# Building capacity at community level for protecting the intellectual property rights in genetic resources and associated knowledge systems and cultural expressions[1]

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Honey Bee Network began the struggle for protecting knowledge and resource rights of creative people almost two decades ago. Neither CBD was there, nor TRIPS at that time. It appeared obvious to us that for a development process to become dignified, we should build upon a resource in which poor people are rich. The tradition of protecting knowledge rights or drawing boundary around them exists in almost every society. This is not a post-industrial revolution development, as many studies on intellectual property rights protection suggest. Every ancient society had a tradition of some knowledge experts or the other using the principle of trade secret to withhold disclosure. As a consequence, a great deal of traditional knowledge has been lost because it was not transferred to the succeeding generations.

The opportunities in the domestic and international markets are not being harnessed by the communities because they lack the capacity, tools, institutional strength and / or other legal and financial resources. The communities are not able to track the contemporary utilisation of their knowledge without any attribution or reciprocity by the third party who have not even taken their consent. Much of the publications by the academics bring knowledge of individuals or communities into public domain without explaining the implications of the same to the knowledge providers. The generosity of the knowledge providers has become therefore a reason for their continued poverty and deprivation. This is neither fair nor just. It is obviously not sustainable.

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The capacity building at community level requires appreciation of two basic conceptual issues (a) the barriers to the entry and exit of the knowledge holders in various markets and non-market exchange platforms, (b) lowering and eventually underwriting as far as possible the *ex-ante* and *ex-post* transaction costs of the knowledge holders as well as other stakeholders can add value to the knowledge, generate benefits and share them in an equitable manner.

The *ex-ante* transaction costs have four components: (i) searching information (ii) finding supplier, (iii) negotiating contract and (iv) drawing up the contract. The *ex-post* transaction costs include (i) monitoring and compliance, (ii) side payments, i.e., concessions which can make the contract enforeceable through modified inducements/discounts, (iii) resolution of conflicts if any and (iv) redrawing the contract if none of the above help in going ahead with the contract. Majority of the traditional knowledge holders and conservators of genetic resources have to be empowered to do following functions. Against each function, we also provide mechanisms through which the needs can be met. It is obvious that to make IP based mechanisms accessible and affordable, lot of non-IP based mechanisms will have to be put in the portfolio of incentives for various actors including the knowledge holders.

a. Searching information: How do traditional knowledge holders know as to what applications their knowledge has for which somebody (whom they don't know and who they cannot easily find out) is willing to enter into a contract, generate benefits and share them. The access to multimedia, multi language databases may make it possible for people to learn from each other and also with other stakeholders. The transaction costs of the potential investors, entrepreneurs, and R&D players in seeking knowledge about the local communities with scientific names of the plants is enormously high. In the absence of scientific names (which can only be ascribed after taxonomic authentication), the modern scientific institutions, drug, dye, nutraceutical companies may not be able to make offers of possible cooperation.

   Local communities and individual innovators also need to track the usurpation of their knowledge by unauthorized IP seekers. They will have to have access and the ability to scan the patent applications around the world, interpret and then

inform themselves and the patent offices about any suspected violation. Otherwise they will remain dependent on the benevolence of the state or other civil society organization. The bringing of their knowledge into public domain without their authorization by national and international scholars and institutions has been the single most important instrument of exploitation and unfair treatment of their knowledge rights (no research council in developing world or developed countries has yet characterized such a behaviour on the part of the scholars as inadmissible and unethical conduct). In the absence of such a reform as mentioned later in the paper, 'lawful' and 'rightful' disclosure is the only option.

b. Finding suppliers: Having found the sources of information, one has to find providers of information, services and other support systems. For a local healer or conservator of genetic resources to take a sample of their material to a public or private sector R&D lab to get it analysed for potential negotiations is almost well neigh impossible. It is important to create capacity so that they can deal with the knowledge providing, processing and managing institutions at their own terms.

c. Having found a supplier or potential user of their knowledge, they have to negotiate a contract and use a combination of IP instruments as a basis for negotiation. Having filed patent applications for grassroots innovators, we know how much of empowerment one has to do to be able to provide simple access to existing instruments. The tension between individual and collective knowledge, organizing proper representation and nomination for negotiation and having internal as well as external negotiations are other dimensions that come into play.

d. Drawing up the contract: To be able to exercise prior informed consent, and then arrive at reasonable terms of agreement which are acceptable within the community and as well as to the negotiating partner involves tremendous complexity, cost and resources. Without meeting these costs and enabling the communities, the contracts may remain asymmetrical and sometimes difficult to enforce.

e. Having entered into a contract, keeping track of the licensing and sub-licensing of technologies by the primary contractor becomes an obligation of the

communities. It is possible that the contracting party, in this case, a company or a state agency, may not work the licensed IP from the communities directly. They may sub-license it to a third party who may generate revenues which may or may not be shared. It is important to keep track of such a process. The enforcement of the conditions therefore requires tremendously important skills and capacities have to be built for acquiring and using those skills.

f. Side payment: It is not always possible for communities to wait for benefits to accrue and share. Upfront benefit sharing may be necessary. Such concessions may have to be negotiated.

g. Conflict management: During the benefit sharing process, conflicts may arise. Such situations require capacity building of the community to settle the disputes in an efficient manner, without damaging their interests and welfare. Hence the capacity of the community needs to be enhanced in this front also.

