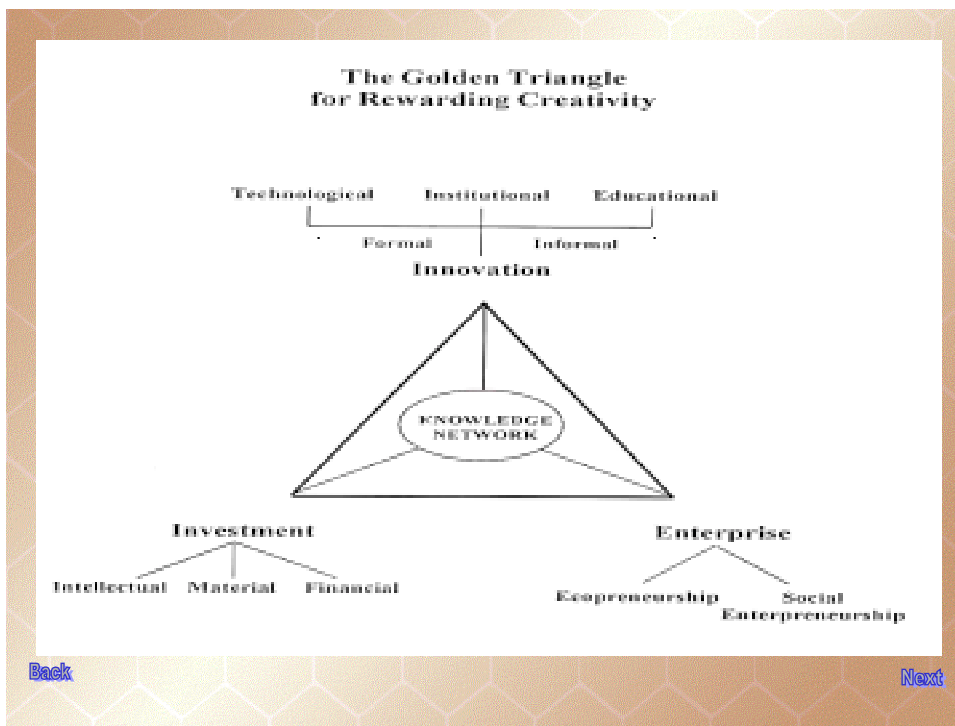


Is all TK a prior Art?

How to make IPR regime responsive to the needs of small, scattered and disadvantaged innovators and traditional knowledge holders: Honey Bee experience



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Is all TK a prior Art?

Most cultures around the world from time immemorial have had dialectical tendencies of encouraging sharing of knowledge as widely as possible and at the same time encouraging or at least tolerating the efforts of some knowledge producers to keep their intellectual property secret or restricted. Some times the owners of the property tried to keep it secret through ingenious ways including coercive strategies. After all Shahjahan who built Taj Mahal did get the right hand of the workers who had built Taj Mahal, amputated so that they could not build another Taj Mahal. Traditional weavers of Patan silk are reported to impart the skills of producing silk to their daughters in law and not daughters. This is done to ensure that skills remains in the family and does not go out of the family when daughters are married off. . A community in northern Bengal had a tradition of sending an offering of a famous variety of mangoes to the king. They punctured the seed of these mangoes with a very thin needle to ensure that nobody could grow these mangoes without their permission. There are healers who maintain that their knowledge of herbal medicine might lose its effectiveness if shared with anyone. They maintain it as a kind of trade secret. All these examples show that the concept of drawing boundary around the knowledge and resource including biological resource is not a new one

However, these exceptions apart, by and large the communities and innovators have been very generous in sharing their knowledge with whosoever approaches them. The result has been that they have remained poor whereas those who accessed their knowledge and develop products after seeking IP protection have become prosperous. Ironically the very success of the commercial products developed through value addition in local knowledge many times becomes reason for the erosion of knowledge itself. The key challenges before the IP planners are: (a) How to provide incentives to local communities and individuals to share their knowledge innovation and practices without the fear of being exploited, (b) how to ensure that the intellectual property rights of the communities as well as individuals are protected through a low transaction cost system available globally in the form of registry like INSTAR (International Network for Sustainable Technology Applications and Registration), (c) how to ensure that patent offices in the developed countries do not issue patents on traditional knowledge and/or knowledge obtained either illegally or unethically or both from developing country sources.

