

INDIGENOUS KNOWLEDGE RESEARCH IN KENYA AND SOUTH AFRICA: AN INFORMETRIC STUDY

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ABSTRACT

This article applies informetrics using descriptive bibliometrics to determine the state Indigenous Knowledge (IK) development in Kenya and South Africa. Data was analysed using the following variables: 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 (OCLC – Online Computer Library Center, MEDLINE and AGRICOLA) and national databases – South Africa’s 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) and Kenya’s Greenstone Database – were analysed using content analysis. Two keywords – indigenous knowledge and traditional knowledge – were used in all database searches. We found that IK was strongly represented in the SABINET and OCLC databases. The absence of a national (online) database showcasing Kenyan research output made it difficult to account for IK research in the country. Recommendations are provided for a follow up study and further research. The article could prove useful for decision support in IK management.

Keywords: Knowledge management; indigenous knowledge; traditional knowledge; informetrics.

INTRODUCTION

Knowledge management is growing increasingly popular in all sectors of the global economy because of its confirmed importance in fostering knowledge creation, codification and transfer, and because of its ability to greatly improve the knowledge capital of an organization. We believe that Indigenous Knowledge (IK), which forms part of knowledge management, has crucial functions and importance in the knowledge management process (creation/production, storage, processing/codification, transfer and utilization) and therefore requires significant attention.

Despite emerging interests in IK, not enough is known about how IK is managed, particularly in developing countries like Kenya. For example, issues relating to IK policies and legislation (e.g. IPR), structures, research, literacy, education and

training, and diffusion and use (e.g. information centers and media) that reflect on IK recognition, appreciation and protection, are not readily known (or available). Part of the problem stems from the realities of living in a developing country; most indigenous people live in rural and marginalized areas where modern forms of communication are relatively unavailable. This problem is compounded by high levels of ignorance and illiteracy (Mbeva, 2000: 7).

Issues pertaining to the recognition, protection and appreciation of IK are therefore very crucial at national level. Awareness of this led to the South African government's involvement with the establishment of IKS policy and a dedicated IKS office. The same cannot be said for Kenya, where there is no known IKS policy or legislation. As Mbeva (2000: 5) observes, the current Intellectual Property Rights (IPR) system in Kenya does not adequately recognise or protect the indigenous people and local communities' rights in terms of their knowledge and innovations. Our findings suggest that there has not been any extensive information and knowledge-based study on IK conducted in Kenya. Some existing studies have mainly focused on environmental conservation (Muhando, 2005), legal aspects (Odeck, 2001).

WHAT IS INDIGENOUS KNOWLEDGE?

Semali and Kincheloe (1999: 3) believe that Indigenous Knowledge reflects: "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 is more universal in its approach, defining it 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 Onyanacha (2004: 247), in turn, view 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 "Indigenous Knowledge (IK) has been neglected, vindicated, stigmatized, illegalized and suppressed among the majority of the world communities" (Ocholla and Onyanacha, 2004: 248).

CHARACTERISTICS AND FUNCTIONS OF IK

It is important to point out that IK is not confined to tribal groups or the original inhabitants of an area; nor is it confined to rural people. Any community possesses IK, whether rural or urban, settled or nomadic, original inhabitants or migrants (IIRR, 1996). It is based on ideas, experiences, practices and information that have been generated either locally or elsewhere, and subsequently been transformed by local people and incorporated into their way of life (Ina Hoi Riwa Foundation, 2000) and/or expressed in local languages (Langill, 1999). It is therefore difficult to transmit IK to those who do not share the languages, traditions and cultural experiences of a group or community (UN, 1997). Thus IK is local

because it: (i) Is anchored in a specific community; (ii) Is established within the boundaries of broader cultural traditions but still developed by a specific community; (iii) Often consists of intangible knowledge that is not easily codified and is conveyed orally; (iv) Consists of experimental knowledge as opposed to theoretical knowledge; (v) Is learnt through repetition; and (vi) Changes continuously – created and recreated, discovered and lost – even though outsiders believe it to be static (World Bank, 1998: 9). IK is embodied in various forms through which it is represented and expressed. For example, according to Kok (2005: 7), IK is mainly expressed through beliefs, medicine, knowledge technology, education, communication, agriculture, food technology, arts and crafts.