In this paper, we have summarized various proposals made in the last several years on the issue of intellectual property rights protection for local communities as well as grassroots innovators and individual traditional knowledge experts. Having used the existing IP system for protection of the rights, we do realise that some scope exists within the existing system. However, it is not enough. There is a need for a considerable reform in the international and national IP system so as to provide low transaction costs protection to the traditional knowledge holders and conservators of genetic resources.

## Summary of the past proposals for IP reform

### Role of Intellectual Property Rights in the protection of genetic resources, traditional knowledge and traditional cultural expressions/ expressions of folklore

Intellectual Property Rights can play a crucial role in the protection of genetic resources, traditional knowledge and traditional cultural expressions/ expressions of folklore. We strongly believe that it was the communities and individuals who have long conserved biodiversity and they have done so not entirely on the basis of utilitarian logic. But the biodiversity cannot be conserved by keeping people poor for long, even if historically

biodiversity survived largely under such conditions.[4] The Honey bee Network is also of the view that sustainable and dynamic conservation would mean conservation in a manner that the knowledge grows through constant experimentation and innovation rather than just being maintained as a fossilized form of historical knowledge, produced at one point in time and carried forward by succeeding generations.[5] Hence we recommend that the incentives for the conservation and sustainable use of biodiversity will have to be sufficiently flexible and diverse so as to provide for the growth and development of the traditional as well as the contemporary knowledge that is held by individuals as well as groups. Same or similar incentive structures or philosophical assumptions cannot provide adequate motivation to conserve what exists and restore what is lacking. It is at this point the relevance of intellectual property rights exists. Intellectual Property Rights can act as a tool for driving towards economic prosperity of those who conserve and protect genetic resources and associated knowledge. An intellectual property right is basically a social contract between the society and the inventor, wherein the society grants certain exclusive rights to the creator, in return for disclosure of knowledge/ information. The relevance of intellectual property rights increases at a point where we realize that most of the existing governments are not in a position to pay for protecting the biodiversity or for the creating valuable innovations. We need to make the private sector or cooperative sector interested in investing money in these efforts and for that IPRs can play a crucial role in this matter. There may be many who view that IPRs is a tool of capitalists for exploitation of the poor. But our consistent view is that merely by citing the probability of accrual of benefits to large corporations and economically wealthy individuals, we cannot deny an important tool useful for the empowerment of the economically poor, but intellectually rich people.[6]

**Ensure lawful and rightful acquisition of Knowledge/Resources. (The need for PIC/ Benefit Sharing)**

From the inception, Honey bee Network has been arguing for mechanisms that can ensure Prior Informed Consent of the Knowledge Holders and also benefit sharing arising from the use of such knowledge/ resources among the knowledge holders. We believe only in the

[4] Gupta (2002)
[5] Gupta (2000)
[6] Gupta (2007)

lawful and rightful acquisition of knowledge/ resources.[7] There are differences between these two and it is important to recogonise them in any capacity building exercise.

Lawful acquisition refers to acquisition of knowledge/ resources with the Prior Informed Consent of the knowledge holders. But in most of the countries, prior informed consent from the knowledge holders has not been made mandatory even today. When a country does not have any laws that make it mandatory to obtain Prior Informed Consent from the concerned people, then acquiring any material without PIC will not be considered as unlawful in the eyes of law. This might not be against Convention on Biological Diversity also, as Art 15.5 speaks only about the Prior informed consent of parties to the Convention i.e the contracting nation states and not that of the knowledge or resource providing communities.[8] The only exception might be Article 8(j), which speaks about the requirement of approval and involvement of local communities and individuals for ensuring the equitable sharing of benefits.[9] But the convention has left it to national legislations and now it depends totally upon the legislative environment and local institutional capacity in each country.

For example, take the case of India. India has not implemented the concept of prior informed consent in its true spirit so far. If we are to look at the National Biodiversity Act, which was drafted to fulfill India's commitment towards Convention on Biological Diversity to protect the genetic resources and traditional knowledge, we can observe a restriction that no person shall obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio survey and bio utilization, without prior approval of the National Biodiversity Authority.[10] It says that the National Biodiversity Authority can give permission for the above mentioned activities, only when it

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[7] Gupta (2007, 2002)

[8] See Art. 15. 5 of CBD- *"Access to Genetic Resources shall be subject to the Prior Informed Consent of the Contracting Party providing such resources, unless otherwise determined by that party"*

[9] See Art. 8 of CBD- *Each Contracting Party shall, as far as possible and as appropriate:*

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*(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;*

[10] See Sec. 3 (1) of the National Biodiversity Act 2002. *"No person referred to in sub section (2) shall, without previous approval of the National Biodiversity Authority, obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio survey and bio utilization."*

is satisfied that conditions regarding benefit sharing have been fulfilled.[11] But the National Biodiversity Act is silent about the prior informed consent from the concerned people. The only aspect it mentions is benefit sharing *on mutually agreed terms*. Whether the term *'mutually agreed terms'* in this context can be extended to embody the concept of prior informed consent of the knowledge holders is debatable.

