management?

No

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

We have all regional, national, provincial and local levels.

All stations are managed from national offices.

2.5. Do you coordinate with other stakeholders?

Yes.

Government and government agencies; provincial administration, local groups, and villagers

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

The role is national, provincial and local.

The role is to educate, shape opinion, know what's happening around, news and entertaining.

We have seven stations. Ramogi, inooro, egesa, citizen, mulembe, chamge, and muuga.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes.

Conservation and environmental conferences, that occurs annually.

Workshops on, ethics and governance, that occurs quarterly for development purposes.

Cultural festivals that occur monthly

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

We outsource cultural funding.

Local non-governmental organization

 Local people

 No government funding.

We don't prioritize people who fund us; it's purely for commercial purposes.

We diversify its commercial where we sell airtime. The customer comes and pays for maybe a week or so.

Cultural programmes such as kisasi cha kijamii which appears weekly on citizen and we also have cultural programme on each other station.

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

   5.1. Do you coordinate resources on IK?

No.

   5.2. Do you have databases of research on IK?

No.

6. General comments

I was emailed the timings of the programmes, and the information on the programmes on cultural values, profile of the stations.

Email also the any other programmes/activities promoting and preservation of culture.

Interview Guide: **Indigenous Knowledge (IK) Management**

Interviewee Name   waweru

Department   citizen

Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

Yes.

We have broad policy guidelines but based on editorial policy. The editorial policy then spells out how they respect each other's culture, what kind of language you can use, which kind of programming show you can show, then we have to respect cultural language and broadcast in diverse languages, thus you can hence further cultural development and cultural information.

We educate, entertain and inform, so we educate on culture, local programmes and hence making us number one.

1.3. Do you have any sessional/white/green paper regarding IK development/management?

No.

1.5. Do you have an act/law on IK development/management?

Yes

KBC act which spells us what to do in general.

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

At government level, we are mandated to move towards local programmes as opposed to foreign programmes.

We are under the ministry of information and communication; however we are independent as a parastatal. Accounting officer is the permanent secretary, and then we have chairman of executive board. We have e the managing director, the compression secretary appointed by

the board. We then have the head of departments, basically, others are head of TV programmes, head of finance, head of admin, head of human resource and

We have national offices and provincial offices at different regions

2.5. Do you coordinate with other stakeholders?

Yes.

The government, and relevant ministries, the ministry of finance for funding, ministry of internal security, advertisers, news makers, politicians, advocacy, NGO' s at all levels.

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

KBC is the government broadcaster, 2 TV stations, and 22 radio stations, 2 national language stations and all others vernacular.

We educate, entertain and inform.

We champion cultural values and develop talent from students.

We broadcast schools in both primary and secondary schools.

All these are distributed, or are localized to every region in the country.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

Cultural festivals, national theatres, musical festivals and actually have a calendar for these activities.

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

KBC is funded by the government for all activities, actually 70 million per month.

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

Yes.

We have specific quarterly research on the performance of our stations or pragrammes.

5.2. Do you have databases of research on IK?

No.

Do you provide specific funding s for IK research?

No.

6. General comments

My opinion is that Kenya is very rich in culture and rich in cultural diversity however education is taking people away from culture.

We have been abused to believe that English and Swahili is the language to use.

Unlike in Uganda where they have preserved their culture, you find in major restaurants, there is matoke, they speak their vernaculars more that Kenyans, even in airlines.

I tend to think that media should play a major role in culture, from music and traditions.

It's only in Kenya we are not proud of our food, you go to Ghana and Nigeria they are. One of the problems is positioning coordination of those programmes, if given a certain permanent secretary whose role is Kenyan music, Kenyan drama, Kenyan drama, Kenyan tradition we would even import Guys to watch.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name   Mr. Kimani

Department   NCST- industrial science

Referred to Dr. Ngatia for the interview

6. General comments

He added that we Africans have incorporated our traditional knowledge into our social and economic development programmes.

He also said that traditionalist also had their technology, how they understood or identified their society, metal workers, wood workers, they were able identify plants for making ropes and various use, other plants were suitable for cooking, and even splitting seeds without spoiling them.

They were iron workers, medicine men, sorcerers and they knew the differences. He toked about them doing these for commercial purposes, where they even had trade councilors.

He explained about the activities carried about by the traditional communities in regard to cultural activities and economic activities in regard to technology. He toked about them reading the environment and about them being aware of the environment around them, like looking at the trees to foresee rain. They had the knowledge of making charcoal.

He explained about kisii community how they did 'head surgery' to heal disease which to them seemed common knowledge.

He explained about some communities whose different clans would never inter-marry. These were common in cases where some families were associated with medicine men or such.

He advised on the go ahead to get information from the national broadcaster KBC.

He had a lot of literature on the diversity of culture, education (Example, engineering, where the learning is not based on practical reality rather than) and general information on national issues regarding to traditions.

He commented on mursik, the Nandi fermented milk which contains some herbs.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: madam…… and Mr. Mugo

Department: Primary school

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

Yes.

1.2. If **YES** what are these policies?

Children need to know where they come from their origin, their culture and to know their vernacular (mother tongue).

1.3. Do you have any sessional/white/green paper regarding IK development/management?

Yes

1.4. If **YES** what are these papers?

I don't know

1.5. Do you have an act/law on IK development/management?

Yes.

It's national.

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

Nursery and lower primary teachers play that role by teaching.

They are specifically chosen for their knowledge in vernacular language.

Nursery teachers may be appointed by the school of committee. The others are appointed by the TSC.

2.5. Do you coordinate with other stakeholders?

Yes.

At local level, the community at as the main stake holders

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

Local

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

    Yes.

We have national festivals; we have cultural dances, performances in vernaculars.

    4.2. How often do you hold programmes/activities regarding IK and at what level?

Usually there are annually.

