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Patrick Ngulube

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# *Managing and Preserving Indigenous Knowledge in the Knowledge Management Era: challenges and opportunities for information professionals*

Information professionals need to do more to ensure that indigenous knowledge is managed and preserved like other documentary materials.

Patrick Ngulube

## **CONTEXT AND BACKGROUND**

Knowledge is a strategic resource (Freeman, 2001: 27). The success of humankind is going to largely depend on gathering, analysing, storing, sharing and harnessing what other members of society know as well as drawing upon codified and documented knowledge. The process of organizing and leveraging knowledge embedded in people's experiences, competencies, talents, ideas, practices, intuitions, skills, wisdom and capabilities, in addition to documented and codified sources, has been characterized as knowledge management (Todd, 1999: 11). The central focus of knowledge management is sharing what people know (Todd, 1999: 12). The fact that indigenous people also hold a wealth of knowledge and experience that represents a significant resource in the sustainable development of society is slowly dawning.

However, indigenous knowledge (IK) has been ignored in the management of information in Africa. Indigenous knowledge pertains to experiential, locality-specific knowledge and practices of medicine, as well as healing, hunting, fishing, gathering, agriculture, combat, education and environmental conservation developed by indigenous people over the years. Thus, IK is local knowledge that is unique to a given culture or society (Warren, 1991: 1). Some 80 percent of the world's population depend on IK to meet their medicinal needs, and at least half rely on IK and crops for food supplies (CSOPP, 2001). Essentially, IK affects the well-being of the majority of people in developing countries.

Although IK is derived from careful observation of the environment in a particular context, it can be widely applied in many scenarios. As Warren (1991: 1) and Ulluwishewa (1993: 12) aptly pointed out, the utility of IK is not confined to the locality in which it evolves, but is useful to scientists and planners alike in designing development programmes. However, library and information professionals have not been at the forefront in terms of managing IK, in spite of the fact that it is be-

coming an important resource in planning and managing sustainable development projects. The dominant information management model has been based on acquiring, organizing and preserving recorded and codified knowledge, which is largely generated by researchers, laboratories and research institutions.

Obviously, such a model of managing information has little room for IK, which is not formally codified and resides wholly in the minds of local people. The move towards a knowledge-based society requires a fundamental shift in thinking about the methodology of managing information resources generated by society. Knowledge management, with its emphasis on developing, gathering, utilizing, processing, preserving, and sharing all the existing information resources and knowledge, has already begun to exert a significant influence on the information society. In fact, knowledge has been characterized as the capacity to recognize natural or social patterns, and understanding of their nature as well as the cause-and-effect relationships inherent in those patterns (Ubogu, 2001: 3).

In that regard, knowledge has been defined as information combined with context, interpretation and experience (Davenport *et al.*, 1998). It can be either explicit or implicit. Explicit knowledge is formally expressed in symbols or language, whereas implicit knowledge is not codified and resides in people's minds. The emerging knowledge society (Drucker, 1995) makes it mandatory for society to manage both explicit and implicit knowledge. The failure of information professionals in Africa to manage all information resources will impact negatively on society in general and on the development of Africa in particular. Furthermore, libraries, archives and media centres cannot claim to be bastions of the national cultural heritage without embracing local knowledge systems and institutions. Indigenous knowledge must be managed because it plays a crucial role in the sustainable development of society.

## **THE NEED TO PRESERVE INDIGENOUS KNOWLEDGE**

Indigenous knowledge, which has generally been passed from generation to generation by word of mouth, is in danger of being lost unless it is formally documented and preserved. According to Warren (1992), the future

of IK, that reflects many generations of experience and problem solving by thousands of indigenous people across the globe is uncertain. The loss of IK will impoverish society because

just as the world needs genetic diversity of species, it needs diversity of knowledge systems. (Labelle, 1997)

The rapid change in the way of life of local communities has largely accounted for the loss of IK. Younger generations underestimate the utility of indigenous knowledge systems (IKSs) because of the influence of modern technology and education (Ulluwishewa, 1993: 11–12).

