INFORMATION LITERACY FOR MANAGING COMMUNITY KNOWLEDGE IN DEVELOPING COUNTRIES IN A KNOWLEDGE SOCIETY ENVIRONMENT

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\textbf{ABSTRACT}

This paper focuses on and discusses the knowledge, competencies, and qualities necessary for information professionals, knowledge managers and others undertaking information provision and knowledge management among, rural and indigenous communities especially in developing countries where knowledge societies are emerging. We propose that it is useful and possible to widen the scope of knowledge management (KM) beyond the enterprise environment, applying it to community knowledge, taking into consideration not only the Collaborative and Semantic dimensions but also the Structural/Organizational, Technological, Policy, Legislative, Cultural, Spiritual, Space, and Time dimensions. This implies trans- or multi-generational transference of knowledge both formal and informal. These factors may play an enabling role or create barriers to communication and knowledge transfer. The common characteristics of rural, native communities need to be understood and the valuable tacit environmental knowledge acquired by indigenous communities need to be shared and used for the benefit of the nation as a whole and the global community of nations and nation states. The need to create the means and methods of accessing, acquiring, disseminating and using such knowledge for the good of the society at large are considered to be within the scope of the work of information professionals and knowledge managers. The problems and barriers in interacting with indigenous and rural people and the role of emerging information and communication technologies in reaching out are examined. Enabling the rural community members to become information literate to seek and obtain the information they need and ensuring that they are not exploited, but that they benefit from and enjoy their participation in the national development process through appropriate information services. All these are an integral part of the information literacy of the professionals. In designing and developing programs for the education and training (formal and informal) of information professionals, knowledge managers, and extension workers to perform effectively with indigenous and rural communities, the inclusion of the topics suggested in this paper are worth considering.

\textbf{Keywords:} Rural and marginalized communities; Information needs; Information service; Interaction and communication; Information and communication technologies; Information literacy

\textbf{WORKING DEFINITIONS}

\textbf{Information Literacy (IL):} In general IL is a “set of competencies that an informed citizen of an information society ought to possess to participate intelligently and actively” in the society.

\textbf{Knowledge Society (KS):} Features of the emerging knowledge society of the digital era include the convergence of information and communication technologies (ICTs) enabling almost seamless access, in the expanding digital space, to a vast and varied information and knowledge sources from anywhere at any time. Expanding digital space and globalization implies, among other things, growing interdependence among peoples of the world. Implicit in this growing interdependence is the need to share both knowledge and wisdom.
Knowledge Management (KM): The definition and scope of knowledge management (KM) is more often stated in the context of an enterprise environment and is concerned with organizational processes that are designed to integrate data and information processing capacity of ICTs with peoples’ creative and innovative capacity, including the use of their tacit knowledge. KM examines in the context of discontinuous changes, issues relating to organizational adaptation, survival, and competence. Svelby (1997) defined KM as “the conceptualizing of an organization as an integrated knowledge system, and the management of the organization for effective use of that knowledge, where knowledge refers to human cognitive and innovative processes and the artifacts that support them.” As explained by Haravu (2002), common to these and most other definitions e.g. by Verna Allee, Ikujiro Nonaka and Hirotaka Takeuchi, Thomas H. Davenport, and Ferdinand Drucker the emphasis is on knowledge as intellectual capital or asset of an enterprise. “Leveraging an organization’s knowledge resources is to enable it to adapt, survive and compete in the face of increasingly discontinuous change.” (Haravu 2002, chapter 3; Malhotra 1998). These authors consider mainly two dimensions of KM, namely, Collaborative dimension and Semantic dimension.

We propose that it is useful and possible to widen the scope of KM, beyond the enterprise environment, applying it to community knowledge. In so doing we need to take into consideration not only the Collaborative and Semantic dimensions but also other dimensions, namely, Structural/Organizational, Technological, Policy, Legislative, Cultural (which influences the semantic dimension, and people’s perceptions and priorities), Spiritual, Space, and Time dimensions. This implies trans-generational or multi-generational transference of knowledge both formal and informal. In relation to a particular community some of these factors may influence KM more than the others. And they may play an enabling role or create barriers to communication and knowledge transfer.