Indigenous Knowledge is gradually gaining greater research support because of its functions and importance. Gupta (2000: 6) divides its functions into six categories:

- (i) Semiotic – Communication through symbols, art-forms, crafts, etc.
- (ii) 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 just as IPRs do. These sanctions can be material, such as fines or penalties, or ethereal, such as the fear of God.
- (iii) Configurational — This is where the arrangement of various life processes and stages are performed according to traditional norms, leading to (more or less) predictable social outcomes.
- (iv) The use of utilitarian knowledge about various plants or animal products for various food, nutritional or health needs.
- (v) Situational – During emergencies or other contingencies, codes of conduct may be specified to maintain social order and responsibility towards other life forms, including wildlife.
- (vi) Religious and spiritual functions which may or may not involve material objects. Since society has to adapt to new trends from time to time, traditional systems of culture, technology and social exchange provide some scope for experimentation, deviance and variation. The same set 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) highlights 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 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 (from diverse perspectives) have been carried out at both international and national levels. Examples of recent international studies have covered subjects spanning religion (Clack, 2005), curricula (Joseph, 2005), culture (Lillejord and Sørrede, 2003; Mendoza, 2001), legal systems (Gupta, 2000), disability (Enwereji, 2000), agriculture (Gerritsen, 2000) and policy (Vivekanandan *et al.*, 2004). International organizations have not been left behind and have instigated new IKS initiatives, such as those initiated by the World Bank and UNESCO.

Similar studies can be found in Africa covering agriculture (Ashley, 2000), curriculum development (Gitari, 2003; Wyk, 2005), ICTs (Ngulube, 2004; Cosijn *et al.*, 2002; Chisenga, 2002), peace and development (Mascarenhas, 2004; Castiano, 2005), and knowledge management (Ocholla and Onyanacha, 2004; Kaniki and Mphahlele, 2002, to name a few. Mapping and auditing IK studies continues to be a major challenge that we believe can be overcome with a proper IK recordal system. Such records can then be bibliometrically analysed.

METHODOLOGY

In order to determine the trends and types of IK research in the two countries, an analysis of IK records was carried out according to the distribution of IK records by database, document type, institution and the trend of IK literature from 1990 to 2008.

An informetric analysis was applied to capture IK research output. According to Jayroe (2008: 2), informetrics is a mathematical and statistical study of patterns in documentation and information. Other related branches, as cited by Jayroe, include scientometrics, which deals with the mathematical and statistical analysis of research patterns in life and the physical sciences; cybermetrics, the study of the quantitative analysis of scholarly and scientific communications on the Internet; and even cliometrics, the study of historical data through statistical techniques. Wolfram (2000: 78) suggests that informetrics is a type of research that investigates the existence of empirical regularities and attempts to develop mathematical models and ultimately theories to better understand information processes. Another closely-related branch is bibliometrics, which deals with the study of the properties and behaviour of recorded knowledge so as to analyse various structures and components in scientific research areas and evaluate research activity and the administration of scientific information (Wormell, 2001; Ungern-Sternberg, 1995). Others, like Brookes in Wolfram (2000: 78), argue that bibliometrics and scientometrics, which are often used synonymously with informetrics, are actually sub-fields within informetrics.

Two types of databases were selected for this study, the first consisting of international databases – OCLC (Online Computer Library Center) MEDLINE, AGRICOLA and WorldCat – and the second, national databases in SA and

Kenya. South Africa's databases were all selected from the Southern African Bibliographic Information Network (SABINET), i.e. Current and Completed Research (CCR), Union Catalogue of Theses and Dissertations (UTD), and Index to South African Periodicals (ISAP); while only the Greenstone Database was selected in Kenya's case.

Two keywords, indigenous knowledge and traditional knowledge, were used in all the databases to retrieve relevant bibliographic information. It is, however, important to point out that geographical terms (Kenya and South Africa) were added to these keywords when searching the 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 formats using Microsoft Word and Excel spreadsheets
- Data was cleaned, and duplicates and irrelevant records were removed
- Data was analysed using Microsoft Excel software according to the set objectives
- The results were graphically presented in tables and figures.

RESULTS AND DISCUSSION

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.

DISTRIBUTION OF IK RECORDS BY DATABASE

This measured the extent to which IK sources were distributed or covered in the two countries. The cited databases were analysed as per (the number of) records generated. A total of 381 IK documents were downloaded. Greenstone produced 210 records (55%), followed by WorldCat with 79 records (21%) and OCLC with 63 records (17%). Medline and Agricola generated 23 (6%) and 6 (2%) records respectively. Greenstone Database, which yielded the most IK-related documents, deals specifically with theses and dissertations at Masters and Doctorate levels. It also deals with all Kenyan research carried out within and outside Kenya.

