

Lokavidya goes virtual? Indigenous knowledge in the Gatesian Age¹

Amit Basole
Department of Economics,
University of Massachusetts,
Amherst, Ma, USA
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Abstract

This paper attempts to address the issue of virtualizability of lokavidya. Lokavidya has been conceptualized as the vidya (value-laden knowledge) possessed by the farmers, artisans, women and tribal societies the world over and as being inseparable from their world-view and value system. Lokavidya has also been described as inherently an unorganized form of knowledge in society. On the other hand, we have recently seen, in the virtual domain, a substantial increase in interest in “indigenous knowledge systems” which are defined as location and/or culture specific forms of knowledge that form the basis for survival and day-to-day activity and are predominantly rural, oral and not systematically documented. An increasing number of international NGOs and other agencies that have sprung to defend such knowledge from transnational corporations and to systematize it with the intention of “integrating it with modern science” and using it for “sustainable and participatory development”. Is this efflorescence of interest in “indigenous knowledge” to be celebrated by the proponents of lokavidya? Or is it yet another way in which people’s knowledge is being systematized for exploitation by the elites of the new Knowledge-based/virtual Economy? Can lokavidya exist *on its own terms* even as it is subsumed into the virtual domain? Or is it by its very nature non-organizable and therefore non-virtualizable? Using the examples of the “sustainable development” discourse and of intellectual property rights regimes, I argue that knowledge that has been generated for centuries within the lokavidya paradigm is being virtualized under the guise of indigenous knowledge and in the name of participatory and sustainable development, biodiversity conservation and protection of indigenous intellectual property rights. To put it bluntly and to provoke debate, this is the language of the new imperialism for the Gatesian Age.

Lokavidya and Indigenous Knowledge Systems: Introduction

“Virtuality seems to legitimize all traditions and locations of knowledge while elevating itself to a higher position from where all knowledge is sorted and organized. In the process it creates a new hierarchy in the sphere of knowledge. [Locations of knowledge] are now seen as places of genuine human activity only to the extent and in the manner they relate to virtuality. Can we propose a radical equality of all knowledge locations as the basis of a future democratic society which is also at peace with virtuality?” (from http://www.indigen.org.in/wsf2006_poser.html)

Lokavidya is what it is because it is not organizable through a paradigm acceptable to organized knowledge systems, both traditional and modern.

- Sunil Sahasrabudhey on the Indigen discussion board

(<http://www.indigen.org.in/eforum/show.php?f=0&topic=20051211124655&u=10>)

The above two quotations, one from the description of this workshop and the other from the online discussion board, introduce the main preoccupation of this short essay, viz. how does the virtual domain relate to, appropriate or accommodate knowledge generated within the lokavidya paradigm? In the last few years we have seen a substantial interest in “indigenous knowledge systems”² (IK systems) as evidenced by the increasing number of international NGOs and other agencies that have sprung to defend such knowledge from western/transnational corporation exploitation and to classify and systematize it with the intention of “integrating it with modern science” and using it for “sustainable and

participatory development". Is this efflorescence of interest in IK systems something to be celebrated by the proponents of Lokavidya? Or is it yet another way in which people's knowledge is being systematized for maximum exploitation by the elites of the new Knowledge-based/virtual Economy? Are the knowledge formations or systems that have been labeled variously as indigenous, traditional, non-formal, tacit, people's knowledge etc, the virtual domain manifestations of lokavidya? If so, does the "virtualization" transform them from vidya into avidya?³ Can lokavidya exist *on its own terms* even as it is subsumed into the virtual domain? Or is it by its very nature non-organizable and therefore non-virtualizable? Such questions are of great interest and relevance to the lokavidya perspective.

I will not attempt to answer the questions posed above in any great detail here. Indeed I am not competent to do so. I will merely outline some current developments that relate to this issue and attempt a partial answer. At the outset let me say that I am not going to offer case studies from development projects that seek to apply indigenous knowledge to some social or environmental issue. There are many specific attempts that, for e.g., apply Native American ecological knowledge to forest conservation in Canada⁴ or catalogue Indian indigenous knowledge of medicine in online databases etc. I will not go into the details of such attempts but merely mention them as examples to make certain points. The notes at the end of the essay provide a list of web-sites and other references for those who are interested in further details.