It is evident that if IK is not recorded and preserved, it will be lost and remain inaccessible to other indigenous systems as well as to development workers. Development projects cannot offer sustainable solutions to local problems without integrating local knowledge (Warren, 1991: 2). To ignore people's knowledge is almost to ensure failure in development (Brokensha *et al.*, 1980: 7–8). In fact, IK is the key to local-level development (Schoenhoff, 1993: 11).

It is only arrogance that would argue that the expertise that matters for Third World development must come from the West, from universities, from multinational corporations, from international banks, from foreign and local professionals, but not from the farmer in Ghana or the healer in Botswana or the village teacher in Bolivia.

Furthermore, the use of IK is now considered one of the cornerstones that can guarantee the survival of the economies of the developing world in the wake of scarce resources and reduced donor funding. As Atte (1989: 1) rightly noted:

In the face of dwindling resources available to African countries, and noting that even the richest and most benevolent governments cannot provide in all the needs of the people, it has been suggested that indigenous local knowledge, and the technical expertise developed therefrom, can become vital tools for rural development.

Since IK is essential to development, it must be gathered, organized and disseminated in the same systematic way as Western knowledge (Agrawal, 1995: 3; Gonzalez, 1995: 5; Warren *et al.*, 1993: 2). The main challenges to the management and preservation of IK are issues related to methodology, access, intellectual property rights and the media and formats in which to preserve it. Underlying these challenges is the question of whether or not to use the Western paradigm for collecting and preserving IK. Judging by the discourse among scholars on the methodologies of preserving IK, it is evident that there is no one correct answer to the question.

Some scholars (Ulluwishewa, 1993: 13; Warren *et al.*, 1993: 3) recommend *ex situ* conservation strategies, i.e. isolation, documentation and storage in international,

regional and national archives. On the other hand, those who advocate for maintaining distinctions between scientific knowledge and IK have supported *in situ* preservation of IK (Agrawal, 1995: 5). The merits and demerits of the debate surrounding the methodologies of preserving IK are however, beyond the scope of this discussion. In any case, library and information professionals tend to organize what has already been collected.

The question of whether or not we can ever fully articulate knowledge, as posed by Tyler, (1978: 459), is equally beyond the scope of this discussion. According to Tyler, if the said consists of the saying itself, the construction of what was said and what remains unsaid, then knowledge cannot be isolated, transmitted, received, stored and translated. Collectors of IK and designers of knowledge management systems have demonstrated that knowledge neither eludes nor defies cognitive narratives.

It is important that IK should be preserved and integrated into the existing knowledge management systems for the benefit of society. The recording of IK is nothing new. For instance, missionaries and colonial district officers collected information on customary patterns of land tenure, crop and livestock ownership and traditional beliefs and rites, to mention a few. Until recently, the primary strategy for preserving IK has been *ex situ* preservation, i.e. isolation, documentation and storage in international, regional and national data archives (Brokensha *et al.*, 1980; Warren *et al.*, 1993). In the 1990s, the *ex situ* preservation strategy was used with remarkable success to document the natural and supernatural healing practices of the Fulani pastoralists in the north-west province of Cameroon (Nuwanyakpa *et al.*, 2000: 5).

## ISSUES AND CONCERNS IN THE MANAGEMENT AND PRESERVATION OF INDIGENOUS KNOWLEDGE

According to Lawas and Luning (1996), the collection of indigenous information is laborious, time-consuming and costly. Thus, proper storage and management must be ensured if the information is to be made available and accessible for the benefit of humankind. For instance, as a result of inadequate management, most of the indigenous information accumulated by colonial district officers and early missionaries cannot be located in many archival institutions in Africa. The major challenges to the management and preservation of IK identified by this study are collection development policies, accessibility, storage and preservation media, and intellectual property rights.

### Collection Development Policies

Library and information professionals should design collection development policies for indigenous knowledge. However, it is the contention of the author that

the actual collection of IK in the field should be left to ethnographers, anthropologists, oral historians and other related professionals. Instead information professionals should collaborate with national IK resource centres to enhance access to IK. The prime role of national IK resource centres is to collect, document and disseminate IK (Ulluwishewa, 1993: 12). Such resource centres in eastern and southern Africa include the Kenyan, South African, Maasai (Tanzania) and Zimbabwean resource centres for indigenous knowledge.