Human behavioral characteristics differ from place to place within a country and across national boundaries; they vary over periods of time too. In other words, they are influenced by space and time, culture and other factors. The organizational dimension of a community as a whole and of its programs influence the communication and information flow patterns – e.g. dominantly oral, written, ITC-enabled; top-down, bottom-upward, spiral, or a combination of these.

WHAT IS COMMUNITY KNOWLEDGE
In most developing countries, over 70 per cent of the population live in rural areas. They are mostly illiterate or semi-literate. They live in vast numbers of rural villages, often spread out, into small communities. But they form a vital cog in the national economy as they produce the raw materials of food, clothing, and shelter that are converted into consumable products, used and enjoyed by a much larger population in the urban and semi-urban population nationally and even internationally. They also constitute a vital base of a democratic socio-political system and usually have strong family and community bonds and democratic processes for making decisions.

Living close to nature, they acquire knowledge of and have a stake in, nurturing and preserving nature’s offerings – their environment - for survival and wellbeing. They have skills in crafts, use of colours, and an integrated view of wellbeing – the totality of physical, mental and spiritual. Much of this applies to the marginalized indigenous
communities in the technologically and economically advanced countries as well. Thus these communities possess a fund of valuable native knowledge relating to the environment, the earth, climate, food, medicinal plants and animals, social and cultural value systems, ethnic music and the arts. Such knowledge is essentially locale specific, and may not even be found in textbook sources. For example, certain South Pacific Islanders have a detailed categorization and description of some thirty-five varieties of a single species of fish. This is important information for their daily lives: it informs when particular varieties will appear and where in the sea, which of them have food and/or medicinal value etc. Regarding the wisdom of local communities and management of forest wealth, Justice P.N. Bhagwati writes: “There is so much traditional wisdom amongst these tribals and forest dwellers accumulated over the years, that they are able to live in harmony with nature. Nature and environment are as much a part of their daily existence as food, shelter and clothing and they are continuously in communion with nature. Our plan for forest management must, therefore, take into account the human beings who live in the forests and nothing should be done which would affect their daily existence or their means of subsistence.” (Seshia et al. eds. 2005, quoted inside book jacket)

With regards to management and use of forest wealth, it is important to take into account the internal dynamics and knowledge of the local indigenous communities. “The local knowledge and management of forest / tree resources for cultural / religious purposes is set within the complex social framework of the area. Conservation of tree resources through propagation of cultural and religious beliefs can best be understood in the context of control by the rural elite” (Kumar, S., 2001, p. 2897). “In comparison to western scientific conservation models, which advocate the creation of national parks and sanctuaries, the conservation of bio-diversity in these people-declared-managed sacred groves is more effective. This may be due to the fact that these sacred groves are intimately connected to the social life of the communities, such as in the case of Hariyali sacred grove, form an integral part of the cultural identity of the community. Rituals associated with the grove and annual festivals associated with the presiding deity serve to bind the community while strengthening the social bonds and relationships. This is clearly not the case with national parks, which may completely alienate local communities from the area, cutting of all ties and relationships that the community had previously.” The well-researched documentation Traditional wisdom in natural resources management: the only way to conserve (Seshia et al. eds. [2005]) describes the wealth of environmental knowledge acquired by indigenous local communities of Uttaranchal, North India. Such knowledge has become tacit social knowledge of the communities – that is, community knowledge.

In recent times there is a strong re-emphasis on end-beneficiary (customer-centricity) in service management.

“Focus is on individual customer- needs sensitivity and customer-centricity, innovation, collaboration for ‘cocreation through global networking.’ “The system must focus on individual customers and their individual preferences and skills..... Consumers base their choices on their skill levels as much as their desires, and peer opinions.”

“The capacity to serve individual customers – that is personalization and cocreation of value – will demand capabilities to work with customers to anticipate and predict their preferences on a continuous basis.” (Prahalad and Krishnan, 2008; p. 97)
Their views on information goods delivery are given later in this paper.

This focus and co-action is particularly relevant to provide information service to indigenous and marginalized communities.