In the case of benefit sharing also, the present Indian position is disappointing. If India wishes to fulfill the true objectives Article 8(j) of CBD, India has to ensure the approval and involvement of local communities and individuals. The benefit sharing provisions has been diluted in the present Indian legislation by making it applicable only to non-citizens. The Indian companies and Indian citizens residing in India does not come within the purview of these provisions.[12] We had time and again strongly expressed our disagreement with this position, as for the exploited it hardly matters whether the exploitation is done by an Indian company or a multi national company. We have tried to represent this issue before various authorities and so far no positive response has come.

As seen from the example of India, in the present situation, the acquisition of knowledge/ resources without any Prior Informed Consent from the knowledge holders may not be considered as unlawful. It is at this juncture, the concept of rightful acquisition gains importance. Rightful acquisition involves moral as well as ethical issues in access. It ensures that even in cases wherein prior informed consent is not legally required, it has to be obtained from the knowledge holders before using any such knowledge or resources and an equitable sharing of benefit arising out of such use has to be ensured.

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[11] See Sec. 21.(1)- *The National Biodiversity Authority shall while granting approvals under section 19 or section 20 ensure that the terms and conditions subject to which approval is granted secures equitable sharing of benefits arising out of the use of accessed biological resources, their by products, innovations and practices associated with their use and applications and knowledge relating thereto in accordance with mutually agreed terms and conditions between the person applying for such approval, local bodies concerned and the benefit claimers.*

[12] See Sec. 3 (2) of the National Biodiversity Act 2002 . *The persons who shall be required to take the approval of the National Biodiversity Authority under sub section (1) are the following, namely:*
*(a) a person who is not a citizen of India;*
*(b) a citizen of India, who is a non resident as defined in clause (30) of section 2 of the Income tax Act, 196 1;*
*(c) a body corporate, association or organization-*
*(i) not incorporated or registered in India; or*
*(ii) incorporated or registered in India under any law for the time being in force which has any non Indian participation in its share capital or management.*

For instance, even if a local community has not asked for any price for sharing the material or the knowledge about it, a company or an individual is bound by an ethical conduct to set up trust funds and other forms of reciprocity for local communities. It is high time to ensure that the superior ethics of the local communities, which made them remain poor despite conserving biological diversity and the knowledge around it, does not become a reason for perpetuating their poverty, and thus endangering the survival of diversity itself. In this matter, the responsibility of the developed countries is higher and thus reforms should take place there immediately.[13]

The national authorities must also amend their patent laws to ensure that every patent application disclose whether the applicant has obtained the materials or the associated knowledge, lawfully and rightfully.[14] In the present Indian situation, this has not happened.[15] This may be ensured through an amendment in the TRIPS Agreement.

But all this doesn't mean that we need to wait till a consensus has been reached in the international forum. In this context, it may be worth to share one of the recent examples of benefit sharing in the Honey bee network. SRISTI, with the help of NIF recently licensed 13 value added herbal technologies relating to organic pesticides and veterinary products to a private company named Matrix Labs Pvt. Ltd. The company plans to launch these products globally and they have agreed to pay the royalty for twenty years. On December 4, 2007, on the occasion of our Traditional Food Festival 'Satvik', we shared the initial licensing money with the original knowledge contributors.

Attempts like that of TBGRI and Honey Bee network can be easily replicated within the countries.[16] As shown by the Honey Bee Network through all these years, ensure that prior informed consent of the knowledge holders is obtained before making any use of their

[13] Gupta (2001, 1997, 1991, 1990, 1989)
[14] Gupta (2007)
[15] See Sec. 10 (4) (ii) (D) of the Indian Patents Act which requires an applicant to disclose the source and geographical origin of the biological material in the specification, when used in an invention. This doesn't talk about the need for Prior Informed Consent for accessing such genetic resources.
[16] See Gupta (2002) for a detailed narration of the experiment of benefit sharing done by TBGRI, India.

knowledge. This may make you lose some of your friends in the short run.[17] But it can ensure a sustainable capacity building in the long run. The PIC Forms and explanatory notes used by the Honeybee Network is attached in the Annex for further reference and discussion.[18]

**BS must acquire the status of a professional value**

Unless and until we are able to turn benefit sharing as a matter of professional value, rather than a form of charity, we may not reach our ultimate objective of capacity building. For example, while submitting a thesis/ dissertation, most Universities stipulate the students to submit declarations regarding the originality of the contents in the work and proper acknowledgment to contributions in the work. But even today many of the researchers and commercial users of indigenous knowledge appear not to give a proper acknowledgement and reciprocal arrangement with the knowledge holders.[19] This shows that it has not acquired the status of a professional value.