What kind of changes need to be brought about in the concept of prior art, grace period and other provisions of intellectual property laws so that community and individuals continue to maintain their spirit of sharing among themselves and at the same time can seek the protection in the global market place.

The paper is divided into three parts. In part one, we describe the Honey bee network and some of its activities. In part two, we discuss the complexity of traditional knowledge and in part three agenda for action is outlined.

Part one: Honey Bee Network: Creating a value chain for grassroots green technological innovation¹

Deprived of sufficient access to natural resources and economic means of livelihood, many disadvantaged communities have no choice but to innovate in order to survive. Many of such creative communities and individuals have only knowledge resources left with them. That is the reason we do not use the term, 'resource poor' to characterize such people. Obviously knowledge is a resource and poor people are not poor even in the knowledge resources. The emergence of Honey Bee Network in 1988-89 thus signified a point of departure in our thinking about the way we should deal with people's creativity, knowledge systems and conservation ethic. The growth of the Honey Bee Network required a institutional support and it was felt that an independent support structure was much needed which could help to sustain Honey Bee newsletter and it's associated activities. SRISTI (Society for Research and Initiatives for Sustainable Technological and Institutions) and its research programmes were the result of that realization. The specific objectives of SRISTI include the following:

- To expand space in society for building upon initiatives and innovations at grassroots with special focus on women's indigenous knowledge.
- To document, analyze and disseminate technological as well as institutional innovations developed by people themselves without any help from outside.
- To validate and add value to local innovations through experiments (on farm and on-station) and laboratory research for generating nature-friendly sustainable technologies.

¹ This section draws upon the SRISTI annual report , 2000-1 and is based on the collective experience of the entire network.

- To conserve local biodiversity through in-situ as well as ex-situ gene banks managed by local people.
- To protect intellectual property rights of grassroots innovators and to generate incentive models for recognizing, respecting and rewarding grassroots creativity and associated ethical values and norms.
- To provide venture support to grassroots innovators to scale up products and services based on grassroots innovations through commercial or non-commercial channels.
- To embed the insights learnt from grassroots innovations in formal educational system in order to expand the conceptual and cognitive space available to these innovations.

SRISTI believes that value addition to indigenous knowledge will help local communities co-exist with biodiversity resources by reducing primary extraction and generating long-term benefits. Further this would facilitate income earning opportunities for people and enhance sustainable resource use. SRISTI actively supports the Honey Bee Network which aims to bring together creative people engaged in the development and application of local ecological, technological and institutional knowledge for sustainable development. The network endeavors to scout, recognize, respect and reward innovative individuals/groups who, through their own efforts, have evolved sustainable solutions for natural resource management. The spirit of sustainability is sought to be achieved by blending the secular and the sacred streams of consciousness around basically six E's (Ethics, Excellence, Equity, Efficiency, Environment and Education) (see fig 1)

Most of the activities and projects of SRISTI are being pursued jointly in collaboration with IIM-A and other institutional and individual members of the network. In 1993, Prof. Anil K Gupta got the prestigious international PEW Conservation Scholar Award (1993-96) for his pioneering research work in the field of biodiversity conservation and indigenous knowledge systems. This provided financial support to various activities of the network. Later, SRISTI received grants from various international funding agencies viz. IDRC, Canada, Swedish Society for Nature Conservation, Gothenburg University, world bank infodev division etc., in the form of action research projects. However, the major contribution has been received from the members of the network that shouldered the responsibility of various activities voluntarily. The Honey Bee Newsletter remains primarily a self financing activity of SRISTI Innovations, a sec 25 not for profit company set up for the purpose.