But before I begin, a word about definitions. I am using the word lokavidya in the sense that has been developed in the last few years by Sahasrabudhey and others⁵. Briefly, lokavidya is the vidya (value-laden knowledge or wisdom) possessed by the farmers, artisans, women and tribal societies the world over (in both, the so-called first and third worlds). Lokavidya is inseparable from their world-view and value system and is a dynamic entity that grows and is continually tested and modified on the anvil of everyday experience. Lokavidya is contrasted with modern science and university-based organized knowledge and the latter is seen to be in conflict with lokavidya in particular with the rise of colonialism/imperialism and growth of the modern state, capitalist class society etc. Lokavidya has also been conceptualized as inherently (or by definition) an unorganized form of knowledge in society. If this is taken to be true, then of course, no virtual (and therefore necessarily organized) representation of lokavidya can exist. However, here I am interested in examining the ways in which the virtual domain, in its increasingly all-encompassing reach, has approached and appropriated the domain of lokavidya.

In much of the literature available on the Internet a general distinction is usually made between indigenous knowledge (which is supposed to be location and/or culture specific, generated within communities and which forms the basis for survival and day-to-day activity, is predominantly rural, oral and not systematically documented), and formal knowledge (which is university or research laboratory based, dependent on modern science, systematized, urban etc). This distinction is quite similar to the one we have already set out in the previous paragraph, from the Lokavidya perspective. I will not attempt to make this anymore concrete at this point.

That there has been in recent years an ample acknowledgement of the existence of IK systems everywhere in the world is evident from even a cursory search on the World Wide Web. For example a search on www.google.com using the term "indigenous and knowledge" retrieves approximately 16 million results (admittedly not all of direct relevance). Skimming even the first 100 or so of these, reveals websites dealing with issues of how IK systems relate to economic development, conservation of biodiversity, biopiracy and intellectual property rights, weather forecasting, forest management, globalization, health etc... Moreover there are many attempts to link IK systems and modern science at the philosophical as well as the "application" level.

Does all this attention signify a celebration of lokavidya? We will attempt to answer this question in the next few pages. How the virtual domain relates to lokavidya can perhaps be broken further into two questions, viz. how is this relationship manifesting itself today and how in principle, they can be reconciled together. As for the first part, the main issues being debated today in the virtual domain (and those issues considered here), relate to economic development, ecology/ biodiversity and intellectual property rights. The second part of the question is briefly taken up at the end.

Sustainable development or sustainable imperialism?

A “Best Practices on Indigenous Knowledge” report, issued in 1999⁶ emphasizes the growing interest in IK systems and the role they can play in “truly participatory approaches to sustainable development”. The authors of the report comment that it is not a coincidence that governments in the developing world are adopting more IK-friendly attitudes just as the more orthodox development models have run their course and failed to deliver the promised goods. Can we expect this increased attention being given to IK, to play a positive role in the current struggle of the marginalized peoples (artisans, farmers, tribal minorities, women) against capitalist (post)modernity/ imperialism?⁷ My answer is a qualified “no”. It is possible to argue that the marriage of lokavidya with information and communication technologies, resulting in what is being called indigenous knowledge in this essay may protect some types of knowledge from being stolen in the form of international patents to pharmaceutical companies etc. However it is also very likely that the systematization of such knowledge will make exploitation and theft much easier in these “newly discovered”⁸ domains of lokavidya. But I do not think that discussing the “gains and losses” from virtualization is the right terrain over which the debate should range.