**There exists a strong need for creating more awareness among all stakeholders about the necessity of benefit sharing.[20]**

Unless and until awareness creation regarding benefit sharing is attempted, we will not reach the goal of raising benefit sharing to the status of a professional value.

**Documentation of TK/ Addressing the issues relating to documentation of TK.**

Even though different nations might differ in the objectives as well as methodologies of documentation, all most every nation agrees that documentation of knowledge is the most important step in preservation and protection of GR, TK and TCEs. But we need to address many issues relating to documentation, if we are to achieve the goals of both preserving and protecting GR, TK and TCEs.[21]

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[17] Our practical experience shows that even now many people are not willing to accept the concept of the requirement of PIC for any use of the knowledge obtained from TK holders. This may partly be due to the procedural hurdles involved in this process.

[18] See Annex 1 and 2. The present PIC Form is the result of the continuous research of a team under the leadership of Ms. Riya Sinha, Former Chief Innovation Offcer, National Innovation Foundation.

[19] Gupta (2002, 2001)

[20] Gupta (2007)

[21] Gupta (2001)

**Need for strengthening the documentation of oral knowledge**

Documentation of knowledge which is available only in oral form needs to be done at the earliest so as to ensure that such a huge wealth of knowledge does not end with the life of knowledge holders.

**Role of NGOs in Documentation**

The help of different NGOs and other documentation services for converting published data on ethnobiology, indigenous knowledge and other innovations should be utilized by WIPO for building a robust database. With the help of such databases, patent offices can screen patent applications in a better manner and thereby avoid granting erroneous patents.

**Identifying Proper Incentives for Documentation**

Identify incentives that can be given to the groups documenting local knowledge for sharing it with patent offices regularly.[22]

**Need for addressing the challenges in meeting together the two goals of easy and quick opportunity for lateral learning (through local language publication) and sharing of benefits through value addition in the same knowledge.**

Honey bee network has always advocated the need for communicating back to the original resource suppliers.[23] Through Honey bee newsletters in local languages, we have experimented the sharing of knowledge in local languages. This helped Honey bee network to acts as knowledge network that 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. But it needs to be noted that the publication of local knowledge deprives on one hand any benefit that may arise from value addition in local knowledge to the individual or community or nation concerned, though on the other, it makes it possible for people struggling with similar problem to learn from it. –as seen from publications in local languages, attempted by Honey bee Network.

[22] Gupta (2007)
[23] Gupta (2002, 1996)

The alternative of greater secrecy and withholding of knowledge will make every one loser through

a) greater erosion of oral knowledge,

b) continued unwillingness of younger generation to learn the knowledge, innovations and practices developed over a long period of time,

c) depriving any opportunity to knowledge holders as well as those dependent upon them to improve their livelihood prospects through sharing of possible benefits,

d) lack of material incentives for conservation of endangered species,

e) knowledge rich poor communities may migrate out due to low opportunities for subsistence an employment and not take care of local resource or over exploit the resource itself netting very little value in a short period of time, and

f) stifling the very creative and buoyant laboratory of innovations at grassroots by denying any social esteem for such knowledge through material as well as non material incentives and general neglect.[24]

Hence there exists a strong need for documentation methods which does not deprive the legitimate rights of TK holders

**Mere documentation not enough**

We are strongly of the view that traditional knowledge cannot be preserved merely by documentation. It requires combining knowledge with experience, which means conserving the way of life which produced it. [25]

**Need for Knowledge Registers**

SRISTI and the Honey bee network have been pleading for a global system of registration for traditional knowledge and grassroots innovations from a substantially long time.[26] The proposed International Network for Sustainable Technologies, Application and Registration (INSTAR) considers the acknowledgement of individual and collective creativity of knowledge holders and the entitlement of grants from commercialization of knowledge,

[24] Gupta (2001)
[25] Gupta (1999)
[26] Gupta (2007, 2002, 2001, 1999, 1998)

innovations or practices as the primary objectives. It is very difficult for any and every community to seek protection of its knowledge and inventive recipes for various purposes such as herbal pesticides, human or veterinary medicines, vegetative dyes, etc. and it is at this point, this registration system assumes its real importance.

**i. Do the existing international mechanisms provide scope for building a multi-lateral registration system?** Art. 23.4 of the TRIPS Agreement talks about the negotiations that shall be undertaken in the TRIPS Council for the establishment of a multi-lateral system for notification and registration of geographical indications for wines eligible for protection in those members participating in the system. If this kind of protection is possible for wines, why cant we think of a similar multi-lateral system for notification and registration of traditional knowledge and grassroots innovations, which can provide all the advantages of the registration system mentioned herein before.[27] We must also emphasise that if existing IP systems like copyright can give a multi-lateral protection that travels beyond territorial limits of a nation, there is no reason for the proposed registration system for traditional knowledge and grassroots innovations also to be extended beyond national territories.