The South African IK output amounted to a total of 851 IK records downloaded as follows: SAE-Publications, 261 records (31%); OCLC, 164 records (19%);

ISAP, 163 (19%); WorldCat, 111 (13%); CCR, 81 (10%); UCTD, 34 (4%); AGRICOLA, 25 (3%); and Medline, 7 (1%). This is reflected in Table 1 below.

Table 1: Coverage of IK records in databases

Database	Kenya (N=381)		South Africa (N=851)	
	Records	%	Records	%
AGRICOLA	23	6.0	25	2.9
CCR			81	9.5
Greenstone	210	55.1		
ISAP			163	19.2
Medline	6	1.6	12	1.4
OCLC	63	16.5	164	19.3
SAePublications			261	30.7
UCTD			34	4.0
WorldCat	79	20.7	111	13.0
Total	381	100	851	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 by some to counter this 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 55.1% in Kenya and SAePublications with 30.7% in South Africa), international databases also yielded significant representation (e.g. WorldCat yielded 20.7% for Kenya and OCLC generated 19.3% for South Africa). However, it should be repeated 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.

TREND OF PUBLICATION OF IK LITERATURE

A total of 381 records were downloaded for Kenya and 851 for South Africa for the period 1990-2008. The results in the graph below show the remarkable progress of South Africa, particularly in the period 2001-2007. The drop in 2008 could possibly have been caused by the processing procedures that all publications have to follow when databases are updated. On the other hand, the rise in the number of publications from 2001 could be attributed to government interventions such as 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. The same applied to the international scene as alluded to earlier in the text (please refer to page four of his text).

The Kenyan trend does not appear to be progressive; there were no signs of growth, perhaps stemming from obstacles such as the lack of IK legislation and

funding, lack of coordination in terms of the research being carried out, and also the lack of an IK database.

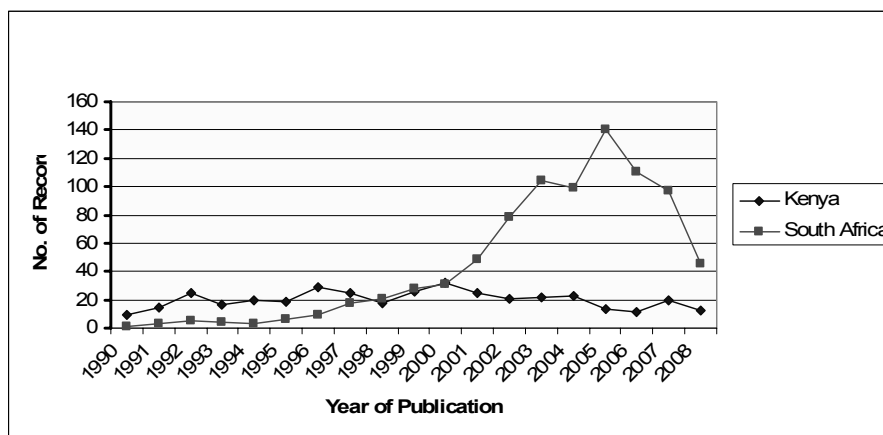


Figure 1: Trend of publications of IK literature, 1990-2008.

DISTRIBUTION OF IK RECORDS BY INSTITUTION

Institution here refers to the source of the record, in other words the institution that produces the publication. 210 records were generated from 52 universities. 6 universities were Kenyan, namely Kenyatta University, which had the highest number of records (85), followed by the University of Nairobi (31), Moi University (5), Catholic University of East Africa (2), and Jomo Kenyatta University of Agriculture and Technology and Daystar (1 record each; 11.5%). The remaining institutions were foreign universities based in the USA, the UK and Canada, which together generated 88.5% of the total 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 2 illustrates which universities contributed the 210 (40.5%) records via the Greenstone Database.

Table 2: Coverage of IK records in institutions – Kenya (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

continued

Institution	No. of Records	%
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 Anglia 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
Universität für 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 3 shows South Africa's institutional affiliations in the CCR database which specifically deals with research. Sixteen universities contributed IK records to the database. North-West University (Mafikeng Campus) topped the list with 13

publications (16.0%), followed by the University of Natal and the University of South Africa (both with 9; 11.1%). The University of the Witwatersrand and Stellenbosch University tallied with 7 records each (8.6%), followed by three universities with 6 records each (7.4%), i.e. Rhodes University, University of Natal (Dbn) and the University of Pretoria. These were followed by three universities with 4 records each (4.9%), i.e. Nelson Mandela Metropolitan University, University of KwaZulu-Natal (Westville) and the University of Port Elizabeth. The University of Zululand produced 3 records (3.7%), while Rand Afrikaans University, Technikon Pretoria, and the University of the Western Cape each generated 1 record (1.2%). However, it should be pointed out that an in-depth analysis and/or index of the research output of each 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 Onyanha (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 3: Coverage of IK records in institutions – South Africa (N=81).