Library and information professionals should only become part of the indigenous knowledge management equation in so far as organizing the information and making it usable and accessible is concerned. However, most librarians who attended the fifteenth Standing Conference of Eastern, Central and Southern African Librarians (SCECSAL 2002) in Johannesburg (South Africa) from 15 to 19 April 2002 did not seem to agree with this view. Their contention was that they should be involved in the whole process of gathering, evaluating and organizing indigenous knowledge. However, the author is still convinced that library and information professionals do not have the skills and resources to effectively document indigenous knowledge. The work of collection as well the training of personnel in gathering indigenous knowledge has cost implications. It is evident that any additional budgetary provisions to cater for collecting IK would overstretch the already scanty resources that library and information professionals have to contend with in their day-to-day operations. The model that is advocated in this paper does not demand any new expertise and the commitment of a lot of resources because information professionals are already involved in some of the proposed activities.

Moreover, without a collection development policy one wonders where library and information professionals would start. Are they going to collect everything they perceive to be indigenous knowledge? Collecting for what clientele? If library and information professionals are not involved in directing the publishing of the journals and other materials they organize, why do they want to have a different approach when it comes to indigenous knowledge? These are some of the issues that library and information professionals should consider before deciding to be both gatherers and managers of indigenous knowledge. Although, the need to manage and preserve IK is pressing, library and information professionals should not be over-ambitious to the extent of embarking on projects that are not going to benefit their calling.

### *Protection Of Intellectual Property Rights*

The major contentious issue in the management and preservation of IK is the protection of intellectual property rights. Intellectual property rights have been defined as legal rights that

can attach to information emanating from the mind of a person if it can be applied to making a product that is made distinctive and useful by that information. (Posey and Dutfield, 1996: 230)

There is an emerging debate on how to protect the intellectual property rights of IK practices. In this regard, the United Nations Draft Declaration on the Rights of Indigenous Peoples underscores the fact that indigenous peoples have the right to own and control their cultural and intellectual property pertaining to their sciences, technologies, seeds, medicines, knowledge of flora and fauna, oral traditions, designs, art and performances (United Nations, n.d.). In the same vein, the Economic Commission for Africa recommends that

oral tradition and indigenous knowledge in African communities should be exploited in all their forms of expression, giving cognizance to the protection of intellectual property rights. (United Nations, 2001: 2)

Although most IK is held in the minds and practices of people, and is commonly held by communities rather than individuals, intellectual property rights that are intended to protect the ownership of the intellectual content of the works of an individual can be applied. In the Western tradition the intellectual property must be tangible, taking the form of a written document, a recording of music, a painting or drawing, and the like. Sometimes IK is tangible. For instance, there are songs, stories, music, statues, paintings, designs, processes and drawings that embody traditional knowledge. These areas of IK are capable of being protected either individually or communally.

Traditional medicines also come to mind when one starts to think in terms of protecting intellectual property. Who can claim that traditional healers share their medicinal secrets with the whole community? Equally, who can deny that traditional healers in the Ndebele kingdom of Mzilikazi and Lobengula in western Zimbabwe were among the few people who could easily acquire cattle because of their unique skills in and knowledge of medicine? Nowadays, there is even a debate on whether or not pharmaceutical companies are supposed to pay traditional healers royalties for using active compounds of medicinal plants that traditional healers have always exploited.

In spite of the fact that sharing is the main means of disseminating IK, there is IK that is unique to certain individuals, although they use that knowledge for the benefit of the whole community. Intellectual property rights should be upheld so that indigenous communities can benefit from the commercial use of their traditional knowledge. Once the information professionals have organized the indigenous information, they can invoke their knowledge of and skills in enforcing copyright matters to protect the intellectual property rights of indigenous people.

## *Access To Indigenous Knowledge*

The primary aim of all information management activities is to provide access to collections and materials. According to Muswazi (2001:254), library and information services do not adequately address pertinent knowledge access issues. It is no wonder that access to the indigenous information collected so far is very limited, because it is not well organized in terms of being indexed and abstracted (Warren and McKiernan, 1995: 426). This partly explains the underutilization of IK in development projects (Mathias, 1995: 17). In addition, the lack of marketing strategies can also account for the low level of use of IK. Information professionals have a long tradition during which they have developed significant skills in the organization of knowledge. They can draw upon skills in constructing thesauri and compiling bibliographies as a key to making IK accessible and, by implication, utilized.