To the extent that the larger sustainable development discourse (for e.g. see the “Johannesburg Declaration on Sustainable Development”⁹) is itself unable to break free from the paradigm of “developmentalism”, IK systems risk being appropriated in the service of Imperialism. Development ideology of the post-World War Two, “Fordist” regime of capitalist accumulation has been extensively critiqued since the 1970s (the decade which also saw the Fordist regime encounter its first serious crises) for being Eurocentric, imperialist, neo-colonial, stagist, non-participatory and elitist, top-down etc. Concomitantly, the rise of environmentalism in the “advanced” industrial economies has made prominent the notion of *unsustainable development*. Thus the Johannesburg Declaration on Sustainable Development aims to confront the “indignity and indecency occasioned by poverty, environmental degradation and patterns of unsustainable development”. It recognizes “that poverty eradication, changing consumption and production patterns and protecting and managing the natural resource base for economic and social development are overarching objectives of and essential requirements for sustainable development” and it reaffirms “the vital role of the indigenous peoples in sustainable development”. Thus sustainable development is the new avatar of developmentalism for the 21st century or the “Gatesian” age and in addition to the more “appropriate” application of modern science, a greater reliance on traditional wisdom or indigenous knowledge is being claimed at the “right way to develop”. Thus John Madeley, a well-known science journalist, wrote in a 1993 editorial in the journal *International Agricultural Development* that “...indigenous knowledge is the largest single knowledge resource not yet mobilized in the development enterprise”¹⁰. If one reads the “development enterprise” to mean imperialism (“globalization” in the rhetoric of today), then one can begin to understand the true imperative that is driving the current need to systematize and virtualize IK systems from everywhere on Earth. If one subscribes to the view that modern science advances everywhere by destruction of lokavidya, then the appropriation of lokavidya into the virtual domain under the pretext of economic development is the next battle in this ongoing war. Suffocation by embrace would perhaps be the relevant analogy.

Of course, the proponents of IK systems are well-aware of such critiques and there exists plenty of rhetoric on the World Wide Web, which proclaims the urgent need to make sure that IK is used in a participatory manner, giving due credit to the peoples that produce the knowledge. Participatory development (PD) is (next perhaps only to sustainable development) the current buzz-word in the economic development discourse. One writer defines “participation” in this context as “...involvement by a local population and, at times, additional stakeholders in the creation, content and conduct of a program or policy designed to change their lives. Built on a belief that citizens can be trusted to shape their own future, participatory development uses local decision making and capacities to steer and define the nature of an intervention.”¹¹ The United States Agency for International Development (USAID) has extensive documentation on its website relating to participatory development initiatives all over the world¹². A prominent feature of many such initiatives

is the emphasis on practices based on local knowledge.

Words such as “participatory” and “sustainable” like the words “freedom” and “democracy” are chosen careful for who could be against things like fuller participation and more democracy? However, as always, of more interest than the rhetoric is the larger structural and socio-economic context in which this participation occurs. Participation from local communities “affected” by development projects, even if the demands that the project meets have been made by members of the community themselves, stops short of a radical change to the order being pushed, in this case by the international NGOs, USAID etc. The consequences of a community actually asserting its right to self-determination are still serious and examples from many parts of the world can be multiplied to make this case.

IKS and IPRs: Protecting and systematizing indigenous knowledge

A large body of literature on the Internet deals with the issue of how indigenous knowledge systems should be reconciled with the currently prevailing intellectual property rights regimes (IPRs), e.g. TRIPS. The World Intellectual Property Organization (WIPO) has taken much interest in indigenous and traditional knowledge systems. The WIPO uses the term traditional knowledge “to refer to tradition-based literary, artistic or scientific works; performances, inventions, scientific discoveries, designs, marks, names and symbols, undisclosed information and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields.”¹³