GENESIS OF HONEY BEE NETWORK

There were several lessons which actually led to the emergence of the Honey Bee Network :

- ◆ Generally all of us who learn from the insights provided by the people, write our inferences in English, a language which is not understood by most of the people from whom we learn. This is particularly ironical when we emphasize the importance of participatory learning for development. Failure to share what we learn from people in their own language is thus a violation of the spirit of the participatory approach itself. The information we gather from people cannot be authentic when we do not share it with them in the language they understand to get their feedback. The right to critique our ideas can not remain restricted to only a minority of our peers who understand English language.
- ◆ Language or dialect is extremely important for the preservation of culture and pluralism in any society.
- ◆ In the high risk environments like the drought prone areas, flood prone regions and hill areas, the market forces and public support systems are quite weak. Given such a situation, it is undoubtedly the creativity and innovativeness of the people which helps local communities and individuals in coping with the hostile and stressed environment. But not all people are conscious of their abilities to solve problems on their own. But some do. It is these solutions whether developed as a part of traditional knowledge systems or contemporary creativity, which form the purpose of Honey Bee network. We do not of course imply that local farmers or artisans or labourers can and will solve all the problems. It is necessary to blend the knowledge and creativity of the grassroots people/innovators with excellence in formal science.

The basic thrust of Honey Bee network is to build upon what people know and do well. Perhaps we need to learn from those creative ‘odd balls’ who have refused to compromise with non-sustainable life style and values. In other words, instead of identifying only the problem that people have, we make solutions developed by these ‘odd balls’ as the point of departure. Honey Bee network some times is also called as Odd Ball network.

Honey Bee network is a Knowledge Network which pools the solutions developed by people across the world in different sectors and links, not just the people, but also the formal and informal science. SRISTI has set up a web based as well textual Knowledge Network which is described as a multi-media, multi-node and multi-level network of individuals, institutions and social movements engaged in generating solutions for sustainable development through local creativity and innovation.

Part Two :Contested Domains of Local Knowledge: private, community and public (Gupta and Sinha, 2001).

The knowledge could be produced (see figure 1) by individuals, and or groups alone or in combination. Some of this knowledge may diffuse only locally to be characterised as community knowledge while other may diffuse widely among various communities in a region and some time across regions and countries to become public domain knowledge. Within the community knowledge, there may be elements which are restricted in scope or in terms of accessibility while others may be in public domain. Similarly, individuals may also produce knowledge, which they may share widely with the community and outsiders in a manner that the knowledge might become public domain. However, some of the knowledge produced by the individuals may be kept confidential and accordingly may be accessed only with restrictions.

Table – 1 Contested domain of Knowledge

a) Private individual knowledge inherited from forefathers	K1
b) Acquired the skill to practice it faithfully without modification or with modification	K1-wm K1-m
c) Individual rights to use the modified and unmodified knowledge according to same rules Or different rules	K1-sr K1-dr
d) Knowledge known to the community	K-2
e) Knowledge practiced by individuals if known to individuals	K1-l
f) Knowledge practiced by individuals if known to community	K2-l
g) Knowledge practiced by community if known to community	K2-c
h) Knowledge practiced by community even if details known to individual/s	K1-c
i) Known to community but not practised by individuals or community	K2-n
j) knowledge known to community and accessible to outsiders	K2-a
k) Knowledge known to community and not accessible to outsiders	K2-na
l) Knowledge known to wider public through documentation or otherwise	K3
m) Knowledge known to wider public and practised by only few individual	K3-l
n) knowledge known to wider public and practised by wider public	K3-P
o) Knowledge known to wider public and not practised by any one	K3-n

(Own Compilation, Adapted from Gupta, 1999)

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Contested Domains of Local Knowledge

