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Indigenous Knowledge, South-South Exchange of New Technologies and a Warped Intellectual Property Rights System

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Abstract

In this paper I analyse the contribution of new technologies in sustainable development and poverty alleviation in the global South. My research design is desktop analysis based on a theoretical communication model of the knowledge and communication interface. I present an analysis of the possibilities that exist in South-South exchange of indigenous knowledge using the new technologies, defined as the modern Information and Communication Technologies (ICTs), to address problems of poverty and sustainability. I also give an example of a programme in India that has successfully attempted this. In this paper I employ qualitative method of analysis. I find that there is great potential in South-South exchange of new technologies to address problems of poverty and sustainability. In the same breath, however, I contend that there are substantial challenges that the Intellectual Property Rights (IPRs) system poses to this exchange. I conclude that the exchange is sustainable only to the extent that the South is able to push for the revision of the world trade organisation IPRs regime to avoid appropriation of one of its greatest assets, namely indigenous knowledge. In this paper I recommend that the South should be unflinching in its quest for a fair IPR system.

Keywords: indigenous knowledge, new technologies, intellectual property

1. Introduction

According to the International Institute for Communication and Development (IICD) (2004), new technologies are tools that can contribute to sustainable development and poverty alleviation. However, this only applies when they are supporting existing development activities. Therefore, the institute argues, it is important that focus is concentrated on 'traditional' development sectors, such as education, governance, health, livelihood opportunities (especially agriculture) and environment. In this paper I will argue that it is true that there is great potential in South-South exchange of new technologies to address problems of poverty and sustainability. In the same breath, however, I contend that this exchange is sustainable only to the extent that the South is able to push for the revision of the Intellectual Property Rights (IPRs) to avoid appropriation of one of their greatest assets, namely Indigenous Knowledge (IK). In this regard, the South should be unflinching in its quest for a fair IPR system.

I will adopt the definitions of new technologies and IK as follows. New technologies are the modern Information and Communication Technologies (ICTs) such as the Internet, cellular phones, radio and television (Ballantyne, 2002). IK is the knowledge that people in a given community have developed over time, and continues to develop. It is based on experience, often tested over centuries of use and is adapted to local culture and environment. It is also dynamic (International Institute for Rural Reconstruction (IIRR), 1996).

My paper is organised as follows. I will begin by presenting the communication model of the knowledge and communication interface on which this paper is premised, before reviewing literature on this model in the context of the possibilities that Southern countries may explore in exchanging the new technologies and expertise to address problems of poverty and for sustainable development. In the next section, I will present a discussion on the challenge the IPRs system poses to the South-South exchange of the new technologies and expertise. The final section is a conclusion to wind up the paper.

2. Knowledge and Communication Interface Model

The value for IK cannot be overemphasised. For this reason, IK can contribute to new strategies for socially sound

sustained development (Posey, 1990). ICTs, in this regard, have great potential in effectively communicating IK as they can unlock distant expertise, knowledge and markets. In the South, however, this communication has not been effective. Specifically, the content unlocked has been usually foreign and irrelevant. More worrying, however, is the fact that these foreign ideas and values may undermine or overwhelm local cultural heritage and economic livelihoods in the countries of the South (Ballantyne, 2002).This puts sustainable development at risk.

For ICTs to be an empowerment tool in the South, therefore, this foreign content must be matched by the expression and communication of local knowledge that is relevant to local situations. In a word, ICTs need to be conveyers of locally relevant messages and information, providing opportunities for local people to interact and communicate with each other, expressing their own ideas, knowledge and culture (Ballantyne, 2002). This type of communication is among four kinds according to a matrix representing the typology of the knowledge and communication interface developed by Mundy and Compton (1995).

Table1. Typology of the Interface between Knowledge and Communication Types

Communication Systems	Knowledge Systems	
	Exogenous	**Indigenous**
Exogenous	A. Technology transfer	C. Indigenous Knowledge-based development
Indigenous	B. Diffusion; co-opting of traditional media	D. Cultural continuity and change

Source: Mundy and Compton, 1995

Table 1 above can be summarised as follows. Quadrant A is the exogenous communication of exogenous information. For example, much of the literature on agricultural technology transfer is devoted to discovering how best to disseminate research-developed crop varieties and agricultural practices through the mass media and extension system. Quadrant D is the indigenous communication of indigenous information. There is very little literature on this topic as study of traditional communication systems has fallen largely into the realm of cultural anthropology rather than communication. Quadrant B is indigenous communication of exogenous information, for example using folk media to spread exogenous information (Mundy and Compton, 1995, p. 121).