Concomitantly “bio-piracy” has become a concern with those who seek to protect IK from exploitation by (mostly Western, but not necessarily so) transnational corporations. In this context, the cases of neem, turmeric and basmati rice are too well-known to bear repetition here. One solution to bio-piracy which has been enthusiastically received by the virtual community is the construction of “Traditional Knowledge Digital Libraries” that “may be used as evidence of prior art to defeat a claim to a patent”¹⁴. The WIPO terms this, “defensive protection of traditional knowledge”¹⁵. Not surprisingly, the information and communication revolution has made the systematization of such knowledge much simpler and there are large-scale efforts underway, such as India-based Gene Campaign’s project for the protection of indigenous knowledge of biodiversity. Another example is India’s Ayurveda “digital library” which contains information on 35000 formulations, all “in a format accessible by international patent offices to prevent the granting of inappropriate patents”¹⁶. This and other similar libraries seek to catalogue, organize and virtualize IK systems in order to protect them. And of course, the very same virtualization and systematization process is being heralded as an efficient way to globalize local knowledge. Thus we read that,

“electronic communication will make information on indigenous knowledge more accessible and easier to disseminate. As the existing global network of indigenous knowledge resource centres becomes linked by a common electronic communications system, indigenous knowledge and technologies found to be effective in dealing with small-farm circumstances in an agro-ecozone in one part of the globe can be transferred for consideration to a centre in another part of the world where a similar agro-ecozone exists. Examples of this transfer of technology already exist. The use of vetiver grass for soil and water management and the use of neem tree seeds as a biopesticide are both technologies discovered by farmers in South Asia many generations ago. These technologies have now been adopted by small-scale farmers in many other parts of the world through networking mechanisms provided by the World Bank and other development agencies.”¹⁷

However, systematizing IK into “virtual libraries” serves to divorce this knowledge from its site of production and from its own dynamics, which by definition is amongst the people, not amongst the “virtual elite”. If the solution to this divorce or alienation is to bring the producers of lokavidya into the virtual fold (i.e. to bridge the so-called “digital divide”), the solution itself recalls to mind the age-old paternalist rhetoric (Marxist as well as imperialist) to “help the masses modernize or progress”, simply updated for the Gatesian age. Not to mention the fact that extending the virtual elites’ “consumption and production patterns” to the people at large may threaten the very basis of “sustainable development” that IK systems are supposed to promote.

The sheer gulf that yawns between the lokavidya perspective and the western property rights regimes is (unknowingly) revealed by the way that the US government has justified the problems posed by these patents (such as

those awarded to turmeric for its “newly discovered” healing properties):

“informal systems of knowledge often depend upon face-to-face communication, thereby limiting access to the information to persons in direct contact with one another. The public at large does not benefit from the knowledge nor can the knowledge be built upon. In addition, if information is not written down, that information is completely inaccessible to patent examiners everywhere as prior art when they are examining patent applications. It is possible, therefore, for a patent to be issued claiming as an invention technology that is known to a particular indigenous community. The fault lies not with the patent system, however, but with the inaccessibility of the knowledge involved beyond the indigenous community.”¹⁸

Virtualization of Lokavidya and the commodification of knowledge

Thus most of the development debate remains trapped in the “gains and losses from virtualization” paradigm and the participants seem largely unwilling or unable to recognize a fundamental contradiction that exists between indigenous and modern systems in the way knowledge (in the most abstract sense) is viewed. This is the contradiction of commodification. The issue of systematization or organization, which appears as a very prominent aspect of the difference between modern science and lokavidya, I think, arises from this contradiction. The modern need to organize every aspect of human knowledge is to be distinguished from the prevalence, since ancient times, of organized knowledge to do with, say the occurrence of eclipses or the schools of epistemology or medicine etc. The main distinguishing feature is that with the capitalist drive for converting knowledge into a commodity, comes a strong impetus to systematize and organize. The organization of knowledge is no longer one activity amongst many in the knowledge sphere but it becomes the sole touchstone for estimating the validity of knowledge itself. Lack of formal organization is then equated with inefficiency (as was implied in the statement from the US patent office, quoted above) or even worse, unorganized (in the modern sense) forms of knowledge are simply rendered invisible, ripe for “rediscovery” at the opportune moment. An analogy can be made to the way in which a large part of the economy of the “developing world” called the “informal sector” is rendered invisible to or un-analyzable by modern economics (neoclassical or Marxist). This point relates to Sahasrabudhey’s contention in the quote from the beginning of this essay, that “lokavidya is what it is because it is not organizable through a paradigm acceptable to organized knowledge systems, both traditional and modern.” I read this remark, in the light of my arguments above, not as a blanket statement against the systematization of lokavidya as such, but as a contention that any such systematization occurring in the current neo-liberal imperialist and, more fundamentally, the (post)modernist order is bound to alienate the vidya from its producers. But of course this interpretation is open to debate.