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

Government.

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

    5.1. Do you coordinate resources on IK?

Yes. But just for local use

    5.2. Do you have databases of research on IK?

    Maybe just some are recorded for formal purposes.

6. General comments

There was a conversation involving some teachers regarding languages. Some saying that every community should learn other people's languages.

They appreciated the KIE efforts to diversify languages taught at primary level.

They said orange book is the recommended book to choose language books and other books.

(I was shown the orange book and we exchanged numbers; for the madam 0723208598, and For Mr Mugo 0735595363)

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Mrs. Omari

Department: NCST

Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

      Yes.

Am not exactly aware right now, although they are scattered in different ways, in medicine, and in NEEMA

Do you have any sessional/white/green paper regarding IK development/management?

Yes there are, but I can't give you the exact answer right now

   1.5. Do you have an act/law on IK development/management?

      Yes. They are there.

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

We deal with policy development like biotechnology policy.

 At National level

   2.5. Do you coordinate with other stakeholders?

      Yes at both national and international bodies.

For international, we have UN bodies

      For national, with all governmental ministries

 3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

(I was referred to their website to get the brochures)

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Not really directly, but we have some.

    4.2. How often do you hold programmes/activities regarding IK and at what level?

       Not really.

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

No.

   5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

    5.1. Do you coordinate resources on IK?

        Yes.

    5.2. Do you have databases of research on IK?

Yes

    5.3. If **YES** what are these databases?

For thesis

    5.4. Where are they located?

     National

    5.5. If **National,** who manages/controls/maintains these databases?.

     Librarian

    5.8. How are these databases accessible? Open access

    5.9. Is access manual, electronic or both? Manual

     But they are currently working on the electronic ones.

    5.10. If Manual specify

      File catalogue

5.12. Do you provide specific funding s for IK research?

Yes. At all levels.

You fill a form and meet our standards, whether it's individual or organizations

6. General comments

Referred to Rose Katiba at NEEMA, Jenet Mwangi, a lawyer involved with UN forums.

Also Parkinson ndonye at neema, at official desk of indigenous knowledge

She comments that traditional medicines and foods worked so, they don't need to be put that away.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Mr. Njagi

Department:

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

   1.1. Do you have policies guiding IK development/management?

      Yes.

      We have adopted policies from the colonial government and they have not been revised.

They guide use of ethnic languages in national programmes.

   1.3. Do you have any sessional/white/green paper regarding IK development/management?

      No.

      But I tend to think it's a place the government needs to invest in.

   1.5. Do you have an act/law on IK development/management?

Yes

It's an educational act

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

They are defined into two directions, one, upper based primary and rural based primary schools.

Mother tongue is defined as the language of the ethnic (catchment) area in which the college is situated.

Since the intake is national, Kiembu and kikuyu speakers, they are taught in their vernacular but the others are taught in Swahili.

   2.5. Do you coordinate with other stakeholders?

Yes.

Mainly locally, pupils, teachers and parents, although the output is national

   3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

Our role is to provide manpower that is capable to work in any place in the country.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes.

We have teaching practice that occurs termly. (We have 3 terms in a year)

We have cultural festivals for different ethnic groups in the country, occurring annually.

National annual music festivals

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

No.

5.2. Do you have databases of research on IK?

No.

6. General comments

For training purposes in colleges   emphasis should be made to national languages instead of various ethnic language and culture.

He comments that their major target is of obviously to them, the national anthem.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name   Mr. Mwangi

Department: Administration and quality assurance, inspector of schools

   Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

  1.1. Do you have policies guiding IK development/management?
      Yes.

Kenya education sector support education policy (KESEP)

1.3. Do you have any sessional/white/green paper regarding IK development/management?
      Yes.

  1.4. If **YES** what are these papers?
      Session paper 2005

  1.5. Do you have an act/law on IK development/management?
      No.
      We just have commission

Omide commission of 1965. This helps learners appreciate cultural diversity

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

  2.1. How is the implementation of IK development and management structured?
      National

They are controlled by the KIE and implemented locally by the teachers.

  2.5. Do you coordinate with other stakeholders?

Collaborate with corporate bodies at national levels although teachers also involve community locally.

We also collaborate with other ministries who ask for maybe entertainment.

2.6. If **YES** at what level?

National

   Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?
 Coordination of activities
 Zonal to provincial level

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?
Drama and musical festivals that occur annually

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)

   5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)
   5.1. Do you coordinate resources on IK?
     Yes.

   5.2. Do you have databases of research on IK?
     Yes.
     They sometimes have electronic databases for shows, drama and musical festivals.

   5.4. Where are they located?
     National

   5.5. If **National,** who manages/controls/maintains these databases?

KIE

5.8. How are these databases accessible?

Open access

5.11. If Electronic, specify

                    Compact Disc-Read Only Memory (CD-ROM

6. General comments

I was referred to early childhood department.

He suggested that school work should incorporate more cultural activities since education without culture is not complete.

THANK YOU FOR YOUR SUPPORT IN THIS RESEARCH

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Orege

Department: KIE

1. Policies and legislation (e.g. white/green/ Sessional papers, acts, laws)

Do you have policies guiding IK development/management?