### *Thesauri*

The problem of access to IK is compounded by a lack of standardized indexing terms and by inconsistent indexing policies. The use of a controlled vocabulary such as thesauri and other controlled lists of keywords, ontologies, classification systems, clustering approaches, taxonomies, gazetteers, dictionaries, lexical databases, concept maps/spaces, semantic road maps, etc. (Hill and Koch, 2001)

can facilitate the organization of IK in information retrieval systems. In fact, the International Symposium on Indigenous Knowledge and Sustainable Development, held in September 1992 at the International Institute for Rural Reconstruction (IIRR) in the Philippines, recommended the building of specialized community-based and centre-based thesauri for cataloguing IK (Anonymous, 1993).

The primary purpose of a thesaurus is to promote consistency in the indexing of documents and to facilitate searching. The American National Standard for Thesauri defines a thesaurus as 'a controlled vocabulary arranged in a known order', with specified types of relationship, identified by standardized relationship indicators (ANSI/NISO, 1993). In other words, a thesaurus is the controlled index language that the indexer uses to interpret and represent the themes, concepts and language of documents. It was originally developed to bring together the vocabularies of searchers and indexers, and to promote inter-indexer consistency (Bernier and Heumann, 1957; Vickery, 1960). However, thesauri have evolved beyond being indexing and searching tools to become 'knowledge representation systems' (Smith, 1996), 'patterns of knowledge' (Pollitt *et al.*, 1997) or 'semantic networks' (Chen, 1990).

The use of knowledge representation systems like thesauri is important in organizing and retrieving recorded

IK, which tends to be multidisciplinary in nature. For example, contributions to the discourse on IKs and practices are coming from the life sciences and natural sciences, such as biology, botany, medicine (both human and animal), pharmacology, agronomy, soil science, anthropology, economics, sociology and applied technology, to mention only a few. The use of a thesaurus will go a long way in aiding authors and publishers to make information more accessible by providing indexing information that uses controlled vocabulary or terms from a thesaurus, or by rendering other linguistic assistance to searchers and readers. Controlled vocabularies facilitate knowledge management and systematic access to knowledge systems. Indeed, controlled vocabularies like thesauri are increasingly becoming one of the major tools for organizing and managing information from a variety of sources.

### *Bibliographies*

Library and information professionals should play a leading role in the compilation of annotated bibliographies that are descriptive and evaluative, in order to inform readers of the relevance, accuracy and quality of the IK held in various national information resource centres. The tasks of the compiler of a bibliography should be to:

- find out what materials on a particular subject exist
- describe them item by item
- assemble the resulting entries into useful arrangements for reference.

The need for lists of this kind arises as soon as the number of materials in any subject is too great to be easily remembered. The field of bibliographies acquired special importance in the 20th century because of the need for effective organization of the records of human communication in the face of the growing information overload, and the need for informed access to information. It has been said that without bibliography, the records of civilization would be an uncharted chaos of miscellaneous contributions to knowledge, unorganized and inapplicable to human needs (Encyclopaedia Britannica, 2001). Inventories and registers of traditional knowledge systems can serve as useful building blocks for compiling bibliographies.

### *Marketing of IK services and products*

Development projects still appear to make little use of IK (Mathias, 1995: 17). The use of IK is largely dependent on, and is accelerated by, knowledge of its existence and access to it. The *raison d'être* of archives, libraries and other media centres is to provide access to materials relating to the cultural heritage of society. To do that, they have to produce and deliver goods and services that people want and value. Their role should not stop at the production of services and products like thesauri or bibliographies, for example, but they must have an added

responsibility of creating awareness through adopting marketing strategies. It is assumed that people will utilize IK services and products if they are aware of their existence. Therefore, the application of marketing principles to IK would facilitate the utilization of the society's cultural heritage, and facilitate the production of user-oriented rather than producer-oriented services.