**KNOWLEDGE OF SOURCES OF INDIGENOUS COMMUNITY KNOWLEDGE**

The knowledge acquired by rural and indigenous people through observation and experience, has largely been embodied in folklore and shared by word of mouth for centuries and passed down the generations. This knowledge needs to be recorded, (may even have to be recreated), processed, disseminated and utilized. For instance: “Myths can tell us a great deal about what happened in the past and were important in establishing what happened here (Seattle) 300 years ago,” remarks Brian Atwater of the U.S. Geological Survey. “Along the Oregon and Washington coast, there are Native American stories about boulders, called a’yahos, which can shake to death anyone who stares at them. In addition, Ruth Ludwin, a seismologist in Seattle, discovered tales of villages being washed away and of whales and thunderbirds locked in flights.” The new science of geomythology is being harnessed by researchers who believe folklore can save lives. (McKie, 2005). By utilizing the knowledge embedded in folklore of the natives the latter will feel their participation in and contribution to, the nation’s progress. An example of this was the indigenous peoples’ response to the Indonesian tsunami, wherein they suffered little loss of life because they knew the stories and myths, and thus reacted appropriately to seismic and water behavior warnings.

Seventy five percent of the food grown globally comes from the indigenous peoples of the Americas. Swiss chocolate is not from Switzerland. The turkey and Turkish tobacco are not from Turkey. The Jerusalem artichoke is not from Israel. And the tomato that is so central to Italian cooking is not from Italy. All of these as well as corn, beans, squash quinoa, amaranth and many other foods come from the indigenous Americans. The US oil industry had its humble beginnings near the Oil Springs Seneca Reservation where some Seneca people showed some US citizens uses of the Seneca people’s oil - from Vaseline, to lubricating oil, lamp oil, then gasoline and numerous other uses. It is now a global commodity that impacts the whole world.

Indigenous medicines are the foundation of some of the present day most effective and widely used medicines. Many medical companies are returning to this indigenous source of knowledge even as some of the so-called ‘wonder drugs’ are losing their effectiveness. Numerous company researchers are fanning out into the forests, mountains, and deserts of the world to ask indigenous healers in Africa, Asia, Europe, and the Americas how they do it. They hope to find cures for not only rare diseases of to-day, but also potential pandemics that may wipe out millions of people in the future.

Das Gupta of Cambridge University points out the value of this “natural capital” for the nations. He warns that it is 60% degraded globally and contains the key to the health and wealth of nations (Earth and Sky, 11 Jan 2007). Can we or should we maintain these natural treasures without the indigenous and rural peoples who have lived in them in harmony for many generations and know how to unlock their wealth? Without their assistance, we could spend decades and billions of dollars to find the uses of the plant and animal medicines. By the time we learn their uses pandemics may have come and gone. Foods needed to sustain us in the future may be lost forever. Knowledge and wisdom necessary for human survival may slip from our grasp while we watch helplessly as global events hold sway.
Currently, we are witnessing the demise of many of these communities through expanding urbanization, flooding from dams and other means. In this process, the world loses their knowledge and wisdom as well as the genetic diversity of the foods that may be critical to sustaining them in the future. What one may ask, can indigenous and rural peoples teach our vast powerful civilizations anything of value? We have powerful educational systems producing well-educated people. We have vast libraries and research centers wherein we create new inventions almost daily.

UNDERSTANDING THE SPECIAL ISSUES RELATING TO EXCHANGE OF IDEAS

There are numerous barriers to the effective exchange of ideas between communities and cultures due to historic, economic, sociological and political reasons. Furthermore, in most developing environments low literacy levels, poor information communication facilities in terms of number and quality of newspapers in local languages and dialects, telephones, radios, television sets etc., say per hundred persons, inadequate resources and/or resource mobilization and management capacity, multiplicity of languages spoken, multi-culture, and absence of an information-use culture may also add to the problems. This together with other factors has resulted in their failure to receive basic education, health care delivery, employment and other economic and social benefits. These factors individually and collectively increase the vulnerability of these communities and widen the gap – economic, social and technological – between them and others, for example the urban communities.

Different communities have different needs and priorities

Federico Mayor, former Director General of UNESCO, in his book The New Page, says of his surprise and dismay at meeting with ministers of education from various developing countries “whose concern does not lie in the direction of educational policy but rather in obtaining the simplest of educational materials - paper and pen - for students in their schools. To speak about ‘cultivated citizens’ in such conditions is, lamentably, a distant vision.” In fact, for many of people around the world, the question of education assumes very basic dimensions. United Nations figures indicate that there are some 800 million illiterate individuals in the world - people who have not received sufficient education of any sort that would enable them access and use information to prosper materially, intellectually, or spiritually.