KIE is an arm of ministry of education and it deals with all issues of education and it's a centre of curriculum development and support material for school and we are guided y the national language policy that deals with the development of local language. This policy had been given by the gachavi commission in 1976 where it said the language for a certain area must be used as a communication media for classes one, two and three

1.3. Do you have any Sessional/white/green paper regarding IK development/management?

Yes

Sessional paper 1of2005

KESLP (Kenya education support language programme) materials developed in local languages

We only have commissions like the Koech commission that has really guided us since 1999. It gave guidelines on review of curriculum rationalize it and gave focus on how to provide quality education

1.5. Do you have an act/law on IK development/management?

No

Although as for Kiswahili is being made a national and official language

We are guided by those in the education sector

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

National

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KIE is central

But we use teacher's advisory offices like tactutor at local level to reach them

At national we have the cooperate

At provincial level we have provincial education officers

2.5. Do you coordinate with other stakeholders?

Yes

We have like unicef at national level, unesco in that they get involved in our activities

Bible translation and litracy, children Christian fund at national level

For provincial we have the PDE

3. Centers and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

It's both national provincial and local

We are to sensitize the education officers and orientate teachers in the field

We normally get in touch with DOE and PDE to get to the teachers and headteacher at school   level

For parents we use PTAs

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Workshops

Mother tongue day as from next year and it would be annually but its under way.and activities like indigenous music dances and songs and other cultural activities

Conferences' are under way but funding is still a problem

Most activities are not held annually because of funding

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

   Government and international donors

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

   5.1. Do you coordinate resources on IK?

      Yes

   5.2. Do you have databases of research on IK?

       No

But we are in the process of developing one. To have a database of peoples performances

   5.4. Where are they located?

      National

And they are Open access

   5.9. Is access manual, electronic or both?

Electronic

   5.12. Do you provide specific funding s for IK research?

No

But if when gives a proposal justifying reason for research then it can be considered

6. General comments

TKK((tujifunze ki kwetu) was replaced by TLY(tujifunze lugha yetu) and its not available now not unless in the library

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Prof Odek

Department:

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

   1.1. Do you have policies guiding IK development/management?

No.

However there various provisions in various laws that touches on IK

Example under the industrial property act, the definition of patent and patent subject matter would embrass aspects of IK likewise the definition of what constitutes an industrial divine would constitute aspects of IK.

Looking at copyright act, would relate to IK.

Others, museums act, the antichuity and national momentum act and the science and technology act.

Policies in place are biotechnology, bioseptic, drug national policy on arms and technology

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

We have no structure in existence.

 The only structure is in science and technology, and ministry in gender, culture and sports.

NGOs are not IK focused, and they are agricultural oriented.

6. General comments

There is a policy in the office of the attorney general, maybe by next year.

A funding mechanism should be put in place for raising awareness, identification and screening of beneficial IK.

A proper criterion on what constitutes IK should be agreed upon. Then also whether separate institutional framework is necessary should be considered. The impacts of IK to the national economy should be considered.

The relation between IK and modern medicine need to be clearly addressed

The public attitude towards IK should be changed.

Relationship between IK and any other form of intellectual property should be cleared.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: shabaan

Department: DEO

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

   1.1. Do you have policies guiding IK development/management?

      Yes.

   1.3. Do you have any sessional/white/green paper regarding IK development/management?

      Don't know of any.

   1.5. Do you have an act/law on IK development/management?

      No.

      We just have commission

Omide commission of 1965

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

(The information was already given by Mwangi)

 3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

(The information was already given by Mwangi)

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

(The information was already given by Mwangi)

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

     (The information was already given by Mwangi)

6. General comments

He commented about lack of books for vernacular languages which are minor.

He recommends teachers to write books for those languages, and the government should sponsor the publication of such books.

 He referred to Dr. Mwaniki who is the chairman of Kangaru School.

I was referred to another conversant madam, in the department which involves nursery schools and lower lever that are taught vernacular languages.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Andre_Lezar

Department: agriculture

1. Policies and legislation

Do you have policies guiding IK development/management?

No.

We have policy under conservation and utilization of TJR.

Do you have any sessional/white/green paper regarding IK development/management?

No.

1.5. Do you have an act/law on IK development/management?

No.

1.6. If **YES** which one

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

        National level

It's controlled by …agriculture

We have nine provincial departments, agriculture environment conservation controlled under provincial levels.

We also have local governmental department but have no idea on who controls it.

2.5. Do you coordinate with other stakeholders?

        Yes.

Non governmental organisations eg Valley craft, some farmers' organizations.

At international level, bioceptics, agricultural organizations.

At regional levels, plant genetic resources network.

At national level, research institutions like the agricultural research institutions.

At provincial level, we have extension division.

At local government, also we have extension officers.

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

Conservation, management and utilization of plants and animals genetic resources

Promotion of the plants animal's genetic resources

Administration of plant and animal pest

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes.

We have promotions of plant diseases and animal.

Agricultural related activities displays and shows annually at national level.

For plants, we have onfarm conservation, and for animal activity, we have multifarm multiplication project that happens every year.

4.2. How often do you hold programmes/activities regarding IK and at what level?

Annually

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

Yes.

5.2. Do you have databases of research on IK?

Yes.

5.3. If **YES** what are these databases?

FADT database which is regional

Controlled by each country at National plant genetic (NPG) resources

This is electronic.

Regional website www.hprc.org that contains all information, but we are planning to have a nationally available under agricultural geographical information system.

5.12. Do you provide specific funding s for IK research?

        No.

6. General comments

I was referred to agricultural research council, who deal with IK.

Young people aren't into growing plants anymore especially the ingenious crops.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Annekke

 Department: Kruger Museum

1. Policies and legislation (e.g. white/green/ Sessional papers, acts, laws)

Do you have policies guiding IK development/management?