Through a wider theoretical lens, one can see that imperialism in the age of the Capitalist world-economy is another name for the expansion of social relations of production and exchange that are conducive to expansion of value.¹⁹ It has been increasingly clear during the course of the twentieth century that imperial domination need not take the form of a hegemonic relation between nation states. If we confine ourselves to the level of the nation state most countries are in fact nominally capitalist. But can it be said that the whole world is capitalist? Clearly this is not the case. Significant domains of human activity remain that have not yet been subsumed under capitalist social relations. The commodification of housework and caring labor (e.g. child care) is an example of capitalist expansion into newer domains. Particularly in societies where capitalism came via colonialism and imperial domination, the capitalist transformation of society is far from complete and such transformation forms an important part of the drive for accumulation today.

The ICT revolution makes much easier the next logical step in the process of capital accumulation, viz. the expansion of capitalist social relations into the domain of knowledge. After land, labor, and money, knowledge constitutes the fourth fictitious commodity²⁰. Indeed all the more fictitious since, unlike the first three it is not rival in nature. That is to say, the scarcity of knowledge must be created, where none need exist. The reorganization of society along the logic of the knowledge revolution makes possible such scarcity conditions, under the guise of *greater access* to knowledge and information. The greater access does exist, although only for those already privileged by their position in the modern

economy. Those who were on the periphery earlier lose even what little they had before²¹. The exclusive possession of knowledge has long been a method of exploitation alongside ownership of capital (financial, industrial or agricultural). Just as capital needed to be brought into a domain where the abstract and inhuman “laws of the market” could be seen (falsely) to control it, so also the reorganization of society to bring knowledge into the purview of the market has become important for the expansion and continued domination of imperialism in the 21st century.

Lokavidya and Indigenous Knowledge Systems: Conclusion

All knowledge is real (material) and virtual at the same time. By this I mean that all knowledge collectively possessed by a society is instantiated in one of another kind of material base. The material base of the virtual society is still that age-old adversary: industrial capitalism. It is true that capitalism is nothing if not dynamic and today displays itself in evermore rapidly changing forms. However, the old logic, discussed by Marx, using such concepts as capital accumulation, value expansion and alienated labor still assumes great relevance today. As does the Gandhian critique of the machine as destroyer of civilization since, in the Gatesian age, knowledge itself is being defined in terms of organizability by machines.

I have tried to show here the ways in which knowledge that has been generated for centuries within the lokavidya paradigm is being virtualized under the name of indigenous knowledge and *in* the name of participatory and sustainable development, biodiversity conservation and protection of indigenous intellectual property rights. To put it bluntly and to provoke debate, this is the language of the new imperialism for the Gatesian Age. Thus IK is the “web-friendly” and appropriated (i.e. a domesticated) version of lokavidya. Some proponents of this virtualization process openly admit that “by vesting legally recognized ownership of knowledge in communities through IPRs it will raise the profile of that knowledge and encourage respect for it both inside and outside the knowledge holding communities”²². With regard to this “taming of Lokavidya” it is worth quoting Shields,

“The propositions of the knowledge-based economy (KBE) involve simplified notions of knowledge as information. Although this builds on the modernist bias against embodied skill, tacit knowledge and experience in favour of abstracted supervisory knowledge, it also adds a new degree of formalization. Knowledge that cannot be captured in the databases of Information Technology (IT) systems and information management or knowledge management software is screened out - often being explicitly referred to in the literature as ‘tacit’, begging the question of how these forms and knowledge processes are maintained.”²³

That said if one recognizes the existence and the importance of loci of knowledge that cannot be virtualized, what should be the attitude towards the juggernaut of virtualization?