Some of the barriers mentioned above are more keenly felt with the expansion and globalization of trade and commerce, business process outsourcing, technology flow, sports, travel and tourism, politics and external relations, international aid, education, collaborative research, cultural relations, and other sectors of the national economy and social life.

A culture-related factor, namely, priority perceptions may differ between an aid-giving agency on the one hand attempting to introduce new ideas, technology and innovations and the aid-receiving community on the other. This may result in the failure of achieving a program’s objectives or making compromises. Similarly, undesirable consequences may result when the aid-giving agency does not understand and appreciate age-old local practices and attempts to force new ideas on the local people. For instance, regarding environmental knowledge Kumar (2001) points out, “The local knowledge and management of forest / tree resources for cultural / religious purposes is set within the complex social framework of the area. Conservation of tree resources through
The propagation of cultural and religious beliefs can best be understood in the context of control by the rural elite” (Neelameghan and Chester 2006).

**Indigenous cultures are often in a tenuous position**

A substantial proportion of the marginalized communities in most developing countries and even in some of the technologically advanced countries do not appear to be benefiting from these developments nor do they ‘feel’ participating in and contributing to, national socio-economic development. Even so, these marginalized communities possess valuable tacit knowledge about nature and its offerings, ethnic, cultural, and spiritual values that can benefit societies beyond the communities to which they may belong. “As custodians of cultural diversity and biodiversity, embodied in natural and cultural heritage – tangible as well as intangible -, indigenous peoples, and particularly women, must be proud of their role as mediators in the safeguarding and transmission of traditional knowledge, while taking their rightful place in a globalized world....Indigenous cultures are an asset for future generations and a potential source of regeneration. By highlighting the strong ties between culture and nature, tradition and modernity, they provide an inclusive and truly global vision of the world.” (Matsuura 2006)

The International Day of the World’s Indigenous People is an opportunity to acknowledge the significant place that indigenous cultures occupy in the world’s cultural landscape, and the important contribution they make to our rich cultural diversity, which constitutes the “common heritage of humankind” as defined in the 2001 UNESCO Universal Declaration on Cultural Diversity. Indeed, indigenous cultures are an asset for future generations and a potential source of regeneration. By highlighting the strong ties between culture and nature, tradition and modernity, they provide an inclusive and truly global vision of the world.

“The fact that the culture of indigenous people are in danger of dying out cannot fail to be a matter of concern .... These populations number some 350 million individuals in more than 70 countries in the world and represent more than 5000 languages and cultures. Today many of them live on the fringes of society and are deprived of basic human rights, particularly culture rights.

“It is essential to know and understand the deeply spiritual special relationship between indigenous peoples and their land as basic to their existence as such and to all their beliefs, customs, traditions and culture ... Their land is not a commodity which can be acquired, but a material element to be enjoyed freely.” (Cobo 1987)

**Critical roles of rural women**

Women today often have two roles to play in rural communities. They have their traditional role that include maintaining the wellness of themselves and their families and new roles in the absence of their partners who may be working in urban areas. In their traditional roles they need clean and healthy environment and food to maintain their wellness and that of their families. For example, they need to have food free of toxic chemicals to produce pure, healthy milk for their children.

Many women have new roles in many areas of the developing world as the major producers. The predicament of rural women is of particular concern in environmental management. In the developing world, women are the major producers. This is particularly so in recent times as many of the able-bodied men migrate to urban areas in
search of work. Women, therefore, are increasingly involved in activities like farming, fishing, selling the produce and also taking care of domestic tasks - fetching water from a distant spring, river, or pond - preparing food, gathering wood for fuel and construction, and fodder for cattle, caring and nurturing children and elderly people. Thus, women interact intensively with the environment to meet their families' daily subsistence needs and are, therefore, most affected when their immediate environment is changed due to forest degradation, rain and fire havoc, quarrying, damming, and mining activities that render the land barren. Lengthening forage time has resulted in immense physical exhaustion and considerable hardship to women, children and the few cattle and other domestic animals they tend. In short, rural women bear the brunt of the worst problems caused by environmental degradation. The Gramine Bank, for example, provides many women with micro loans to enhance their productive and income capacity.