### *Storage And Preservation Media*

Storage of IK is not limited to text documents or electronic formats; it could include cassette tapes, films, story telling, gene banks and others. In essence, all these media are impermanent. Information professionals should ensure the longevity of the documented IK by devising preservation strategies. More often than not, collectors of IK are more worried about its immediate utility. Selection of the media to be used for capturing IK is largely dictated by circumstances and convenience of collection, rather than by long-term implications of the storage media for the preservation of IK.

### **THE ROLE OF INFORMATION PROFESSIONALS**

Managing and preserving IK will help to 'reduce poverty, enhance equity, reduce environmental degradation' and lead to sustainable development, as well as increased local participation in the development process (Warren and McKiernan, 1995: 426). Information professionals should be proactive in their approach to managing society's knowledge resources. They must ensure that indigenous knowledge, although based on orality and oral traditions, should be managed and preserved just like other documentary materials that are grounded in western codified knowledge schemes. They should devise strategies for making indigenous information and knowledge accessible by:

- preparing inventories and registers of traditional knowledge systems, taking into account the intellectual property implications of such inventories and registries
- making IK accessible to the community, especially young people, by means of marketing strategies
- developing collection development policies for IK bearing in mind the implications of the storage media for its preservation
- developing standardized tools for indexing and cataloguing IK systems
- compiling bibliographies of IK resources.

### *References*

Agrawal, A. 1995. Indigenous and scientific knowledge: some critical comments. *Indigenous Knowledge and Development Monitor*, 3 (3): 3–6.

- American National Standards Institute (ANSI)/National Information Standards Organisation (NISO). 1993. *Guidelines for the construction, format, and management of monolingual thesauri: an American National Standard, Z39.19*. Bethesda, MD: NISO Press.
- Anonymous. 1993. Recommendations and Action Plan. *Indigenous Knowledge and Development Monitor*, 1 (2). [On-line]. [http://www.nuffic.nl/ciran/ikdm/1\\_2/articles](http://www.nuffic.nl/ciran/ikdm/1_2/articles)
- Atte, O.D. 1989. Indigenous local knowledge – a key to local-level development: possibilities, constraints and planning issues in the context of Africa. Paper presented at the seminar on 'Reviving local self-reliance: challenges for rural/regional development in eastern and southern Africa.' Arusha, Tanzania, 21–24 February.
- Bernier, C.L. and Heumann, K.F. 1957. Correlative indexes. III Semantic relations among semantemes: the technical thesaurus. *American Documentation*, 8: 211–220.
- Brokensha, D., Warren, D. and Werner, O. (Eds.). 1980. *Indigenous knowledge systems and development*. Lanham: University Press of America.
- Chen, H. 1990. A knowledge-based document retrieval system. [On-line]. <http://ai.bpa.arizona.edu/papers/dexa90/dexa90.html>.
- CSOPP (Civil Society Organisations and Participation Programme). 2001. Conserving indigenous knowledge: integrating new systems of integration. [On-line]. <http://www.undp.org/csopp/CSO/NewFiles/dociknowledge.html>.
- Davenport, T.R., De Long, D.W. and Beers, M.C. 1998. Successful knowledge management projects. *Sloan Management Review*, 39 (2): 43–57.
- Drucker, P. 1995. The information executives truly need. *Harvard Business Review*, 73 (1): 54–63.
- Encyclopaedia Britannica. 2001. Bibliography. [On-line]. <http://www.britannica.com>.
- Freeman, P. 2001. Knowledge management standards: what do they look like? *Access*, 15 (2): 27–29.
- Gonzalez, R.M. 1995. KBS, GIS and documenting indigenous knowledge. *Indigenous Knowledge and Development Monitor*, 3 (1): 5–7.
- Hill, L. and Koch, T. 2001. Networked knowledge organization systems: introduction to a special issue. *Journal of Digital Information*, 1 (8). [On-line]. <http://jodi.ecs.soton.ac.uk/Articles/v01/i08/editorial>.
- Labelle, H. 1997. Presidential address. Canadian International Development Agency at the plenary session on global knowledge and local culture of the International Global Knowledge 1997 Conference in Toronto. [On-line]. <http://www.kivu.com/>
- Lawas, C.M. and Luning, H.A. 1996. Farmers' knowledge and GIS. *Indigenous Knowledge and Development Monitor*, 4 (1). [On-line]. [http://www.nuffic.nl/ciran/ikdm/4\\_1/articles/lawas.html](http://www.nuffic.nl/ciran/ikdm/4_1/articles/lawas.html).
- Mathias, E. 1995. Framework for enhancing the use of indigenous knowledge. *Indigenous Knowledge and Development Monitor*, 3 (2): 17–18.
- Muswazi, P. Indigenous knowledge in Swaziland: perspectives. *Information Development*, 17 (4): 250–255.