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

While SABINET's UCTD could be analysed in this category, it did not qualify because of lack of information pertaining to institutional affiliation. As for Kenya, the 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).

DISTRIBUTION OF IK RECORDS BY DOCUMENT TYPE

Most of the records from Kenya consisted of theses and dissertations, amounting to 231 records out of a total of 381 (60.6%). Other document types included books (52; 13.6%), journals (51; 13.4%), government publications (8; 2.1%),

video (6; 1.6%), e-books (5; 1.3%) and conference publications (3; 0.8%). There were, however, 25 (6.6%) records that did not indicate the source. In South Africa's case, journals topped the list with 391 (45.9%) records out of 851, followed by theses and dissertations (203; 23.9% records). Further down the line were books (88; 10.3%), conference publications (33; 3.9%), video (16; 1.9%), government publications (14; 1.6%) and international government publications (13; 1.5%). There were also a few publications from e-books (8; 0.9%) and computer files (2; 0.2%). 83 (9.8%) records were unaccounted for.

Table 4: Coverage of IK records by document type – Kenya (N=381) and South Africa (N=851).

Document type	Kenya		South Africa	
	No. of Records=(N=381)	%	No. of Records	%
Thesis/Dissertation	231	60.6	203	23.9
Books	52	13.6	88	10.3
Journal Articles	51	13.4	391	45.9
Government Publication	8	2.1	14	1.6
Video	6	1.6	16	1.9
Conference Publication	3	0.8	33	3.9
E-Books	5	1.3	8	0.9
International Government Publication	0	0.0	13	1.5
Computer File	0	0.0	2	0.2
Anon	25	6.6	83	9.8
	381	100.0	851	100.0

In Kenya's case, theses/dissertations topped the list with 231 (60.6%) 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 the 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 (of academic institutions) through funding incentives and also because of universities' stringent requirements that both students and staff should 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.

DISTRIBUTION OF IK RECORDS BY SUBJECT DOMAIN

IK research is diverse and can be covered in various subjects. IK was therefore divided into six broad categories to facilitate easier identification and to discover the nature of the research undertaken in 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 and related 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, psychology, etc.);

environment (everything that links to biodiversity, bioprospecting, 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 (157; 41.2%), followed by health and medicine related records (80; 21.2%), environment (46; 12.0%), agriculture (44; 11.5%), education (39; 10.2%) and law-related records (15; 3.9%). For South Africa, the leading subject was culture (264; 31.0%), followed by health and medicine (182; 21.4%), education (181; 21.3%), law (103; 12.1%), agriculture (62; 7.3%) and the environment (59; 6.9%). This is reflected graphically below.

Table 5: Coverage of IK records by subject – Kenya (N=381) and South Africa (N=851).

Subject	Kenya		South Africa	
	No. of Records	%	No. of Records	%
Culture	157	41.2	264	31
Health and Medicine	80	21	182	21.4
Environment	46	12.1	59	6.9
Agriculture	44	11.5	62	7.3
Education	39	10.2	181	21.3
Law	15	3.9	103	12.1
	381	100	851	100.0

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 and affect everyday life, hence the interest in the subject. For instance, Kinama (2004: 51) highlights the diverse opportunities brought about by IK, such as the problem solving strategies applied by local communities, particularly in the case of the rural poor. A case in point is 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 to ensure continuous soil fertility.

CONCLUSION

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/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 takes into account 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). In addition, the presence of an IK journal, *Indilinga: African Journal of Indigenous Knowledge*, 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 recordal 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 (Kiamba, 2003: 5) 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. 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. The introduction of this module would generally have left scholars with little or no chances to publish and caused delays in the supervision of research.

As for South Africa, the rise in the number of publications from 2001 could be attributed to diverse government interventions, e.g. how SAPSE financial gains at university level water down to individual level and motivate publication (Ocholla and Omwoyo, 2008: 10). The IKS policy in place 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 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%) – 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 grass roots 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 research carried out in Kenya is in urgent need of development. Further research should be carried out in the most effective ways and means to link various institutions in Kenya, the government, and all related stakeholders.

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