Quadrant C is exogenous communication of indigenous information. This is where ICTs communicating IK fall under. Mundy and Compton note that few examples of this exist but it has great growth potential. 'A major area of potential growth is in the use of exogenous communication techniques to enable farmers to learn directly about indigenous knowledge', they argue (p. 122). A good example in the area of agriculture is the documentation efforts of Iowa State University's Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD) (Mundy and Compton, 1995).

The authors conclude that while indigenous communication has been touched by many specialists from various disciplines including development communication and agricultural-related disciplines, much of the work has, however, emphasised communication of exogenous innovations (quadrant B). While this area needs more work, it is crystal clear that development efforts are likely to be less effective if communication of indigenous knowledge (Quadrant C and D) continues to be ignored.

In addition to promoting the communication of IK by ICTs, there is need for owners with the motivation to create, adapt or exchange local content for the development process to be sustainable. These owners need incentives. This is because even where people have the needed skills, and where technologies are in place, the right incentives are necessary to make knowledge/ content to flow. A crucial incentive that has been missing is the guarding of the rights of the creator of the content so that it will not be exploited by others without due recognition (Ballantyne, 2002).

In the literature review that follows, informed by the model above, I will analyse the extent to which South-South exchange of IK using new technologies can address problems of poverty and sustainability in the developing world. In the discussion section that will follow, I will show the extent to which the literature has attempted to respond to the

issue of protection of intellectual property as an incentive that is critical for the success of this exchange of new technologies and expertise. My argument is that while there exists great potential in harnessing South-South exchange of new technologies to address problems of poverty and sustainability, one of the greatest assets of the South, IK, will be appropriated in the process if the present form of IPRs system in left unchanged.

3. Results: South-South Exchange of New Technologies and Expertise for Sustainable Development

3.1 Communication of IK: The Potential in ICTs

3.1.1 What is needed?

Ballantyne (2002) argues that the main IK problem in the South has less to do with ICTs and more to do with the way people value their own culture, traditions, and languages, as well as those of others. Also, local capacity limitations and the way global content is pushed have a role to play. He therefore advocates for a consideration of both push and pull factors.

First, there is need to stimulate local content expression for local application and use. The emphasis need not be limited to e-content and digital media. This is basically increasing the pull of IK to introduce a push for whatever particular local uses there may be. But it should be borne in mind that local content intended for local use is often of value beyond the immediate community (p.14).

Second, there is need to stimulate e-content creation and communication not only for local but also for global use. This means translating local content into digital formats. This enables IK to be shared across different media platforms hence balancing the flow of external ideas while at the same time reinforcing the livelihood of its owners. This is enhancement of the local push for local e-content to reach potential local and external audiences (*Ibid*).

Third, there should be a development of e-content exchange and broadcast systems. Basically this means collating and screening relevant global and local content before it is streamed towards local communities. This would ensure maximisation of its relevance and applicability. This is enhancing the demand orientation of the pusher so that local communities are not overwhelmed with unscreened content (p. 15).

Finally, the author calls for the strengthening of the system and adaptation capacities of local organisations. This is done through translating messages into local languages, for example. It also involves adapting content from one format into the other, say, transforming and adapting a text format into an audio format. This is the enhancement of local capabilities to pull external content into local shapes (*Ibid*).

3.1.2 How can it be done?

The author goes on to suggest very specific areas of focus if the strategy discussed above is to be fruitful. These areas include valuing local content, motivating local content through such incentives as the guarding of the rights of the owners of IK, making local content visible through setting up of electronic public spaces perhaps in existing public places like post offices, village offices or community resources like telecentres, libraries, schools and community radio stations, all this combined with other strategies such as community seed fairs and shows (p. 15-16). In addition, addressing language issues is critical as language confers ownership. Also, taking account of the existing wide range of traditional 'off-line' channels and building adaptation skills among local information providers such as publishers, libraries, non-governmental organisations, the media, social ministries of health and education *et cetera* so as to download essential global knowledge are important (p. 16). Furthermore, there is need to focus on promotion of local ownership and participation, engaging in joint action and strengthening the local skills base by offering local training opportunities (p. 16-17).