**ii. Advantages of such a registration mechanism:**

It can prevent firms and individuals from seeking patents on community knowledge as well as on knowledge and innovations produced by individuals without some kind of cross licensing.

It can also help in the acknowledgement for individual and collective creativity.

It can create an autonomous authority wherein local community representatives can be the majority members with the responsibilities of having access to all the contracts.[28] A copy of the contracts may have to be deposited with this Authority so as to avoid short changing of the communities. These contracts will also be

[27] Gupta (2007, 2000,1999)
[28] Gupta (2001)

scrutinized to see whether management plans for sustainable extraction of diversity have been drawn upon scientifically appropriate manner or not. Penalties may have to be imposed for non-sustainable extraction of herbs by domestic as well as external extractors.

Each entry in the Register will be coded according to an universal system like ISBN. If the postal pin code of the habitat of the community or individuals can be incorporated in the indexation system, geo-referencing of innovation can be done.[29] At a later point of time, the same may be useful for incorporating contextual information of innovations and it can act as an important tool in linking communities and individuals with similar ecological situations and challenges.[30]

Helps in realizing our vision of grassroots to global.

Helps grassroots innovators receive a share of any returns that may arise from commercialization of their knowledge, innovations or practices. This can be with or without value addition.

Substantially reduces the transaction costs for potential entrepreneurs as well as innovators, as the entrepreneurs can easily search for their interested area of technology in the Register and accordingly start negotiations with the knowledge holders/ innovators.

Helps link the golden triangle of creativity by linking Investments, enterprise and innovations from across the world.

The entry in the register will primarily act as an acknowledgement of creativity and innovation. From this atleast, some of the innovations will be considered for awards or another kind of sui generis protection that may be evolved for the purpose. The award certificates should increase entitlement of innovator/s for access to

[29] Gupta (2007)
[30] Gupta (2007)

concessional credit and risk cover so that transition from collector, or producer of herbs to developer and marketer of value added products can take place in an easier manner.

Helps in forming knowledge network that can link problem solving people across the world at grassroots level.

Honey bee Network will then make its data bases accessible to all patent offices in lieu of the protection provided to the communities and individuals whose knowledge is cataloged in it.

**The need for certain specific reforms in the present IP regime**

For making the existing IP system more favourable to the preservation and protection of traditional knowledge, we have suggested many reforms which include:

**Need for better Prior Art Searches**

Better prior art searches and essential disclosure by applicants can avoid issuance of trivial or improper patents. The prior art searches must include searching in community and grassroots databases. Recently Honey bee network has shared its database of published traditional knowledge practices and grass roots innovations with WIPO, in furtherance of this objective.

**Mandatory publication of the patent applications after 18 months of application**

Those patent offices which do not publish the patent applications before granting the patent should be obliged to publish the applications after 18months of application so that objections can be filed by the interested groups.

**Penalties for violations**

Severe penalties must be imposed in cases wherein traditional knowledge is used without proper acknowledgment and or reciprocity to claim intellectual property on the same.

**Providing incentives for disclosing more prior art.**

One of the many incentives we have suggested in many forums for prompting disclosure of more prior art is on the lines of the ongoing discussion in US in linking application cost of patents with number of claims. We have recommend a similar strategy to be included in the present patent system to ensure that applicants have some incentives for disclosing more prior art.[31]

**The need for finding a low cost IP system**

There exists a strong need for a low cost IP system. Even though the poor people in third world may be creative and innovative, they cannot afford a costly IP system. This high transaction cost had posed difficulties even for organizations like SRISTI working on behalf of such knowledge holders. One of the ways the Honey bee network has tried to over come this issue was seeking the help of *pro bono* lawyers in India and abroad for filing patent applications on behalf of several knowledge holders.[32] But we realize that we require a system that can provide this help through public interest institutions or initiatives. **A model based on Australian Innovation Patent System** – which retains the scope for applying for a regular patent may be considered.[33] It may have 10 years protection and may protect around 5-7 claims. Formally an examination will be conducted on every application, but substantive examination will be done only on the request of the applicant or a third party. There should be publication of application within one year of application. The fees for this new system should be negligible.

**Special Grace period to be given for filing an application.**

We strongly believe that the traditional knowledge holders should not be punished for their innocence in sharing their knowledge with other people without knowing the implications of such disclosure.[34] If the modern patent system can give grace period of one year in most jurisdictions, there is no reason why the same should not be given to the economically poor, knowledge rich people. A special grace period should be provided with respect to the cases of anticipation by way of publication of traditional knowledge. European Union has been

[31] Gupta (2007)
[32] Gupta (2007)
[33] Gupta (2007)
[34] Gupta (2002)

discussing the issue of one year grace period given to inventions published in the preceding year and US already has such a grace period. What is being proposed here is that traditional knowledge published, say in last five years may be allowed to be protected so that the local communities do not feel betrayed by the researchers who documented their knowledge and exhausted their rights through publication without their informed consent.