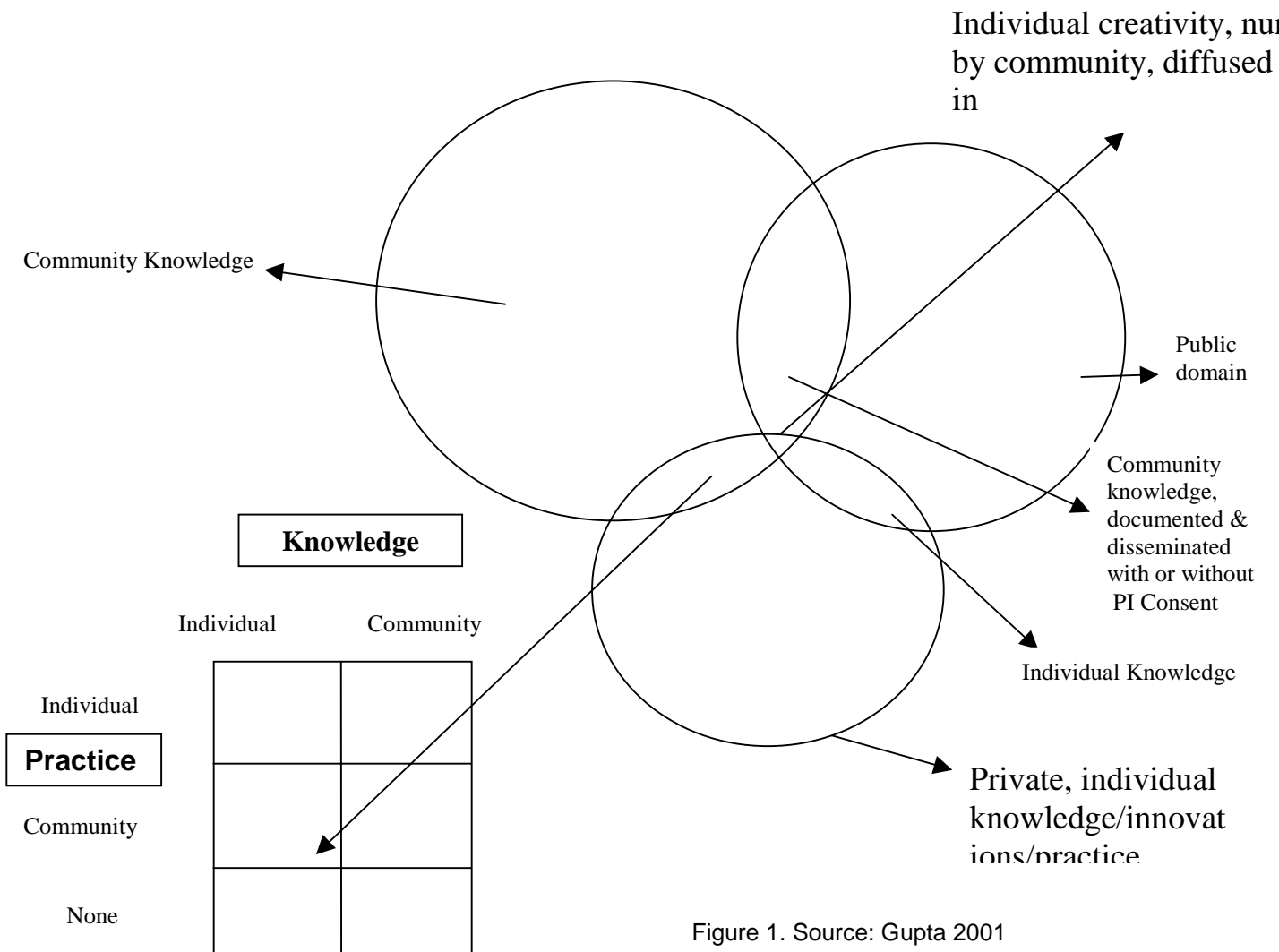


Figure 1. Source: Gupta 2001

The three subsets in figure 1 thus refer to three overlapping domains of knowledge. The contestation emerges when the producers and