3.2 An Example

Balaji (1999) documents an information village's research programme in India called Knowledge Systems for Sustainable Food Security. The programme is concerned with the role ICTs can play in promoting sustainable agriculture by meeting the knowledge and information requirements of rural families taking into account the socio-economic context and gender dimension. The programme would further enable the understanding of the extent to which effort should be made to transform generic knowledge into locale-specific knowledge that can be acted upon. It has established a hub at Villianur village where value-addition activity is carried out (the centre has access to the Internet).

The author argues that the result of this effort is that Village Knowledge Centres (VKCs) have been set up in four places other than Villianur. Prior to setting up these VKCs, Participatory Rural Appraisal (PRA) was carried out. In each case, the community identified and provided accessible place and two to four volunteers, among them a gender expert. During the first phase, the volunteers were trained in all the basic computer operations, including elementary maintenance such as defragmentation of the hard disk.

Content creation to suit local needs is the key element in this project. From the PRA, many things emerged, among them the fact that provision of dynamic information on prices and availability of inputs for cultivation - seeds, fertiliser or pesticides - was important to all farmers, especially the medium and small farmers.

Balaji (1999) contends that the VKCs programme has generated a number of databases to fulfill at least some of the most important requirements of the local people. For example, it has databases on integrated pest management in rice crop as well as on pest management in sugarcane crop. These databases in Tamil (except the families below poverty line data, which is an official document in English) are available in all the centres. Updates are transferred using a wireless network. In addition, interactive Compact Disk Read Only Memories (commonly referred to as CD-ROMs) for health-related issues have been developed, where 'frequently asked questions' are posed to medical practitioners whose replies are videographed and converted to 'real video' format for retrieval using a computer.

It is the view of the author that the programme has also responded to the needs of special groups. One such group is Veerampattinam. Veerampattinam is a coastal village with 98 percent of the families involved in fishing. The information requirements in this village are different and more focused on the safety of fishermen while at sea, on fish/shoal occurrence near shore, and on techniques for post-harvest processing.

4. Discussion: ICTs Communication of IK- The Challenge of IPRs

While the foregoing literature review clearly demonstrates the great potential in South-South exchange of IK using new technologies to address problems of poverty and sustainability, I contend that it is crucial to address the vulnerability of IK. In this discussion in particular, I argue that there are substantial challenges that the IPRs system poses to this exchange. At present, the rights of the owners of IK are not guarded. Although modern science and technology has its foundation in IK, for a long time the contribution of IK in modern science has been ignored. Moreover the existing IPRs system wholly ignores these contributions and legalises only the rights of the inventors of modern technology. It is further saddening to note that the World Trade Organisation Trade-Related Intellectual Property System (WTO TRIPS) provisions run counter to the hopes enshrined in more IK-friendly conventions, particularly the 1992 Earth Summit's Convention on Biodiversity (Patel, 1996).

While some have argued that tribal rights to folk varieties could be retained by the IPRs system (for instance Atchley, 1994) (cited in Nabhan, Gary, Joaquin, Angelo, Laney, Nancy and Dahl, Kevin, 1996), others have argued that documenting the traits of folk varieties will ultimately lead to their control by outsiders (for instance Soleri *et al*, 1994) (cited in Nabhan et el, 1996). The issue remains, however, that in creating monopoly rights, IPRs- particularly patent and copyright law- rely upon legal premises that require legal property to be created by an identifiable author for it to be recognised and protected. Without more words, the obstacles created by such legal requirements to ethno-botanical knowledge that has emerged through empirical observations, 'found' natural experiments, or trial and error hypothesis-testing involving many people over decades- are obvious (Nabhan et el, 1996).

It is interesting to note that the IPRs system and particularly patents purports to protect IK yet this is not so as control and ownership of IK is being usurped by commercial interests. This is because in the system, a patent can only be granted only if an invention is 'novel or nonobviuos', something judged against everything publicly known before the invention as shown in earlier patents and other published material. This is called 'prior art'. And here is the problem: some national laws do not recognise oral knowledge as evidence of 'prior art' while others such as the United States law regard oral knowledge as 'prior art' only if they were made in that country. Thus some IK handed down orally from generation to generation in another place, say Africa, can still be patented in the US despite it being publicly known for thousands of years (Generic Resources Action International (GRAI) and Kalpavriksh, 2002).