REACHING THE UN-REACHED

Basic background knowledge necessary

What background knowledge is needed to provide appropriate information and services? The following environmental concerns which have bearing on long range global health and prosperity are shared by most communities:

- Fundamental principles that guide indigenous peoples’ behaviors
- Conservation of natural resources including soil, water, and energy.
- Degradation of earth’s biosphere.
- Extinction of certain species of plants and animals through natural and man-made disasters.
- Preservation of local and global biodiversity, i.e. indigenous and migratory animals as well as plants, microorganisms, etc.
- Pollution and contamination of fire, soil, air, and water, as well as women’s amniotic fluids and milk.
- Improper and coerced exploitation of natural resources for commercial purposes.
- Rapid increase of population especially in developing countries and its effect on the environment and the economy.
- Contamination of existing species by bio-engineered species.
- Individuals and corporations patenting food and medicinal species domesticated and improved by local people.
- Individuals and corporations patenting wild species and herbal medicines discovered and used by local people.
- Need to prepare for global warming induced flooding of islands and heavily populated coastal plains.
- Need to acquire and diffuse indigenous knowledge to properly respond to increased frequency, size, and intensity of natural disasters.

An implication is that, in developing strategies to address the above concerns we must include indigenous peoples, their ideas, values, tacit knowledge and wisdom. Examples of key enduring principles from the 1,000 year old Constitution of the Iroquois Confederacy are peace, justice, and the power of the good mind. Another example of an indigenous principle is the seventh generation principle whereby decision-makers must
consider the impact of their decisions on the seventh generation they will not see (Iroquois Confederacy, Great Law of Peace). Librarians can be a catalyst to facilitate the gathering and sharing of this knowledge. But, they must appropriately be prepared.

To provide appropriate information services to all sections of the indigenous and/or marginalized communities, to empower them, and improve literacy level, it is necessary to have / acquire background knowledge about the communities. LIS students and professionals and those with and through whom (intermediaries) they plan to work need to have or acquire some basic knowledge of the indigenous and/or rural peoples. For example:

- languages / dialects of the local indigenous communities;
- cultures and cultural practices;
- history
- legal and historic relationships with their indigenous neighbours and with the nation state or states they reside within; and
- systems of governance and decision-making within the family, community, and nation.
- geography and local environment, for example ethno botany;
- relation of the people to the local environment(s);
- interactions among plants, animals, and climate that promote wellness and productivity of all species in a bioregion.
- food and raw materials they extract from their territory for use by themselves and for trade with other indigenous communities and the industrial world.

Furthermore, libraries and scholars as intermediaries interacting with indigenous and rural communities need to survey / ask indigenous and rural people the following:

- what they want from the nation state and the technological societies;
- what they do not want from the nation state and the technological societies and the reasons why they do not want them;
- what is their literacy rate and what languages and written systems are they literate in;
- what is the education offered locally, in what language and culture, and how many of their people are exposed to it and at/to what year or age;
- what do they have in the way of infrastructure, electricity, sewerage, water, roads, transportation, cable communication, wireless communication, radio, television, etc.?
- what technology and educational resources do they already have? and
- what are the barriers to effective communication and exchange?

These will inspire respect for the information professionals (IP) for the knowledge they encounter.

The learner, teacher and service intermediary will find it worthwhile to collect and present case studies of outreach services, to illustrate the variety of problems that might arise, people’s behavior, strategies, methodologies, successes and failures, etc. A few sources have been mentioned above; some of the documents cited under ‘Reference’ contain case studies. Listed below are a few more sources of reports and / or summaries.

**Other Aspects**

**Equity and Justice:** Equity and justice require that socio-economic development planning should include all sections of society, and the benefits of development should be shared in appropriate measures by every class of people in the society. Heretofore, most sections of these communities have been largely marginalized in the national development process. In the national development process local values, world views and understandings of the marginalized communities need to be recognized, respected, honored, and adhered to by the consultants and advisors who may be educated, technologically advanced urban people. Those seeking information from the communities must acknowledge and give credit to the people who have obtained or created the original sources of nutrition and healing. Further, those from the outside who gain from the developments of the rural people and indigenous communities must provide them financial compensation for their knowledge, medicines, foods, processes, etc. For this to happen they need to be informed of their contributions and ‘rights’ and be included in the development planning. The economic benefits provided to the rural and indigenous communities will not only benefit these communities, but also the technically advanced urban communities to whom the money earned can buy goods and services.