users of knowledge have unequal access, ability and assurances (Gupta, 1995) about the resources and the benefits emerging out of commercial or non-commercial usage of the resources with or without value addition. The private individuals may have knowledge which they may have inherited from their forefathers (K1), and they may have acquired the skill to practice it faithfully without modification or with modification (K1-wm or m, see table one). The individual contribution in modifying traditional knowledge may be treated according to the same rules as the non-modified knowledge is used, or its use and dissemination may be governed by different rules (K1-sr, K1-dr). Knowledge may be known only to individuals (K1) or to the community (K2) and may be practiced by individuals (K1-l, K2-l) or by the community (K1-C or K2-C), or by none (K1-n or K2-n). In the last case the knowledge because of discontinued use may still be effective or may not be effective. When individual knowledge is gshared with the community, its practice may still be restricted to individual experts. There are healers who know how to calibrate the dose and combination of herbal drugs according to the condition of the patient. The general relationship between the plants and their uses in some cases may be known to the community. The experts who produce knowledge and also the contingency conditions under which this knowledge should be used may be free to share their knowledge or may not be free to share their knowledge. Emmanuel and Weijer (2001) provide example of Amish community which may restrict the right of individual members to give consent to participate in a research process. This is not an uncommon case. The communities may circumscribe the conditions under which individuals may or may not be able to share their expert or other knowledge with outsiders or even with other members of the community. There is a famous case in Australia where an art piece designed by a native individual was printed on a currency note by Reserve Bank. The community objected to such use because it argued that the individual did not have rights to assign even individually designed work to outsiders without community's permission since the art work was conceived after rituals and taboos sanctified by the community(Blackney, 2000). There are also taboos implying that a particular remedy might loose its effectiveness if revealed to others. Such a taboo leads to erosion of knowledge when such a knowledge expert dies without ever sharing the secret. The incentives for such knowledge experts to share their knowledge will bring down the

transaction costs of external users now or even among the future generation to find such leads for developing various products. But if we argued about the logic of rewarding current generation for knowledge that might have been partially or completely developed by previous generation, we might win the argument and lose the knowledge.

Further, community knowledge may or may not be accessible to outsiders (K2-A and K2-NA). Different communities may have varying capability to produce, reproduce and practice the knowledge for individual or common good. Wider the sharing, greater is the probability of feedback coming from larger number of people and thus improving the knowledge. At the same time the incentives for individuals to improve such knowledge may go down because such individuals in view of widespread awareness cannot extract the rent. *Some communities govern the access to biodiversity resource by different rules than the access to knowledge about such resources.* The knowledge within a community is therefore not distributed symmetrically. The variability not only influences the power differentials but also the extent of efficiency gains that different members of a community make by using the same knowledge differently. The communities benefit from the individual knowledge and thereby revere the local knowledge experts or healers. But this reverence may not be the sufficient motivator to encourage young people, to acquire this knowledge and take it forward with or without improvement. There may be other factors also such as public policy, media exposure, life style changes etc., which may affect the incentives for younger people to acquire particular knowledge. However, the point remains that the existing set of incentives may need to be modified if traditional knowledge has not only to be conserved but also augmented.

The third set of knowledge system includes public domain knowledge (K3) which may be practiced by individuals, or wider public or not practiced by any one (K3-I, K3-P, K3-n). Ethno biologists, other researchers and firms may document individual and community knowledge and bring this into public domain. Some people have argued that even the community knowledge known only to the members of a village community should be considered public domain knowledge. However, in our view this is not a proper interpretation. From the point of view of protection of intellectual property rights, the