The virtual domain is the creation of modern science. But it is also true that the virtual domain has displayed a logic/mode of operation and a reputation quite distinct from modern science. In particular this is evidenced by the mass exodus of youth from science/engineering fields to information technology and by the need shown by the World Summit on Information Society, in its proclamation of principles, to state that science has a central role in the development of the Information Society²⁴. But ultimately the material roots of the virtual society lie too deeply in the soil of modern science for it to be uprooted without a great deal of force. In other words, for all the talk of the postmodern, postindustrial, virtual society of the 21st century, in many ways the political economy of production, distribution and exchange is still that of the 20th. This includes a firm foundation in the science, technology, the very epistemology of modernity²⁵. It is true that the organization of production for instance has undergone rapid change and many small or family units now produce commodities where large industrial units might have done so before.²⁶ But this very decentralization of production (so-called post Fordist mode), which manifests itself in sweatshops and other small-producer arrangements, is associated with the increased emphasis on managing/governing the distributed world economy. This is one imperative behind the coming of the “Information Society”.

Lokavidya is often characterized by inbuilt wisdom regarding the uncertainty and unpredictability of ecosystems. It also tends to possess the quality of non-violence (ahimsa), to be exercised in the lokahita (in the interest of all) and to be more genuinely democratic (i.e. in favor of lokniti)²⁷. Hence lokavidya (meaning now, not just knowledge, but a particular epistemology and ontology, a worldview) can stand as a challenge to the virtual society and remains one of the only genuine hopes for a different future.

Acknowledgements: I thank Sunil Sahasrabudhey for general discussion around the concept of Lokavidya. Responsibility for errors is, of course, mine.

Notes and references

1. A world of explanation about the terms in the title. The concept of Lokavidya (a Hindi word which can be loosely translated as people's knowledge or indigenous knowledge) is elaborated further in the text. As for the term "Gatesian Age", it occasionally crops up in the popular media to describe the Information Age/Knowledge Society etc. I am not sure where I first heard it, but the analogy seems to be to the "Fordist Age" which was the period immediately after World War Two typified by its emphasis, as far as the economy was concerned, on large-scale, centralized factory production. Of course the term "Fordist" has been used to refer to a whole "regime of accumulation", by which is meant the entire apparatus of state, industry, legislation etc. which prevailed in the United States and Western Europe until the advent of the Information Age. Thus if Henry Ford was the icon of the "Golden Age of Capitalism" Bill Gates is similarly the icon of the virtual society.

2. According to the Indigenous Knowledge pages, <http://www.ik-pages.net/about-ik.html>, the characteristics of indigenous knowledge are:

- IK is generated within communities
- IK is location and culture specific
- IK is the basis for decision making and survival strategies
- IK is not systematically documented
- IK covers critical issues: primary production, human and animal life, natural resources management
- IK is dynamic and based on innovation, adaptation, and experimentation
- IK is oral and rural in nature

3 I am using the terms vidya and avidya in the sense developed by Sunil Sahasrabudhey in his book "Gandhi's Challenge to Modern Science" (published by the Other India Press, Goa and available at the Multiversity online book library for free download, <http://multiversitylibrary.com/rules.jsp?action=accept&continent=Asia>). Briefly, vidya which is constituted by technology, science and the arts, gives direction of truth to man's struggle and unity with nature, while avidya is the source of disruption and violence with nature.

4 Linking Indigenous Peoples' Knowledge in Natural Resource Management: Conference Proceedings <http://www.forrex.org/publications/forrexseries/ss4.pdf>

5 For example see essays in the book Lokavidya Vichar (Lokavidya Pratishtha Abhiyan, Varanasi) and also issues of the periodical Lokavidya Samvad (Vidya Ashram, Sarnath, Varanasi).