Inclusion means that not only must all peoples be addressed or included in the plan, but their representatives must also be included in the planning process. The interests of the rural and indigenous peoples and their territories must be respected and protected. Nation states and their local governments and schools must ‘educate’ the general public about the rights of the marginalized communities and the need for and obligation to respect those rights. By providing appropriate information to the rural and indigenous communities and creating the necessary awareness among the public at large through their education systems and media will reduce the chances of outsiders and even local people stripping the homelands of the rural and indigenous people of their vital plants, animals, and minerals that they need for their health and survival. It will minimize them being exploited. The source of payment for the services of the intermediaries is a concern because, the intermediaries will owe their primary loyalty to the institutions that pay them. This may undermine the trust necessary for open effective communication.

**Handicaps and Barriers to Communication:** Rural and marginalized communities suffer from several types of handicaps – low literacy, multiplicity of dialects, vulnerability to
external exploitation, etc. Being barely literate they are susceptible to economic, social, political, and technological exploitation by others.

There are also several impediments to communicating and introducing new ideas, innovations, and technologies into these communities. All these need to be examined and necessary measures and strategies adopted at local, national and international levels to overcome these barriers. Extending ICTs per se to these communities is not a solution. Human intervention is necessary to solve the last mile problem. In another paper, Neelameghan and Chester (2006) discuss the problems of and barriers to communications with, rural and marginalized communities in introducing new ideas and innovations and the importance of human intervention.

Reaching out to barely literate people in the remote areas implies that conventional printed materials are often of little use to them unless they are repleted with pictures, diagrams, and universally recognized symbols. Studies indicate that marginalized people do seek information related to survival, their work, business or trade, on matters relating to health, sanitation, family and child welfare and on government programs, regulations, and other development messages. They have been getting much of such information from visiting government officials and extension workers, NGOs involved in rural development, the elders or leaders in the community, the local doctor, teacher, and through radio and television where available and accessible (McChombu 1993)

**ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGIES**

Global connectivity via networks and network of networks (e.g. Internet and the WWW) has enabled and supported dissemination and communication of information across national and international boundaries. There is mutuality and synergism between globalization and the almost seamless access and exchange of information via the Internet. Collaboration and cooperation – real and virtual – among peoples with commonality of interests and practices have given rise to e-communities and web-based communities. An ‘e-community’ is a community that uses information and communication technologies (ICTs) for sharing / exchanging information, expressing viewpoints, comments, etc. on a matter in which the members of the community have commonality of interests or stakes.

**Social networking**

The focus heretofore has largely been on networking for scholarly and /or business communications. But increasingly e-communities encompass people at large and non-scholarly and non-business communications among them. We may examine some of the intra- and inter-community exchanges in ‘social networking’ and the impact of ICTs more particularly on rural and other marginalized communities. Even in many developing countries national governments, non-governmental organizations and private sector entities are endeavoring to apply and extend ICTs, including wireless technologies and cell phones, to the hitherto unreached groups. Advances in ICTs, intra- and extra-nets (e.g. the Internet/www) have enabled global connectivity and exchange of information. Communities of common interests and/or practices have been active in many domains and for different purposes ever since people found the need for and the means of exchanging information for cooperation and collaboration at various levels. However, in recent years use of e-devices, such as, hand-held devices (e.g. cell phone), wireless, satellite and other communication technologies integrated with computer and audiovisual devices have greatly enhanced and advanced intra- and inter-community...
exchanges. Such facilities are also powerful instruments supporting collaboration and expression of views among people across domains and at various levels. Some of the positive features of such developments relate to the acceleration of empowerment, creation of a more level playing field, facilitation of expression of and greater visibility to the needs and ‘dreams’ of these communities, and drawing upon the wealth of their tacit ‘community knowledge’ for the greater welfare of the society. These programs are also intended to bridge the ‘digital divide’ within and between nations.