Am not sure yet but we have the heritage council

   1.3. Do you have any Sessional/white/green paper regarding IK development/management?

         Yes

We have the white paper

   1.5. Do you have an act/law on IK development/management?

         Yes

National act number 25 of 1999

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

         National level

But we are starting it. The resource centre is at the initial stage

We have national cultural and history museums

And traditional museums and they are all at national level

Satellite museums

This museum deals with anglo cold war against British empire

   2.5. Do you coordinate with other stakeholders?

Yes

We share a lot with the national museums and SARA at national level

We also partner with the freedom practfirm and native

We also partner with the local government city of Shwani

IDASHA which is an NGO we also partner with them and it deals with democracy.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Main outreach to the communities mainly monthly like where th rich takes part int the appreciation of heritage

Commemoration of 1956 and its done annually

Training to other heritage institution which we enable at provincial level

Students from tertiary colleges do their training here and get them to learn on heritage issues

Put out fliers in different languages and distribute them everywhere to promote awareness

Open days and exhibitions held at local and national levels

Learners day held at national level and held annually

G5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

No

5.2. Do you have databases of research on IK?

Yes

It has no specific name and its controlled by us

Databases is open and permission is needed for access and its manually controlled and it's in catalogue form

Electronic access is in the development stage

5.12. Do you provide specific funding s for IK research?

No

6. General comments

To write history and this is all sided. Form a people's perspective and geologist to get academic recognition. Sensitize the people on the need to heritage conservation

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name

Department   Indigenous knowledge system for South Africa

Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

1.1. Do you have policies guiding IK development/management?

   Yes

1.2. If YES what are these policies?

Being an NGO, we follow the government policy. For it to come to existence we have contributed.

Science and technology policy

1.3. Do you have any sessional/white/green paper regarding IK development/management?

   No.

   1.5. Do you have an act/law on IK development/management?

   No.

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

2.1. How is the implementation of IK development and management structured?

We operate nationally, but we also have national and provincial levels

Operated by board of trustee, provincial under provincial board of trustee

We don't have local level

2.5. Do you coordinate with other stakeholders?

   Yes.

The governmental department office, the national house of traditional healer, and the national coordinating committee of traditional health practitioner of South Africa

At provincial level, traditional healer, government at provincial level

At local level, we have municipalities.

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

National archives, at national role

We promote and protect IK.

At provincial level, integrate them into the health system, establishing ground firms.

At local level, inter cohesion also by trying to unite among traditional era.

They are different organizations that try to get recognition.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes.

Programmes, national living treasure at national level, IKF festival which is annual and fundraising breakfast

 Human rise on IKF conference

 We usually hold cultural dances, exbitions and displays at the IKF festival

   4.2. How often do you hold programmes/activities regarding IK and at what level?

    For questions 4.1 and 4.2 refer to the table below (Please tick appropriately)

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)

 Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

   5.1. Do you coordinate resources on IK?

     Yes.

   5.2. Do you have databases of research on IK?

    Yes.

   5.3. If **YES** what are these databases?

IKF bibliography.

   5.4. Where are they located?

    National.

   5.5. If **National,** who manages/controls/maintains these databases?

     Research and training development for cooperation support.

   5.8. How are these databases accessible?

Restricted database

5.9. Is access manual, electronic or both?

Both

5.10. If **Manual** specify e.g.

Book

5.11. If **Electronic,** specify e.g.

In a particular software

5.12. Do you provide specific funding s for IK research?

No.

6. General comments

Referred to Dr. Gqani or somebody, department of ….. Environmental health and given contacts including the email address.

It's important for the country so that you can run since the concept was introduced. We would appreciate if you join us in our conferences.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Chabalala_ _

 Department: knowledge development

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

        Yes

There are IK policies

   1.3. Do you have any sessional/white/green paper regarding IK development/management?

        No

But policies above are like the white papers.

In the process of developing sessional papers

   1.5. Do you have an act/law on IK development/management?

        No

But in the process of developing/drafting some guidelines that will protect the IKs

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

        National

This is broken down into three simpler ways

Adversity of policy management

Knowledge management

Knowledge development

Headed by general management and three managers

It's more of governmental

   2.5. Do you coordinate with other stakeholders?

Yes

At governmental level

here are 14 departments at the government level which are identified in the policies. 4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Mainly at national level

One activity that is held annually is IKs trust

The other one held on regular basis is a priority workshop

Inter departmental committee and inter governmental committee policy that s held regionally

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)

Government and international donors

G5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

Yes

5.2. Do you have databases of research on IK?

Yes

It resides with NRH

5.12. Do you provide specific funding s for IK research?

Yes

5.13. If **YES** how is it managed?

National level and is controlled by NHC

5.17. What criteria do you use to fund research? **(Please indicate as appropriate)**

The focus is on historically bridging of women. 62% to African women and also with link to students to study IKs management

5.17.1. Category e.g. individual, organization or both?

Both but if its individual they should be attached

5.17.1.1. Please indicate which group you give priority when funding

Organization

5.17.2.9. Human Resources (e.g. kinship style of leadership)

Conducted a priority ranking study but as now all are the same depending on the needs on the ground

5.17.3. Scope e.g. geographic: National, Regional, Rest of Africa and International (Please indicate by ticking whether funding is restricted to the aforelisted geographical scopes. If not indicate so in the given space below).

Funding is done nationally however an extension is allowed to where partnership is affiliated and to students as long as they are attached to organizations

International level like UN

6. General comments

Working on awareness of IK in universities

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Dr. Murunwa

Department: ARC

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

   1.1. Do you have policies guiding IK development/management?

   Yes.

   1.2. If **YES** what are these policies

   Basically it's on international….dry that exists.

   ABS policy. It's used to regulate activities

   1.3. Do you have any sessional/white/green paper regarding IK development/management?

   No.

 1.5. Do you have an act/law on IK development/management?

   No.

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

The institute is controlled by Research and technology manager at national level and does not have provincial or local offices.

   2.5. Do you coordinate with other stakeholders?

Yes.

   2.6. If **YES** at what level?

At all levels, the national, provincial and local level

   2.7. If **National,** who are they?

IKS national office which is based at DST, EKSA, and other NGO's

   2.8. If **provincial,** who are they?

    Gdace, acronym for agriculture culture and environmental

Lda

   2.9. If **local,** who are they?

Local municipality

 And gives an example of two districts, but generally involves all the districts.