6 A "Best Practices on Indigenous Knowledge" report was issued in 1999 by the Netherlands Organization for International Cooperation in Higher Education / Indigenous Knowledge (NUFFIC/IK-Unit) in co-operation with UNESCO's Management of Social Transformations Programme (MOST) and can be found here: <http://www.unesco.org/most/bpikpub.htm>. A periodical called "Indigenous Knowledge and Development Monitor" was also published by NUFFIC and has recently been taken over by a consortium of organization including the International Institute of Rural Reconstruction (IIRR) of the Philippines.

7 For lack of a better term I have used capitalist modernity/Imperialism to cover a wide-variety of social phenomena, such as what is commonly called globalization, but also related issues such as intra-national struggles of tribals and other minorities against "developmental projects". Later on I deal with Imperialism in what may be termed a more technically Marxist sense.

8 Sometimes the new discovery or rediscovery is very literally asserted as for example in a paper titled "Rediscovery of traditional ecological knowledge as adaptive management", Berkes et al, Ecological Applications, 10:1251-1262. This is a discovery in much the same vein as the "discovery" of the American continent by Christopher Columbus.

9 http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

10 quoted in <http://www.ik-pages.net/ik-network.html>

11 Jennings, Ray: Participatory Development as New Paradigm: The Transition of Development Professionalism, October 2000. Conference on "Community based reintegration and rehabilitation in post-conflict settings.

12 http://www.usaid.gov/about/part_devel/

13 Traditional Knowledge and Intellectual Property, A Discussion Paper by Carlos M Correa, p.4.

14 <http://www.scidev.net/News/index.cfm?fuseaction=readNews&itemid=1840&language=1>. The website www.scidev.net has a comprehensive dossier on "Indigenous Knowledge" available at: <http://www.scidev.net/dossiers/index.cfm?fuseaction=dossierItem>

&Dossier=7

15 <http://www.wipo.int/tk/en/tk/>

16 <http://www.scidev.net/News/index.cfm?fuseaction=readNews&itemid=1840&language=1>

17 <http://www.ik-pages.net/ik-network.html>

18 US General Declaration to the First Meeting of the WIPO Committee, May 1, 2001

19 In this part of the discussion I am of course following in the footsteps of Lenin, Rosa Luxemburg and many other Marxist critics of Imperialism.

20 The concept of the “fictitious commodity” is from Karl Polanyi’s *The Great Transformation: The political and economics origins of our time* (Beacon Press, Boston).

21 I would like to clarify that my intention is not to deny what little improvement there has been in material life of the middle and lower-middle classes all over the world due to the transformations created by the Information Revolution. However, in this as in all previous such social transformations one must insistently ask, “at what cost?” and “who benefits, who pays?”

22 quote from The Crucible Group Report cited in *Traditional Knowledge and Intellectual Property, A Discussion Paper* by Carlos M Correa, p.7

23 R, Shields: The role of the virtual in knowledge-based economies, organizations and localities. *SEED* (4), p. 25-44, Available at <http://www.library.utoronto.ca/see/SEED/Vol2-4/shields.html>

24 As noted to me by Sunil Sahasrabudhey, the very need to announce what seems to be a truism indicates that in perception, if not in reality, the Information Society has an existence apart from modern science.

25 I am aware of the challenge to modernist epistemology that postmodern thought has brought with it. However, it seems to me that this intellectual revolution has not substantially altered the *material* political economy of our times. At least not yet.

26 Of course this is a very uneven process and varies greatly from sector to sector. Decentralization is, not surprisingly, particularly prominent in industries such as textiles. For a good analysis see Chitra Sahasrabudhey (2001) *Karigar Samaj- The liberator of enslaved societies* (Hindi) in *Lokavidya Vichar, Lokavidya Pratishtha Abhiyan*, Varanasi.

27 The terms *lokahita*, *lokniti* and their relation to *lokavidya* are elaborated further by Sunil Sahasrabudhey in “Gandhi’s Challenge to Modern Science” (see note #3 for publication details).