- Nuwanyakpa, M., Toyang, N.J., Django, S., Ndi, C. and Wirmum, C. 2000. Ethnoveterinary healing practices of Fulani pastoralists in Cameroon: combining the natural and the supernatural. *Indigenous Knowledge and Development Monitor*, 8 (2): 3–6.
- Pollitt, A.S., Smith, M.P. and Braekevelt, P.A.J. 1997. View-based searching systems: a new paradigm for information retrieval based on faceted classification and indexing using mutually constraining knowledge-based views. [On-line]. <http://www.hud.ac.uk/schools/cedar/bcshci.htm>.
- Posey, D.A. and Dutfield, G. 1996. *Beyond intellectual property*. Ottawa: International Development Research Centre.
- Schoenhoff, D.M. 1993. *The barefoot expert: the interface of computerized knowledge systems and indigenous knowledge systems*. Westport, CT: Greenwood Press.
- Smith, T.R. 1996. The meta-information environment of digital libraries. [On-line]. [www.dlib.org/dlib/july96/new/07smith.html](http://www.dlib.org/dlib/july96/new/07smith.html).
- Todd, R.J. 1999. Knowledge management: utilising the knowledge capital of a learning community. *Access*, 13 (3): 11–14.
- Tyler, S.A. 1978. *The said and the unsaid: mind, meaning, and culture*. New York: Academic Press.
- Ubogu, F.N. 2001. Knowledge management for decision-making: tools, institutions and paradigms. Second meeting of the Committee on Development Information (CODI), Economic Commission for Africa, Addis Ababa, Ethiopia, 4–7 September.
- Ulluwishewa, R. 1993. Indigenous knowledge, national resource centres and sustainable development. *Indigenous Knowledge and Development Monitor*, 1 (3): 11–13.
- United Nations (UN). n.d. Draft Declaration on the Rights of Indigenous Peoples. Prepared by the Aboriginal and Torres Strait Islander Commission, Canberra, Australia. [On-line]. [http://www.gcc.ca/Political\\_Issues/international/](http://www.gcc.ca/Political_Issues/international/).
- United Nations (UN). 2001. Report of the expert preparatory group meeting on African Virtual Library and Information Network (AVLIN) and knowledge management. Second meeting of the Committee on Development Information (CODI), Economic Commission for Africa, Addis Ababa, Ethiopia, 4–7 September.
- Vickery, B.C. 1960. Thesaurus: a new word in documentation. *Journal of Documentation*, 16 (4): 181–189.
- Warren, D.M. 1991. Using indigenous knowledge in agricultural development. World Bank Discussion Paper. Washington, DC: World Bank.
- Warren, D.M. 1992. Indigenous knowledge, biodiversity conservation and development. Keynote address at the International Conference on Conservation of Biodiversity in Africa: Local initiatives and institutional roles, Nairobi, Kenya, 30 August – 3 September. [On-line]. [http://www.ciesin.org/docs/004\\_173/004\\_173.html](http://www.ciesin.org/docs/004_173/004_173.html).
- Warren, D.M. and McKiernan, G. 1995. CIKARD: a global approach to documenting indigenous knowledge for development. In: Warren, D.M., Slikkerveer, L.J. and Brokensha, D. (eds.) *The cultural dimension of development: indigenous knowledge systems*. London: Intermediate Technology Publications, 426–434.
- Warren, D.M., Von Liebenstein, G.W. and Slikkerveer, L. 1993. Networking for indigenous knowledge. *Indigenous Knowledge and Development Monitor*, 1 (1): 2–4.