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

At all levels

At national level, we are involved in forums policy discussion, drafting of policies.

3.3. If **provincial,** what are they?

Based on the use of IK resources, e.g. medicinal incubator

3.4. If **local,** what are they?

We document IKS which is available. For example, weather focusing, management of pests and disease, classification of soil, and production, post harvest technology.

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes.

They are in line with those areas that are touched on. That is local areas on agricultural development; activities would involve post harvest, documentation, dissemination carried out at agricultural research and development which is currently ongoing at the field, which are the farmers, the elders and stakeholders.

5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

Yes.

5.2. Do you have databases of research on IK?

Yes.

5.3. If **YES** what are these databases?

Database on the project, linked only to the programmes

5.4. Where are they located?

National

5.5. If **National,** who manages/controls/maintains these databases?

The administration

5.8. How are these databases accessible?

Restricted access

5.9. Is access manual, electronic or both?

Both

5.10. If **Manual** specify e.g.

Records

 5.11. If **Electronic,** specify e.g.

Hard drive, recorded on cameras and videos.

5.12. Do you provide specific funding s for IK research?

No.

6. General comments

They help in misinterpretations of IK.

People need to be contacted so as to improve on what is already there, which would economically help.

He also comments about library of information which has been orally translated and need to be preserved for use later.

The government has done a great deal with coming with a legislature to cater for IKS.

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Langelihle_Mfuphi_

 Department: Heritage Institutions

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

        Yes

It's called the heritage policy restriction

   1.3. Do you have any sessional/white/green paper regarding IK development/management?

        No

   1.5. Do you have an act/law on IK development/management?

        Yes

It's under the policy above

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

        National level

        They are controlled by heritage institutions development.

   2.5. Do you coordinate with other stakeholders?

         No

 With other departments like arts and culture there is coordination at national and provincial level

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

We are a museum at a national level. There are 14 departments at national level

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

   4.2. How often do you hold programmes/activities regarding IK and at what level?

Mainly at national level and annually

Workshops are help at national level which held annually and they are like activity

Luturi lecture held in august annually by one of our departments luturi museums

 Sama fama.We fund them.

Exhibitions/festivals at national level as an activity

Commemoration

Open day some institutions do

      But each department has their own activities that other departments don't have

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

Government and national donors

   G5. Research and Documentation (e.g. local databases, recognized research output by individuals and organizations)

   5.1. Do you coordinate resources on IK?

    No

   5.2. Do you have databases of research on IK?

    No

  5.12. Do you provide specific funding for IK research?

   No

  6. General comments

Suggest working together of IK specialists with our department

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Portia Matlala

Department of Arts and Culture

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

No

But we are in the process of developing policy on intangible cultural heritage where IK fall under.

1.3. Do you have any sessional/white/green paper regarding IK development/management?

White paper

1.5. Do you have an act/law on IK development/management?

No

2. Structures (e.g. governance – ministries responsible and how governance is structured from national to grassroots level)

2.1. How is the implementation of IK development and management structured?

National level and locally

At national level the one in charge is the deputy director general (DDG) and under him is the chief director

At provincial we have MEC and HODs

And municipality is headed by mayor

2.5. Do you coordinate with other stakeholders?

Yes

We work with trade and industry, health, education, local government at national level

At provincial level we have the house of traditional leaders

3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Departments)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management? For archives there are oral register at national level where issues of IK are put so that people can access them.

NGOs we partner with then like the African heritage trust which holds cultural festivals, indigenous music competitions at national provincial and at regional levels and another partner with South African indigenous trust. We also partner with blak plvlak

3.2. If National, what are they e.g. Libraries/Archives/Museums/NGOs

Advice on policy matters

3.3. If **provincial,** what are they?

     Coordinate and support on heritage matters and financial support

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

   4.2. How often do you hold programmes/activities regarding IK and at what level?

Mainly at national level and annually

Conferences we just sponsor them like traditional healers and initiations

Workshops are only on tangible culture and heritage at all levels after three month

Exhibitions and competitions at national level mainly by students

Heritage month held once a year at national level and approved by minister

Competitions held annually by owner partners like that African heritage

4.4. Who funds your programmes and activities? (Government, International Donors, National Donors)

Government

  G5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

   5.1. Do you coordinate resources on IK?

Yes

 5.2. Do you have databases of research on IK?

No

5.12. Do you provide specific funding s for IK research?

Yes

5.13. If **YES** how is it managed?

National level

5.17. What criteria do you use to fund research? **(Please indicate as appropriate)**

Yes

5.17.1. Category e.g. individual, organization or both?

Organization

We don't give funding but we just do partnership with other organization

6. General comments

The policy on heritage to assist on the things like IK and its protection and benefit sharing

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Stella Ndhlazi

 Department: NHC

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

        Yes

They are covered under funding policy where IK is covered.

   1.3.   Do   you   have   any   sessional/white/green   paper   regarding   IK
development/management?

        No

   1.5. Do you have an act/law on IK development/management?

        No

2. Structures (e.g. governance – ministries responsible and how it's structured from national
to grass root levels)

   2.1. How is the implementation of IK development and management structured?

        National level

Although our offices are just in one province and we are controlled by department of
agriculture

   2.5. Do you coordinate with other stakeholders?

     Yes

At provincial and local level

They are the legislature in the province and the local government.