knowledge, which is reasonably accessible, can only be considered public domain knowledge and part of prior art. Most of the time the knowledge of people is brought into public domain without the consent of concerned individuals or communities. It is obvious that this way of dealing with people's knowledge is neither fair nor just. What is even more disturbing is the dominant tendency on the part of outside researchers not to share what they have learnt from people back with the same community after value addition in local language. Honey Bee network has tried to counteract this tendency of making people anonymous by insisting that knowledge providers, producers and reproducers must be acknowledged explicitly and attributed as authors and communicators of the specific knowledge. We should also ensure that whatever is learnt from people is also shared with them in local language so that people to people linkages can also be established. In addition, the Honey Bee philosophy (see <http://www.sristi.org> and [sristi.org/knowledgenet.html](http://www.sristi.org/knowledgenet.html)) also requires sharing by outsiders of any gain that may accrue to them from commercial or non-commercial dissemination of the raw or value added knowledge provided by the communities or individuals. Honey Bee newsletter for last 14 years has tried to propagate this philosophy through SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) in India and 75 other countries and now National Innovation Foundation (<http://www.nifindia.org>). We strongly believe in the need for protecting intellectual property rights of knowledge rich economically poor individuals and communities. However, to provide such a protection one would have to characterize such knowledge in the manner that the novelty and non-obviousness can be established. This would mean a comparison with available formal scientific knowledge. The present instruments of IPR can provide limited help in this manner. However, with modifications these instruments can indeed go a long way in protecting the intellectual property of individuals as well as communities. The greatest advantage of this system would be that the people will have incentives to disclose their traditional and contemporary knowledge and make it available to others for learning purposes. Once this knowledge becomes a basis for livelihood, conservation, lateral learning and social networking, a knowledge society starts emerging. Once this happens the public domain provides incentives and not disincentives for individual and communities to share their knowledge after due information.

Having documented more than 10,000 innovations and TK till 2000, the knowledge base has been increasing every year. NIF's national contest received about 948 entries having 1600+ innovations and TK examples from a variety of categories in first year, that is 2000-2001. In the second annual contest, NIF has received more than 13000 entries from 30 states and union territories, covering more than 300 districts out of more than 500 districts. We are trying to obtain prior informed consent from every innovator and TK holder about the conditions on which their knowledge should be shared of at all with third part and also what should be the tentative benefit sharing model should their knowledge lead to commercial benefits. Almost one third of those who have returned forms so far, wish that their knowledge be disseminated widely without any restriction. But two third want some kind of restriction.

Part Three: agenda for action

The following proposals are expected to address some of these concerns and make a case for stronger IP protection being in the interest of knowledge rich economically poor people of third world.

Prior Art:

a) **Prior art: is every thing known to a local community but not reasonably accessible to outsiders a prior art for the purposes of novelty?** If the answer is yes, then the entire struggle of Honey Bee network for last 14 years is wasted. We have taken away all rights of local experimenting and knowledge rich communities in the creative outputs of their individual and collective efforts. Is that legitimate and morally right? Is that even legally right.

How do we treat knowledge, produced by an innovator in a village, which has not been catalogued and thus will not show up in any reasonable prior search. If the idea is to avoid bio-piracy, and ensure that no body usurps it in an unauthorised manner, then should we make the task of disclosure before

patent offices more rigorous or take away the IPRs of the communities altogether?

Disclosure requirement: I have argued that every patent applicant should be required to declare that claimed invention is based on material/ knowledge obtained *lawfully and rightfully* ensuring due compensation to the providers. The ‘lawful’ implies compliance with the laws of the country from where the knowledge/resource is accessed. The ‘rightful’ implies moral duty to have prior informed consent of the provider ensuring equitable benefit sharing, even if the law of the country did not require it (or at least so far).

Reasonable accessibility: The community or individual knowledge which is not reasonably accessible, i.e., which has not been coded and/or catalogued in publicly accessible databases or has been not published should not be considered prior art. Such knowledge should also be considered a patentable subject so long as it meets the novelty, utility and non obviousness criteria. It is neither reasonable to expect every inventor to go to every single village of the world to find out what they had discovered or invented or developed nor fair to expect that local communities would be denied fruits of their long term experiments only because they had used the results in a limited way among themselves.

Under US laws, “a publication can be, among other things: a thesis, a PHD dissertation, a journal article, a text book, a newspaper article, a patent, a home work assignment, a white paper, written materials handed out during a presentation, a product, or a product brochure”. It is further added, “(a) publication is NOT: your recollection of what someone once said, someone's recollection of what they themselves once said, a trade secret, or a confidential company memo. The upshot is that prior art must be publicly available, and it must be printed (or a physical object) ([Http://www.bountyquest.com/arttutorial/arttutorial.htm](http://www.bountyquest.com/arttutorial/arttutorial.htm), 2002).