## Abstract

Managing knowledge in general and indigenous knowledge in particular has become an important and valuable input in the management of sustainable development programmes. Historically, indigenous knowledge has been downplayed in the management of information. The tendency among library and information professionals has been to emphasize recorded knowledge at the expense of unrecorded indigenous knowledge. However, the growing realization that indigenous knowledge has a role to play in national development as well as the knowledge management environment has led to the growth of interest in preserving and managing it. The major challenges to the management and preservation of indigenous knowledge are issues relating to collection development, intellectual property rights, access and the preservation media.

Patrick Ngulube is a Lecturer in organization of information, advanced research methods, records and archives management at the Department of Information Studies, School of Human and Social Studies, University of Natal, Pietermaritzburg, South Africa. E-mail: [ngulubep@nu.ac.za](mailto:ngulubep@nu.ac.za).

**MORE ON INDIGENOUS KNOWLEDGE****'Breathing the thin air of cyberspace': global knowledge and the Nepal context.**

J. Gregson, G. R. Upadhaya. *Information Technology for Development*, 9 (3,4) 2000, p.141–152. il. refs.

Examines global and indigenous knowledge sharing with a focus on electronic information exchange in Nepal's development sector. Drawing on lessons from experience based on two local examples, a framework is presented of a strategy for realising the potential of information and communications technologies (ICT) in countries where knowledge sharing and access is constrained in a variety of ways. The 'iCAPACITY framework' outlined for the South Asian context integrates the inter-dependent themes of Content, Access, and Partnership, highlighting the critical components that require consideration when building the capacity for ICT usage and knowledge sharing in a developing country context. Practical initial steps are put forward, that recognize the primary concern for holistically addressing economic, social and environmental issues, with the overall priority of alleviating poverty using broad-based participation. Concludes that developing countries, such as Nepal, currently occupy what may be metaphorically referred to as 'the thin air of cyberspace', where the essential knowledge needing to be shared locally or globally, is not yet widely available or accessible. In this context, particular care has to be taken in formulating localised strategies and models that can improve the quality of this 'air', and lead to a situation where development efforts can truly be enhanced by the IT revolution.

**Intellectual property rights: mothering innovations to markets.**

P. Ganguli. *World Patent Information*, 22 (1–2) Mar–Jun 2000, p.43–52. il. refs.

Examines innovation and knowledge generation processes and the supporting role of intellectual property rights (IPR) both for systematized investigative science and traditional community led activities. Options for protection of traditional knowledge and life materials and processes are suggested. It is suggested that the systematic and logical merging of ideas from conventions like TRIPS, convention of biodiversity (CBD), and union pour la protection des obtentions végétales (UPOV) can lead to the creation of harmonized provisions that could satisfy basic and minimum standards of IPR and societal ethics. The need for the unambiguous definition of discovery and invention in the granting of patents for biotechnological investigations is explored, as well as the issues of the establishment of prior art from unstructured traditional knowledge, identifying legal owners of traditional knowledge and evaluating prior art in this domain. The imperative task of creating a structured knowledge database of traditional practices and linking them through global networks is highlighted. Four case studies are presented to illustrate issues related to: the erroneous granting of a patent and the role of documented community prior art in its revocation; equitable sharing of benefits with indigenous tribes; sharing of benefits with the community; and integrating indigenous knowledge, modern science and reciprocity into novel drug discovery. (The author may be contacted by electronic mail at ramu.p.ganguli@unilever.com).

**Information economy and knowledge society: an introduction. Part 3: economics and policy aspects.**

A. Neelameghan. *Information Studies*, 5 (4) Oct 1999, p.249–260. refs.

Looks at some positive and negative aspects of the Internet economy in which currently only 10 per cent of users are from the developing countries. Very few of their national development plans have a chapter on information, and it is suggested an information sector should be properly recognised. Calls for greater capabilities in national information systems in Third world countries to capture and disseminate indigenous knowledge. Discusses information flow models as a step toward developing a taxonomy of information processes, with capacity for improving technical publications. Also considers issues of control over information flow and allocation of funds to a national information infrastructure.

(From *Library and Information Science Abstracts*)