 3. Centres and systems (e.g. libraries, archives, museums, NGOs, Ministerial Depts.)

3.1. What role do libraries/Archives/Museums/NGOs play in IK development/management?

Advice on policy review at a provincial level

 3.2. If National, what are they e.g. Libraries/Archives/Museums/NGOs

Advice on policy matters

3.3. If **provincial,** what are they

        Coordinate and support on heritage matters and financial support

4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

    Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Mainly at national level and annually

Conferences at national level based on a move to coordinate digitization of information in the sector from archives and they are always held continuously

Workshops are held at provincial level which r done annually

Exhibitions at national level mainly by students

Heritage competitions held once a year at national level

Others are national award, ubuntu held annually at national level

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)

Government and national donors

  G5. Research and Documentation (e.g. local databases, recognized research output by individuals/orgs.)

5.1. Do you coordinate resources on IK?

    No

5.2. Do you have databases of research on IK?

    No

 5.12. Do you provide specific funding s for IK research?

    Yes

5.13. If **YES** how is it managed?

    National level and is controlled by NHC

 5.17. What criteria do you use to fund research? **(Please indicate as appropriate)**

Yes and the research must be hawker and must report

6. General comments

IKs are now beginning to enjoy recognition it deserves with several institutions giving it the platform dedicated funds and units to address this.

There need to have a coordination at national level for all the departments

THABANG_NATIONAL_ARCHIVES (transcriptions)

DOROTHY: The first gadget really let me down, I went to download and there was nothing. I decided to have both the questionnaire and the………..

THABANG: The questionnaire

DOROTHY: I'm looking at the overall management of the entire I.K. You know I.K is in various forms; we have the oral literature, we have the traditional medicine, all those forms. I want to see how it is managed. Whether there are laws; acts; whether there are structures in place, especially the government. I want to see whether there are centers where National Archive social falls under a museum and library. So I'll also look at the research and documentation and what has been done on I.K. I mean how is it managed? How has the research that has been carried out managed? Is it accessible to people? If not how is it going to be achieved? That is the kind of thing I'm looking at. You get the point?

THABANG: Yes I get the point now.

DOROTHY: Right now I'm looking at the status quo of everything. So that..., I hope my study will come up with good recommendation, to identify the weaknesses and the strength and see how we can assist various people. I hope you have the background now and I hope it won't take long.

THABANG: Mmm yes.

DOROTHY: Now I have come to know how to write and pronounce some South African names, though we share quite a lot. For the department I write?

THABANG: National archives.

DOROTHY: thank you. Now Mr. Thabang, do you have any policy guiding the I.K in the National Archives; Indigenous knowledge in any way, development and management?

THABANG: currently we are rightly guided by the national archive act and the two reports that were produced to the minister, on particularly on the indigenous music.

DOROTHY: It's okay

THABANG: There is also the trend, the move towards the revue of some of the policies because they are a bit outdated and do not conform to this modern time.

DOROTHY: Do you have any policy that is specifically on the I.K on indigenous knowledge in your national archives search?

THABANG: There would be, but I think the larger portion, the hefty portion would have large policies because the largest things that we have is paper record.

DOROTHY: Paper record?

THABNG: yes, paper record, this orally interviews we have been doing.

DOROTHY: What of any section of paper or white paper?

THABANG: As I said the white paper, that resembles the oral history, and the two reports that I have told you on indigenous music and oral history.

DOROTHY: The same with law and the act?

THABANG: that is the National Archives and the record Service Act.

DOROTHY: How is the implementation? And please if you don't get my question you can ask for more clarifications. How is the implementation of I.K development and management structured? Now, looking at how you have structured you I.K sector whatever you are dealing with?

THBANG: For me I want us to be specific, I have the paper record in my collection in the national archives. I have got audio visual record in the National archives and it's called the "Oral histories" that have been collected. I want us to focus on that. When you talk to me I want you to say "Oral history"

DOROTHY: Oral history. Whenever I mention I.K just take it to mean Oral history. Is it structured nationally, at this level now? Is it nationally or provincial or local?

THABANG: Various provincials are embarked on their oral history programmed project as well. For example from next week if I'm not mistaken, I will be going, they will lodging another program on the history of the eastern cafe. They went along collecting information from 1976 uprising. So finally, definitely I will provide that too. You will send us the data code and we will register it in the database.

DOROTHY: So it's also national because you are the national archive?

THABANG: National archive yes.

DOROTHY: okay. Who now controls your oral literature? Do you have the specific office?

THABANG: the outreach and publication says that we partner with I.A.S because after collecting those data forms we have to forward them to the information system so that they be registered on our narrow national.

DOROTHY: And when you go, like this time you had went to the eastern cape, who controls the eastern cape?

THABANG: The provincial archive.

DOROTHY: Sorry don't mind about these questions but they will assist in showing the structures, when I come now to analyze everything, they will show in each level. Do you have the local one? That goes from the provincial down to the local level? I mean do you have any archive or…….

THABANG: yah! We have another project that we also funded in the department of Art and Culture. We have also provided training to the community groups as well who are interested in oral history.

DOROTHY: Who controls that level? Who do you coordinate with when you are thinking of the villagers and empowering those people?

THABANG: Like in our case here villagers are like….aaaaa… no.. no. Let me not think about the villages but talk of what I have done. There is a group of youth, the young graduates who have not been employed, and were studying in N.F.I, which is producer house museum there. They were there and we provided training for them and we funded some of their projects as well.

DOROTHY: We cannot term them as community?

THABANG: Yah! As part of empowering that what we did.

DOROTHY: Yah! That's good. How do you coordinate your, do you coordinate with other stake holders?

THABANG: Yes. For example I'm a member of the Oral history Association of South Africa (OHASA).

DOROTHY: That's a national body?

THABANG: Yes.

DOROTHY: Do you have the stake holders at the provincial level?

THABANG: Yes. Like museums do have.

DOROTHY: And down there?

THABANG: Some communities have, like I remember now there is a program that is happening at Zuru land and they are under Zuru language, and is to assist the community and to have a place. Some of the people that are training those people and coordinating that are members of OHASA as well.