The Internet
Harkin (2006) writes: “The Internet’s second coming, it is now universally agreed, is taking its inspiration from the rise of ‘social networking sites’, such as MySpace.com, in which people chat with and open up their lives to perfect strangers.... Social networks are the perfect accompaniment to globalization.” He talks about the "dazzling power of new social networks". Creation of collaborative space and links – many different players (nodes); new and total cognitive experiences, learning experiences; creation of community space providing social interaction; overlaying and integrating different kinds of information (voice, text, multimedia), different types of presentations to derive meaningful, relevant relationships. In this scenario, information providers and intermediaries will have to move up the value chain in terms of more personalized and customized information services.

Prahalad and Krishnan (2008, p. 98-99) remark:

“The shift toward a more customer-centric view of delivering services is also evident in the business of information goods, where deliveries are more direct. Online news portals, social networking sites, and search engines such as Google, Facebook, and Yahoo! allow customers to design their own choices of news topics and sources. In this new model, consumers rate specific Web sites or news items of interest to them, and a back-end analytical engine applies a range of qualitative and quantitative techniques, such as, collaboration filtering and pattern analysis, to anticipate the likes and dislikes of those customers to further refine the quality of their personalized information. For example, a Web add-on tool called StumbleUpon allows consumers to create a community of users with common interests and rate the Web sites and news items and items rated high in the community are displayed in the active lists. The online social networking news site Digg is another example of a Web site for which top news items are chosen based on the number of votes (Diggs) from members in the community as opposed to the traditional media companies relying on a small editorial team to make these choices............................................................These examples illustrate the democratization of the process of identifying sites that may be of interest to individual customers based on insights derived from collective opinion in their peer group.”

Web 2.0 and related devices and techniques - Ajax, Apollo, Web Standards, User Centric Design, RSS, Blogs, Wikis, Mashups, Tagging, Folksonomies, etc., and their integrated applications is finding wider use in networking of rural communities, the literate as well as non-literates and empowering them. See also the CRASSH report mentioned earlier for examples of such applications.
UNESCO Project
A key aspect of the UNESCO program ICTs for Intercultural Dialogue and Diversity: Developing Communication Capacities is the fostering of intercultural dialogue between marginalized indigenous peoples and other groups, both in urban and rural settings, through the use of ICTs that will contribute to enhancing indigenous peoples’ cultural identities and fighting discrimination. The project will also allow indigenous peoples to acquire greater skill in using ICTs thereby creating new opportunities for income generating activities. Many will adapt the technologies in novel and creative ways to deal with their own needs and wants. Other important aspects include the training of indigenous community leaders in ICT use, the production of indigenous cultural content for TV, radio and news media; raising of awareness at the national and international levels about indigenous creativity and about the importance cultural diversity expressed through ICTs.

Spread of Wireless Technology and Cell phone use
The spread of telecom facilities – wireless technology and cell phones – into the rural areas is enabling rural traders and others to obtain market information for their products, to contact village and/or taluq and district officials not only to get information but also obtain certificates and other documents. Information kiosks and tele-centres are also playing useful roles by providing information and connecting people in rural areas among themselves and with NGOs, government offices, etc. Mobile phones are seen to bridge the digital divide in developed as well as developing countries. In a recent report on GSMA, a recommendation was the extension of mobile phones to different segments of the peoples of Africa. This is considered the fastest way to bridge digital divide in the countries of that continent (Biniyat 2006).

Expression of Community Views
As in most other developing countries, in India “rural women bear the brunt of the problems caused by environmental degradation. So it is not surprising to find that they are trying to set things right” (Bist-Joshi 2005). Vikram Soni remarks: “The proposed Scheduled Tribes (Recognition of Land Rights) Bill 2005 could sound the death-knell of prime forests. This could result in the end of the tribal people’s identity which derives from the forests.” (Soni 2005). Another report: “The draft Environment Impact Assessment notification draws protests.” (Menon 2005)

Other recent initiatives in India – establishing Mission 2007: every village a knowledge centre, moving of the biodiversity bill, the Right to Information Act, and by recognizing ‘community knowledge’ possessed by rural communities as valuable national asset and intellectual property, application of low cost, affordable ICTs and promotion of folk arts in rural areas as means of education and information - are expected to address and redressed some of the problems of the hitherto marginalized communities. (Swaminathan 2005).