It is as result of this lack of protection of IK that there has been enormous appropriation of IK in the past. The international seed industry alone accounts for over US $ 15 billion per year, much of which derives original genetic materials from crop varieties 'selected, nurtured, improved and developed by innovative Third World farmers for hundreds, even thousands of years' (Hurtado, 1989, p. 95) (cited in Posey, 1990, p. 15). It should be noted that researchers also have contributed to this appropriation of IK. They earn a lot of income from published dissertations and other books, slides, magazine articles, gramophone records, films and videos (Posey, 1990).

While there are many other declarations, international agreements, laws and manifests that express concerns of and for native peoples, it was the World Intellectual Property Organisation (WIPO) and United Nations Education, Science and Cultural Organisation (UNESCO) that tried, by working within the United Nations system before the 1990s, to develop model conventions to protect folklore and artistic aspects of indigenous knowledge. Nothing went beyond proposals, however, and there seemed to be no push to deal with IPRs in any existing United Nations conventions. Thus indigenous knowledge systems continued to be exploited without compensation (Posey, 1990).

GRAI and Kalpavriksh (2002, p.4) argue that today, global legal bodies have continued to perpetuate this exploitation

directly or indirectly. The most direct one is obviously the WTO. Under TRIPs Agreement, Article 27.3 (b) does not require an applicant for a patent relating to biological materials or traditional knowledge to provide information on the country of origin of the biological resources, and there is no need for evidence of prior informed consent. It also does not require fair and equitable benefit-sharing arrangements as a condition to acquiring patent rights. Also, the Union for the Protection of New Varieties Convention that sets rules for monopoly of rights over crop varieties and the WIPO (through the Inter-Governmental Committee on Generic Resources, Traditional Knowledge and Folklore) forces national laws to conform to the WTO Article 27.3 (b) above.

Others have failed to be clear on IK protection. GRAI and Kalpavriksh (2002, p.5) give a quick summary. The Convention on Biological Diversity Article 8 (j) recognises the need to respect the skills, practices *et cetera* of indigenous and local communities, to take their consent for the wider use of these skills and to ensure equitable benefit sharing of such use takes place. But a specific protocol for indigenous and farmers right lack in the Convention (GRAI and Kalpavriksh, 2002, p.5). Under the auspices of Food and Agriculture Organisation the International Treaty on Plant Generic Resources provides a space for national recognition of farmer's rights. However, the treaty fails to make international provisions on farmers' rights, putting the onus instead on national governments to do so. It also has the controversial IPRs.

To sum the discussion, GRAI and Kalpavriksh (2002, p.6) contend that there is no international endeavour to explore alternatives to the IPRs system so as to protect IK. Any protection of IK, it is argued, must fit into the IPRs system. The several initiatives by the countries of the South since their independence, beginning with the group of 77 that tried to bend the basis of the 1883 Paris Convention for the Protection of Industrial Property (which served to guard the patent system) to favour them did not yield much fruit. But even before the South could have any meaningful breakthrough, the North launched the Uruguay Round of Negotiations that were completed in 1993, with the signing of the TRIPS Act in Morocco in 1994 (Patel, 1996). In my opinion, this was the most offensive initiative to cement the unfair patent laws.

5. Summary and Conclusion

In this paper, I have explored options South-South exchange of new technologies and expertise may explore to address problems of poverty and sustainability. In addition I have given a very specific and practical example from India where such options have been tried. Moreover, I have shown the missing international endeavour to explore alternatives to the IPRs system so as to protect IK which is key in this South-South exchange. All the above gives quite significant credence to my hypothesis that while there exists great potential in harnessing South-South exchange of new technologies and expertise to address problems of poverty and sustainability, one of the greatest assets of the South, IK, will be appropriated in the process if the present form of IPRs in left unchanged.

The World Summit on the Information Society held in Geneva, Switzerland in December 2003 sought to address the digital divide between the North and the South, bringing to the attention of the global public the importance of information and communication issues for development in the 21st century (Ferguson, 2004). While such a move by the United Nations is laudable, it is only time that will tell whether or not the Summit's target of ensuring every village both in the North and the South has at least one point of access to the Internet by 2015 will be reached.

And with regard to appropriation of IK in the process of harnessing the potential of ICTs to address issues of poverty and sustainability, more commitment, especially from international bodies that 'guard' the rights of originators of knowledge is required more urgently than ever.

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