DOROTHY: And national you are saying is this Oral Literature Association?

THABANG: Yes.

DOROTHY: Your role. You have already said that it's provincial and falls under that isn't it?

THABANG: yes, National provincial and local arrangement.

THABANG: What roles do you think you play nationally? Now the role of your..?

THABANG: Yes. One is to provide training….

DOROTHY: Nationally now?

THABANG: Yes. IT's to;

Provide training to the provincial and local organizations.

Provide guidance.

Collect, manage and preserve recorded materials in whatever format.

And answer all the questions concerning our database, the internal database that forms the national database for the resources.

DOROTHY: Any other?

THABANG: I think that's all.

DOROTHY: okay. And the provincial the same or?

THABANG: They are also the same thing.

DOROTHY: Even local?

THABANG: They are also the same thing like I told you.

DOROTHY: There is another area here of programs and activities, like you just told me that you will be going to Eastern Cape. I would like first to explain to you what I mean with programs and activities. Programs in this study of mine now, I'm taking those activities that appear regular and you will always, know may be on 20th August there will be a particular event being held by your institution. But activities those are just that, you may find a weakening somewhere or a weakness, or a gap somewhere or you want may be to awareness and you think, ooh maybe we should make a workshop, and empower people. Or maybe you want to train your stuff because things are not going the way you would wish them to. Programs are just like activities it's only that they are consistent. They have a regular, and even a budget for them and that kind of thing.

THABANG: You have got the annual programs.

DOROTHY: You have programs?

THABANG: Yes

DOROTHY: Now, there is this question, "How often so you hold programs regarding the I.K and at what level?" So what I did is that I came up various types of programs, and the level, because it's already asked here, and the frequency; how often. For national you can just tell me.

THABANG: We have conferences annually.

DOROTHY: That one for national is annually.

THABANG: Yes. Workshops we had and I think they were the need for us to hold, and it was after we had noticed some of the things that tried to bring a problem.

DOROTHY: Was on the national level or?

THABANG: I would say that it was only here in the county. It was trying to deal with the internal situations and empower the communities that we work with. And I think when the need arises, we always have. The idea is that we have it every year only that it has not been effective.

DOROTHY: What of the festivals?

THABANG: The festivals are there.

DOROTHY: Are the festivals every year or?

THABANG: They are always at the provincial level and the national level, but we have exhibitions regularly.

DOROTHY: How many times a year?

THABANG: It depends on the commemorations that we are celebrating. Even at National level cerebrations. Like 1956 women's merge, 1956 trial, Palpate rebellion and …. We did them particularly the 1956 women's merge.

DOROTHY: Festivals?

THABANG: No

DOROTHY: commemorations?

THABANG: Yes, Nationally.

DOROTHY: That one national. Open days, do you have these, and at what level?

THABANG: They happen at national level but we have the archive weeks.

DOROTHY: Archives week.

THABANG: But currently we have been having one Saturday open.

DOROTHY: Competitions?

THABANG: Competitions are currently conceptualized.

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DOROTHY: Do not yet. Dances, do they happen?

THABANG: We have them and particularly the film archives. Like this ngoma festival. (thabang serves themselves with a cup of coffee)

DOROTHY: You said what?

THABANG: Ngoma festival and the Zintanazombini.

DOROTHY: Are they different things?

THABANG: No they are just the same thing. And if they dance, they complete the other one.

DOROTHY: And at what level are these things happening?

THABANG: National.

DOROTHY: At what frequency?

THABANG: Annually.

DOROTHY: Open days you said the frequency is?

THABNG: Currently we have put it on hold because of many challenges here and there. So as we discuss we should put open days away.

DOROTHY: Exhibition, what is the frequency?

THABANG: Exhibitions are random.

DOROTHY: We come to research and documentations. That is whether there is anything that you are compiling. Do you coordinate resources on I.K? That is oral history?

THABANG: yes

DOROTHY: Do you have databases?

THABANG: Yes

DOROTHY: What are these databases?

THABANG: National Register of Oral Sources.

DOROTHY: Where are they located? At national or?

THABANG: At National Archives and even the provincials.

DOROTHY: Okay. Who manages or controls these databases?

THABANG: We have got the Information Systems Unit.

DOROTHY: And at the provincials?

THABANG: They are also directed to the system unit, because our databases are nationally coordinated. We have got NAEIS, NAROS, NAREM …….

DOROTHY: These ones are for the nationals and the provincials. For locals?

THABANG: The locals have their way forward their information to our databases.

DOROTHY: do you know who you coordinate with at that level?

THABANG: They are groups and individuals as well.

DOROTHY: Individuals and groups?

THABANG: Yes. There may be individuals who are interested, liars with us and they bring the data code and then we register them there. Some people even donate their resources to be housed in our archives.

DFOROTHY: How are databases accessible? Is it open access or what?

THABANG: They are open and even one the web.

DOROTHY: Okay. They are electronic. Do you have any manual?

THABANG: I don't remember seeing any manual.

DOROTHY: You have said that you have a website. What other forms do you have? These one are just like, there is the public online catalogue, CD Rome, micro singe and there may be something else?

THABANG: Radio

DOROTHY: Okay.

THABANG: And we do provide for learning for Oral literature programs.

DOROTHY: And how is it managed, nationally?

THABANG: Nationally and I think also provincial.

DOROTHY: Okay. And who manages the funds?

THABANG: There is a department in the national archives.

DOROTHY: And at provincials?

THABANG: It's the provincial archives.

DOROTHY: Do you think that at local level they are funded?

THABANG: A number of individuals are funded to conduct Oral lists.

DOROTHY: But now at the local level, since you are the people, is it the provincial or there is another department down there that will control the funding or do they get it from the national?

THABANG: They get it from the national.

DOROTHY: Which means that they have to apply here directly?