**Traditional Knowledge as Prior Art**

Unless the community or individual knowledge is reasonably accessible, i.e., it has been coded and/or catalogued in publicly accessible databases, it should not be considered as constituting prior art for the purpose of determining the patentability.[35] If traditional knowledge is considered as constituting part of prior art, then it may preempt all the arguments for benefit sharing. The present Indian Patents Act is a real disappointment in this regard.[36] The consistent stand that has been taken by the Honey bee network is that to prevent others from exploiting India's traditional knowledge, we cannot take away the rights of local communities and traditional knowledge holders from protecting their own knowledge and benefiting from the possible commercialization of such knowledge.[37]

**The need for finding a balance between the long term needs for the community to have interest in conserving the knowledge systems and the incentives to those who add value to share the benefits for a limited period of time**

The new systems of protection must be able to achieve a balance between the long term needs for the community to have interest in conserving the knowledge systems and the incentives to those who add value to share the benefits for a limited period of time.[38] The new system must discriminate between the rights of communities in the knowledge system and the rights in the system must be perpetual. For example, obtaining patents based on classical health systems like Ayurveda, Unani and Siddha must be prevented at all costs. But at the same time, the system should allow intellectual property protection over modifications in such codified systems on the condition that a share of the benefit shall go to a global/

[35] Gupta (2007, 2002, 2001, 2000, 1996)
[36] See Sec. 3 (p) of the Indian Patents Act. Sec 3 talks about "what are not inventions" and section 3 (p) excludes from the ambit of "invention", anything which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.
[37] Gupta, (2007)
[38] Gupta, (2007)

national pool of funds meant for augmenting indigenous systems of medicines all over the world. Inclusion of such a fund is not impossible, as found from the gene fund under the Protection of Plant Varieties and Farmers Rights Act in India.[39]

**Need for collective management systems**

In the similar lines of the collective management systems for protecting copyright in music, songs, performances, etc., there must be institutional mechanisms for collective management of individual product and process patent applications on behalf of small innovators, tribals, local communities, so that their transaction costs for seeking such protection can be reduced.[40]

**Some specific recommendations with respect to Plant Varieties Protection.[41]**

**i. The definition of a variety should include discovered wild or other plants having distinctive and stable properties.** Some of the countries are already giving protection to discovered plants having DUS property. However one of the problems identified with the uniformity requirement is that heterogeneous or buffering populations with high fluctuations may not get protection under DUS provisions. Moreover, genetic uniformity has the possibility of becoming a major threat to food security. Therefore provisions for buffering

[39] See Sec. 45 of the Protection of Plant Varieties and Farmers Rights Act 2001 of India.
Sec. 45. (1) - *The Central Government shall constitute a Fund to be called the National Gene Fund and there shall be credited thereto –*
*(a) the benefit sharing received in the prescribed manner from the breeder of a variety or an essentially derived variety registered under this Act, or propagating material of such variety or essentially derived variety, as the case may be;*
*(b) the annual fee payable to the Authority by way of royalty under sub-section (1) of section 35;*
*(c) the compensation deposited in the Gene Fund under sub-section (4) of section 41;*
*(d) the contribution from any national and international organization and other sources.*
*(2) The Gene Fund shall, in the prescribed manner, be applied for meeting -*
*(a) any amount to be paid by way of benefit sharing under sub-section (5) of section 26;*
*(b) the compensation payable under sub-section (3) of section 41;*
*(c) the expenditure for supporting the conservation and sustainable use of genetic resources including in-situ and ex-situ collections and for strengthening the capability*
*of the Panchayat in carrying out such conservation and sustainable use;*
*(d) the expenditure of the scheme relating to benefit sharing framed under section 46.*

[40] Gupta (2002)
[41] Most of these recommendations have been put forwarded in Gupta (2007, 2000, 1999)

population which are distinct and stable over a long period of time (5 – 10 years) may be created as the present system is designed primarily for commercial crops in irrigated regions.

**ii.** A **national and international register of land races, acknowledging community rights,** should be established. Recognition of the community rights in the extant varieties mentioned in the Indian PPVFR Act should also be elaborated. The cost of collecting passport information for the varieties has to be borne by the PPVFRA so that farmer breeders do not suffer on account of their inability to provide such data.

**iii.** Another important suggestion put forwarded is that **the passport information sheet of the Gene bank should include the knowledge of community with particular focus on women knowledge**. In the present context, only a very small proportion of the passport sheet identify the community, region or specific farmer from whom the material has been collected. Updating of passport sheet will be very necessary for operationalizing a benefit sharing system and therefore global efforts to create a fund for the purpose are urgently called for.

**iv**. The concept of **lawful and rightful acquisition** is equally applicable here also. Every applicant seeking plant variety protection must disclose that the germplasm, parent lines or other material used for developing new variety, were collected through prior informed consent and only after signing a material transfer agreement (MTA) with the local communities/farmer breeders.