Data Collection and Information Dissemination
Electronic means are used by individuals and organizations to disseminate information directed to a target group, for instance, to create awareness (e.g. about bird flu, AIDS, human rights), and/or to initiate action, say, environmental problems, and early warning about an impending disaster. The group may be limited to a local area, or spread out nationally or even globally. (Joshua & Ojong 2006). In a recent article, Kumar (2006)
writes about the impact of sustained radio broadcasts to India’s rural communities contributing to the success of the “Green Revolution.”

Thus, hitherto marginalized communities can hope, perhaps slowly but steadily, to be empowered, find the means of expressing their concerns about an issue in a more level playing field, and the tacit community knowledge be used for the welfare of the nation. Obviously, the desired result may be achieved quickly in some cases while it may take months and years of persistent effort. Illustrative cases are reported by Neelameghan (2006).

E-Content Awards is an initiative for bridging the digital divide: Hirwade and Rajyalakshmi (2006) present an analysis of the World Summit Award and Manthan Award candidates for 2003 and 2005 listing a number of programs and projects that are intended to bridge the digital divide including those among rural communities.

During the past decade or so there has been an increasing number of initiatives by governments, non-government organizations, academic institutions and even individual efforts to study the development and communication problems of the rural communities in developing countries and hitherto marginalized communities in developed countries. There have been successful programs, including the use of ICTs to reach the unreached. Case histories are reported by Neelameghan and Chester (2007)

**CONCLUDING REMARKS**

Rural and indigenous people in all countries possess a wealth of tacit ‘community knowledge’. The rest of the world is waking to the value of this national asset. To what extent the extension of ICTs – cell phones, wireless technology, Web 2.0 etc – help to access, disseminate and utilize the traditional wisdom for the benefit of the society at large and at same time protect the marginalized communities from being exploited and preserve their linguistic and cultural individuality, artistic and spiritual values, need to be evaluated over a period of time.

Working and interacting with rural communities and the marginalized native communities in different countries by non-governmental organization, academics and interested individuals, have enabled a deeper understanding of the problems, more particularly those relating to introducing, communicating and acceptance and use of new ideas, innovations and technologies in such communities.

Multimedia, videocassette, and CD-Rom have been used in developing countries for dissemination of information to and for use as learning tools by, rural people. Such devices need to be prepared in local languages. The contents should be carefully selected and planned and should relate to the needs of the target audience. In the past the medium of folk arts have been used in various campaigns with some success. These could be converted to multimedia and ported on to CD-ROMs, video-cassettes, etc. and more widely broadcast via TV and cable networks. Here collaborative efforts by different expert groups, financial support, and the assistance of TV and cable networks need to be mobilized.

Libraries, especially public libraries and community information centers can play useful roles. Libraries have information resources. Information professionals have experience and expertise to organize and present information to meet specific user needs. Trained
in media technology and communication skills, they can, in collaboration with extension workers, government organizations, and NGOs, play decisive roles. Local libraries can also collect and record information about specific local resources, practices, and innovations for wider dissemination.

Public and community libraries in some developing countries are using satellite communication to transmit information to and about, rural areas. Schools in rural areas could also benefit from such services.

Librarians, information and media specialists, the gatherers, storers, and dispensers of knowledge, with all the ICTs now available to assist them can lead the way to help these people protect the indigenous and rural peoples’ knowledge, and thereby their homelands, and their very lives. They are the walking encyclopedias and libraries of the world.

REFERENCES
Biniyat, Luka. 2006. Mobile fastest way to bridge digital divides in Africa, says GSMA (Vanguard). Posted to the Web, Monday, April 03.
Harkin, James. 2006. Social networking. The Guardian, April 15. Available at: http://www.guardian.co.uk/commentisfree/story10...1754398.00.html
Kumar, B.R. 2006. AIR’s broadcasts did make a difference: a phenomenal success was achieved in reduction through sustained broadcasts during the ‘Green Revolution period’. The Hindu Magazine, 2006-12-31; p. 14.
Mckie, Rob 2005. Ancient legends give early warning of modern disasters: the new science of geomythology is being harnessed by researchers who believe folklore can save lives. The Observer (Guardian Newspapers Limited), 4 December.