THABANG: Yes. They would apply here and then I forward their applications to be accessed.

DOROTHY: What criteria do you use to fund the research? You said you deal with both individuals and organizations?

THABANG: Yes, both.

DOROTHY: Do you have any of the priorities? When giving the funding?

THABANG: Yes.

DOROTHY: How do you prioritize?

THABANG: Like for example we had noted that 2001, there is not much documented about 1956 and we have documented a lot of distortion, that are in place, it also became a mistrial project that we go and collect stories, especially those that participated that much, and record their experiences.

DOROTHY: So here we say that it's 1956, so that one would fall even under, art and craft, no history. 1956 isn't it? You are saying there is another?

THABANG: go on and finish this one. It is art and craft.

DOROTHY: Okay. The number one is this one 1956, and so we give it number one. So number two comes to, art and craft?

THABANG: Yes, art and craft, but that one, we did the rest with technology and culture communication, education, traditional medicine, you have to go to science and technology and you start a project on the indigenous sources. That way, you will be looking at that relationship.

DOROTHY: There is another one on the indigenous you did a project? And so that one would go under religion?

THABANG: yes

DOROTHY: Is it still housed here, the records?

THABANG: They are in the national archives here, as part of our culture.

DOROTHY: So we can put it number three. The other one is the scope. What scope do you give the geographical scope when it comes to funding, do you consider the rest? I have given the national, that is the South African, the regional is the SADIC..?

THABANG: I think we largely depend on the national, we have bodies like HESABIKA of archivists and we share knowledge. We have been discussing that we need to have a regional association or oral historians as well. For South Africa they have oral history association.

(Thabang takes a call and then comes back to the conversation)

DOROTHY: We were talking about, you have been thinking of establishing….

THABANG: We have been thinking of establishing a regional body that will concentrate on Oral history, specifically on oral history.

DOROTHY: You said of the HESABIKA, please spell/write for me? And what are your general comments. Your general comments from I.K and you area, the oral history and …

THABANG: My frustration currently or my general comments is that, there is still a lot of audio information that is still lying outside and not recorded. And there are a lot of sides that people don't want to look at. This is focus on our present past. They focus so much on the political issues more than the social life and have interests as well. I think I would leave at that. And the challenges are that people don't forward their materials to us, we put on our databases so that it can be accessible. They went down and recorded it and keep it to their own shelf, and it's a challenge for us to know.

DOROTHY: Do you have a system in place, maybe there is no system, people are sensitized, may be they are not aware that you people are ready. And they are not aware you people you charge or you don't charge. Those are the issues people would like to know.

THABANG: Yah! But I think we have to develop a system of awareness, but we do make awareness as well, that oral history should be recorded.

DOROTHY: I think it should also be entrenched in your education system, and that would be the best and at least they can be aware, from an early age, and they will always know where to go when they do such researches. How are you planning to integrate all the information countrywide? How do you think of taking it, to collect all of it and then? How are you doing it? Are you coordinating with all the brunches?

THABANG: provinces, because they are one of us.

DOROROTHY: Are you involving the community itself?

THABANG: Yes

DOROTHY: May be they, are you giving them any incentives, may be are you paying anything?

THABANG: That is another challenge. The organization once provided funding to a number of oral history projects and they provided transport and all that.

DOROTHY: Which was not continuous?

THABANG: Yes, because immediately after the project it cannot be sustained.

DOROTHY: I think that's a challenge also. Thank you very much Mr. Thabang, I think I will copy this ones and ..?

THABANG: You can have this one. I don't need this.

DOROTHY: There is something I wanted to know about these registries. These are all national?

THABANG: These are all the databases.

DOROTHY: Okay, these are databases that you have. Thank you. What of when I go to the website?

THABANG: You can find them.

DOROTHY: Under which Link?

THABANG: check my card.

DOROTHY: who else can I talk to, may be you can recommend me to somebody.

THABANG: I'm sure is you went to somebody here they would repeat the same.

DOROTHY: What of the NGOs can you recommend any?

(Unclear conversation, of a very short sentence, and then the record is switched off)

Interview Guide: Indigenous Knowledge (IK) Management

Interviewee Name: Tom

Department: science and technology

1. Policies and legislation (e.g. white/green/ sessional papers, acts, laws)

Do you have policies guiding IK development/management?

        Yes

There are IK policies

   1.3. Do   you   have   any   sessional/white/green   paper   regarding   IK development/management?

        No

But policies above are like the white papers.

In the process of developing sessional papers

   1.5. Do you have an act/law on IK development/management?

        No

But in the process of developing/drafting some guidelines that will protect the IKs

2. Structures (e.g. governance – ministries responsible and how it's structured from national to grass root levels)

   2.1. How is the implementation of IK development and management structured?

        National

This is broken down into three simpler ways

Adversity of policy management

Knowledge management

Knowledge development

Headed by general management and three managers

It's more of governmental

   2.5. Do you coordinate with other stakeholders?

Yes

At governmental level

There are 14 departments at the government level which are identified in the policies.

  4. Programmes and Activities (e.g. conferences, workshops, exhibitions/displays, festivals)

4.1. Do you have programmes/activities that you offer in regard to IK?

Yes

4.2. How often do you hold programmes/activities regarding IK and at what level?

Mainly at national level

One activity that is held annually is IKs trust

The other one held on regular basis is a priority workshop

Inter departmental committee and inter governmental committee policy that s held regionally

4.4. Who funds your programmes and activities?   (Government, International Donors, National Donors)

Government and international donors

6. General comments

Need to have legislation on IK. Iks has a huge potential for economic growth and can be used as an economic generator as long as there are legislation to govern IK.

Benefit sharing

Mechanism in place to protect IKs

Need to have harmonization of regional legislation and policies

You were emailed the answers on centers and systems and research and document