**v.** The **duration of protection for land races**, so far as the right to share benefits from commercial use is concerned, **should be more than twenty years;**

**vi**. **The farmer breeders may not be able to provide data required by the Plant Variety Authority.** It should be necessary for the authority to fund generation of this data whether in farmers' fields or on research stations. **Pending that stage, the claims of the farmer breeders may be accepted provisionally.** One of the cases which may highlight the seriousness of this issue is the HMT Paddy Variety developed by Mr. Dadaji Ramaji

Khobragade from Maharashtra in India.[42] This farmer selected and bred this variety from a conventional variety named 'Patel 3', a popular variety of that time developed by Dr. J. P. Patel, JNKV Agriculture University, Jabalpur. Through continuous study and research for about five years in a small farm owned by him he succeded in this developing this variety, without any support from the scientific community. This HMT variety has an average yield of 40 – 45 quintals per hectare with short grains, high rice recovery (80 %), better smell and better cooking quality in comparison with the parent ones. This variety has been diffused over a million hectares in several southern, central and western Indian states and in many districts of central India, it has become the first choice of the farmers. A recent doctoral research study has even shown that for a character like thinnest of grain, Protection of Plant Varieties and Farmers Rights Authority (PPVFRA) uses this farmer bred variety as a reference.[43] Several seed companies have earned millions of dollars by selling the seed of his variety. But even today the farmer continues to be economically poor, though his variety has brought prosperity to thousands of farmers and dozens of seed companies. To save this farmer from this exploitative and unfair situation, National Innovation Foundation attempted to submit this variety for protection under the present PPVFR Act of India, in his name. But they rejected and returned the application by citing that it doesn't have the required data. We have not been able so far to submit data to their satisfaction and we realized from this case whom this legislation presently favours. Only big seed companies who can generate data easily can make use of the existing system.

**vii. The requirement of uniformity and stability may not be necessary for composite varieties designed to deal with fluctuating environments.** This requirement may need modification in specific cases.

**viii**. Any applicant seeking plant variety protection must **declare that s/he has not used any variety developed by a farmer / community without their authorization.** This argument assumes real importance in the light of the example of HMT Paddy variety which we mentioned earlier. This variety was earlier taken up by one of the state funded agricultural

42 Dadaji Ramaji Khobragade has been granted a National Award by National Innovation Foundation.

43 Personal communication of Sinha with Prof. Anil K. Gupta (2007)

universities scientists for purifying and later they released it as another variety under the name PKV HMT. But the DNA finger printing studies at Centre for Cellular and Molecular Biology (CCMB) under the guidance of Dr. Ramesh Agarwal has now revealed that PKV HMT is essentially the same variety as HMT.[44]

**ix.** Applicants seeking protection for varieties that have incorporated characteristics from public domain agro biodiversity must be willing to contribute a specific part of the sales or licensing fees towards national gene fund and in case of international companies, International Gene Fund proposed under FAO.

**x.** The **farmers right to exchange, store, sell or distribute protected seed** material without brand name should be allowed, as more than sixty to seventy per cent of seed materials is obtained through such exchanges or storage.

**xi**. The **administrative procedures for the plant varieties protection must be simple** so that farmers can benefit from such a protection mechanism. For example, when we tried to submit the application for protection of HMT Variety through post, the PPVFRA authority returned it by saying that they cannot accept it by post and we have to submit in person.[45] It must be noted that the PPVFRA is situated at Delhi and just think about the difficulties faced by farmers at other parts of the country.

**xii.** Unlike International Union for Plant Variety Protection, there is no international agreement for protection of traditional animal breeds and associated knowledge system. There exists a need for a similar arrangement within the country and also at the international level.

**The need for trying diverse existing IPR systems**

Experiment different kinds of existing IP systems to find out the best suitable one for each situation. For example existing systems like trade marks (including Certification marks and

[44] Personal communication of Sinha with Prof. Anil K. Gupta (2007)

[45] See, Letter No. PPV&FRA/Registrar/15-1/2007/122 dated June 21, 2007 from Mr. S. P. Yadav, Plant Variety Examiner included in Annexure 3.

Collective Marks) and geographical indications may also be attempted for securing proper and longer protection.[46]

**The relevance of maintaining an Open source Approach**

Even though Honey Bee Network advocates strongly for the protection of traditional knowledge through intellectual property regimes, the same doesn't mean we are undermining the need for open source technologies. In this light, it needs to be specifically pointed out that more than 99.9 percent of knowledge shared by Honey bee Network is in public domain and only a very small number is protected by patents.[47] Even though the Honey bee Network has documented more than 75000 innovations, the total number of patent applications filed is only around 150. This makes our stand clear. We are of the view that people must use and share knowledge as widely as they can.[48] Even with respect to patented technologies, we permit all reasonable exceptions including personal use. But if one is to use the technology for commercial purposes, s/he needs to take a license so that benefit sharing can be assured.[49] One of the well known open source technologies in Honey Bee Network's portfolio which has benefited the society, especially the women in rural areas, through wider dissemination, is a pulley with stopper, invented by Sri Amrutbhai Agarwat, which could easily prevent the falling of bucket to the well while drawing water from it. The need for wider dissemination makes us strongly promote the open source approach in the lines of GPL of GNU.[50]

**Conflict management over IP issues**

Disputes regarding the inventorship are bound to happen during many traditional knowledge protection measures. One of the consistent approaches we have taken in this regard is to try to settle the disputes by making the subsequent *legitimate* claimants, Co-inventors.