The Public Availability : What is the concept of public availability. Notwithstanding the limited time that most examiners spend in performing searches while looking at the prior art, even if they spent much more time, would they be able to find out which community has developed what, where and in which manner they practice it or do not any more practice, but are aware of it? Certainly not. In that case, should such knowledge, which is available only to a few healers or a small community and has not diffused

widely, be considered a prior art? My submission is not. Critics would argue that would not such precedence lead to bio-piracy because unscrupulous researchers and companies would indeed access such valuable knowledge without prior informed consent and then claim novelty over it? It is a justified fear and as said earlier, the disclosure requirements should take care of these besides severe penalties for wrongful claims and masking wilfully the known prior art.

The non obviousness may be judged on the criteria, as is well known in legal circles, of what a well versed person in the art *would* look for and not *could* look for (Franzosi, 2002). Many obvious relationships are not obvious till somebody finds these out. Frnazosi, 2002 argues that there are four conditions among ten steps that ought to be taken care of while looking at prior art, i) common general knowledge, (ii) enhanced novelty, (iii) hidden knowledge and (iv) prior secret applications. My contention is that we should also consider the complexity of how knowledge and innovations are produced (and reproduced) in traditional communities as discussed in part one.

b) whose property TK is if at all?

What is a community and how does present generation be attributed with the rights over knowledge produced in long past? Are communities only spatial that is circumscribed by a geographical region? How do we account for emigrants recent or old, who may posses this knowledge, and thus may genuinely claim rights over the TK or derivative rights therefrom?

c) **TK Value Chain:** What are the ways of disentangling the contributions of individual innovators who may modify TK based knowledge bits, drawn from the community (current members of it as well as historical members)? After all the individual experimenters have driven the engine of knowledge growth at all times in history and continue to do even at present. How should we apportion benefits among various contributors in the TK value chain?

d) **International Registry: Harnessing Forces of Globalisation for augmenting Grassroots green innovations**

SRISTI has been campaigning for an international registry for over a decade so that grassroots innovators and TK holders can get short term protection at least till potential partners may file proper patents. It will also help reduce

the transaction costs of potential investors (venture capitalists or angel investors), entrepreneurs and of course innovators and TK holders for learning from each other, as well as tie up with other stakeholders for moving up the value chain. The goal of strengthening lateral learning is crucial if self help potential of local communities has to be improved in the wake of stress caused by globalisation. The same forces that squeeze space for their survival can also empower them if learning potential across the globe can be enhanced by harnessing global knowledge pool of knowledge, innovations and practices for augmenting grassroots creative urges, as attempted by multimedia Multilanguage Honey Bee database so far in the last decade and a half (see sristi.org/knownetgrin.html).

e) The Grace period: EU is still discussing the need for one year time period which USA already has for disclosure of an invention. Should there be five years grace period for TK so that communities, which shared in good faith, are not penalised??

f) Should first to invent --a system used in USA --be applied for TK protection since it is very helpful for those small inventors who are not smart enough to reach a patent office fast enough gathering all the support that is necessary to get the benefit under first to file system.

g) Protection of Tk may offer little benefit per se unless the protected TK move up the value chain and generates profits, which can then be shared with various stakeholders. The contribution of communities and individuals (not just the tribals, but also other local communities) needs to be understood not only in its functional attributes but also in analogic dimensions. Clearing Houses at global, regional and national level need to be set up to provide easy, accessible and fair opportunities for the registered TK to be negotiated. (We are trying to develop one such exchange at sristi.org/knownetgrin.html)

h) we must recognise the need for developing new instruments, new ethics, and new frameworks for providing real life alternatives to knowledge rich and economically poor people if the dialogue between formal and informal sector of global knowledge economy have to link symbiotically.

Otherwise, the legitimacy of ipr system will remain suspect in the eyes of local communities and thousands of innovators who have been disclosing

their creativity and innovations with Honey Bee network and other similar research networks around the world.