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[46] Gupta (2002)
[47] Gupta (2007)
[48] Gupta (2007)
[49] Gupta (2001)
[50] Many people still have a misconception that free software under the GNU-GPL cannot be sold for a price. But this is not true. It permits sale of the software, at the same time ensuring much freedom. It is actually giving the users the freedom to run, copy, distribute, study, change and improve the software. See http://www.gnu.org/licenses/gpl-faq.html#DoesTheGPLAllowMoney (visited December 3, 2007). Also see the preamble of the GNU-GPL version 3 license. See http://www.gnu.org/licenses/gpl.html (visited December 3, 2007)

**Need for overcoming informational asymmetries**

There exists a strong need for Patent databases in local languages. It can really help as a tool for empowerment of Traditional Knowledge holders. Moreover, IT applications must be used to the fullest possible extent for overcoming the informational asymmetries in the formal and informal knowledge. IT infrastructure can reduce the transaction costs. But appropriate institutional interventions need to be made to ensure that the same technology does not pave way for faster erosion of local knowledge and wisdom.[51] This can be assured with a global registration system mentioned earlier. This also proves the need for legal status to the National Register on Grassroots Innovations and Traditional Knowledge. It can prevent biopiracy and at the same time it can work as a platform for enabling value addition by private sector who may be willing to share benefits.

**The need for monetary as well as non-monetary benefits, apart from IP based incentives**

We need to explore a framework where monetary and non-monetary incentives are combined in the optimal level and appropriate institutional arrangements are formed for the same, so that users of the biodiversity will be able to initiate benefit sharing experiments.[52] SRISTI has set up an internal fund to honour ten to fifteen innovators every year from its own resources earned through the licensing of three herbal veterinary drugs. In a similar way, SRISTI has been organizing a traditional food festival under the name 'Satvik' every year and during this festival the best traditional recipes are given awards. In the past seven years, NIF has also conducted four national award functions to honour knowledge holders.

**Need for financial support**

The Honey bee network attempts to link the golden triangle of innovation, investment and enterprise.[53] To achieve this goal, financial support to knowledge holders for further value addition and commercialization is a must. SRISTI pursued this linkage through venture promotion funds. Later GIAN and NIF were able to provide such funding through mechanisms like Micro Venture Innovation Fund (MVIF). Similar, and may be even better

[51] Gupta (2007)
[52] Gupta (2001)
[53] Gupta (2007)

mechanisms needs to be evolved across the world. Every national government must also think about setting up a Technology Acquisition Fund, wherein the governments can pay a certain sum of money to acquire good technologies from the knowledge holders for disseminating it as open source technology.

**Summing up**

The capacity building would require recognition that in knowledge based economy, it is certainly possible to harness economic benefits from the application of traditional knowledge. It can be done in several ways. We can use outstanding traditional knowledge and find a contemporary application (a modern variety or a drug). We can also pool or mix or blend several traditional knowledge practices to generate new products and seek market opportunities for the same. In addition, one can also fuse or blend individual or pooled traditional knowledge based product with the modern scientific methods/materials and develop value added products. The more we move traditional knowledge towards contemporary application, closer we get to the modern IP system. However, some would argue that objections against contemporary IP system may stem not from contemporary relevance of the traditional knowledge but from the historical origin and evolution of the same. In either case, the investment from the formal private sector may follow only if the investors can recover their investment in a reasonable period of time. The benefit sharing systems are important not only at international level but also at the national level. Honey Bee Network's experience demonstrates considerable potential for benefit sharing within the country. It is here that the national IP system has to be reformed to provide a special window and the fast track system for protecting the rights of TK holders. Such windows do not exist in India or most developing countries. The conceptual problem of treating TK as prior art also needs to be resolved. If all the TK is indeed prior art, then why should anybody feel obliged to share benefits from the obligation of TK. It is only when we recognize the rights of the people that the obligation for sharing benefits.

We have argued in this paper that a combination of various IPs and IP management systems (such as collecting societies) can trigger reforms in IP system.

Unless incentives are generated (both monetary and non-monetary) for individuals and/or communities, there is very little chance of young people getting interested in learning traditional knowledge and augmenting it for the future generation. It is here that the greatest challenge has to be faced.

We hope that drawing upon our experience, more communities around the world try to use existing system (no matter how imperfect) and at the same time, lobby for creating new systems.

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