

## **Conundrum of Creativity, compensation, conservation in India:**

### **How can intellectual property rights help grassroots innovators and traditional knowledge holders?<sup>1</sup>**

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Conservation of biodiversity and associated knowledge systems requires generation and availability of incentives tailored to specific socio ecological and economic conditions in different parts of the world. These incentives can be endogenously generated or exogenously provided. These could be in material or non- material form, and aim at individuals or communities. The incentives can also be graduated or constant and be provided singly or in the form of portfolio. It is obvious that incentives must be of substantial magnitude in scale to act as motivator for influencing behaving in a particular manner. Too small an incentive may actually not be an incentive at all. But combination of various material and non material incentives can produce much more powerful synergistic effect than would be the case by any one of these singly.

Intellectual property rights constitute only a small sub-set of individual- material. Without accompanying support and mediation by other institutions and initiatives, it may not even bring about any significant change in the livelihood prospects of communities and/or individuals at grass root level. In this paper I look at different kinds of creativity whether for conserving biodiversity or solving problems of everyday life through inventions or innovations or use of outstanding traditional knowledge. In second part I describe different ways of conceptualizing incentives and identify the interface between natural, social, ethical and intellectual capital and within that the role of intellectual property rights. I also discuss the inter play among different kinds of knowledge systems such as individual, community based or public domain. In fact every knowledge system includes different proportions of all the three. It is very seldom that knowledge will have only public domain or only individual private aspects. In part III I discuss the implications for intellectual property policy, institutions, and movement at global level so that future debate on this subject is better informed as well as illuminating. I strongly decry the tendency to assume in intellectual property rights debate that it is always the North which has strength, and has to give whereas it is south which has weakness and therefore has to be seen on the receiving end. I will demonstrate that in future whether in the field of health or poverty alleviation and sustainable development. Grassroots innovations from the third world will provide important solutions

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for the problems even in the North. The knowledge economy is going to change the current polarity of discourse and power which is biased against South.

### **Part I: Creativity at Grassroots:**

When does curiosity of an individual transcend the limits of constraints of a given situation? Instead of amplifying creativity to cope with the constraints, when does it result in generating an innovation or invention is an important question. Out of millions of pigeon pea crop plants in a field, when a class IV educated farmer Dhulabhai picked up two plants that have pink and red flowers instead of yellow flowers, the curiosity has taken the better of an individual's acceptance of conventional limits of knowledge. He develops a new variety that yields better, does not attract many pests because of red colour flowers and therefore requires very low or no pesticide consumption. With this, the inherent economic disadvantage of a small farmer becomes a modifying influence on the generation of technological advantage in the new innovation. When this farmer shares the seeds with other farmers who grow it and make enormous money out of it, he has contributed to the economic well being of others. Soon a company might select it and develop it as a commercial plant variety without any reciprocity towards Dhulabhai. Interestingly enough, Dhulabhai may treat it as a normal thing to happen and continue to struggle. Opportunity for higher income generation for his unemployed graduate son may elude him. He has not been aware of the notion of intellectual property rights. The prevailing ethics does not generate a responsibility among the beneficiary of the technology to share part of their gains with the provider of innovative solution. Dhulabhai remains poor.

Remya Jose travels for two hours one way and changes three buses to reach her school for studying in 12<sup>th</sup> class. She is extremely good in academic studies as well as in extra curricular activities. Last year her mother was not well and her father has been a cancer patient for several years. She was forced to handle greater responsibility of household chores. One of the task which consumed a lot of time is washing clothes by herself and also for her two sisters and parents. An ordinary person with moderate level of economic living would cope with the problem and adjust or adapt. Remya was not an ordinary person.

She decided to make a sketch of a washing machine which is also an exercising machine, (as she discovered as an after thought), and requested her father to contact a local mechanic to fabricate that machine according to her design. She collected some old parts and her father contacted the mechanic. The mechanic faced some problems and she had to go once to meet him. Otherwise her father would visit now and then and act as a link between his daughter and the mechanic. In the conservative cultural conditions, grown up girls are generally not encouraged to mix with boys too much. After a while, the washing machine was ready and now she would sit on the machine, pedal it and wash the clothes and of course maintain her figure. A low cost washing machine was ready. Even the poor people could dream of few such utilities which could reduce their drudgery and give more time for doing other value adding jobs or just relax. The technology is so simple that it might occur obvious now but the fact remains, it did not happen for so long.

Did Remya talk about it to anybody. Most of her class fellows did not know about it because she was afraid they might laugh at her. They might make fun of her and even call her 'Edison' (not as a compliment but as an attempt to mock an ordinary person claiming to be an extraordinary inventor like Edison). Nobody in the village including her neighbors knew much about what she had done. Why would they know of it after she sends an entry to National Innovation Foundation and the representatives of the foundation visit her. Slowly and slowly recognition starts coming her way. In the meanwhile, she has already found some limitations of the existing design and she has started working on them. For instance, the inner drum in which cloths were kept for washing, if not used for several days, would develop rust because of iron mesh. It needed to be either of different material or painted with a rust proof material. NIF through its regional collaborator extended a 100 dollar grant to develop a 30 dollar washing machine. The purpose was also to give her some money for developing the next dream of hers- a 50 dollar vacuum cleaner. Perhaps with the intellectual property right protection some company would license these technological innovations and help Remya get better treatment for her parents and go to a good college to study cardiology, a subject that she wants to pursue. She might also help her other sisters to study further. Will her dreams of being inventor and also a technologist be fulfilled? Will IPRs help her cross finance her studies?

Amrutbhai, an artisan, repairs and makes small farm implements in Pikhori village of Junagadh, district Gujarat. He lost his father at an early age, studied only upto 4<sup>th</sup> class and his mother brought him up after working as a labourer in others farm. By and by Amrutbhai developed a small workshop and started fabricating a few new devices depending upon the feedback and the feed forward from the farmers. During a survey of innovations in farm machinery, he was scouted as an innovative artisan. Later during one of the research advisory committee meetings of SRISTI in 1995 he was asked to put forward his proposals for new innovative implements or devices so that could be given risk capital if his idea was found feasible and attractive by the committee. He mentioned about that tilting bullock cart so that farmers could spread manure directly into the furrows before sowing crop. Normally farmers transport the manure to the field and empty the cart in one place. With the help of baskets, farm labourers particularly women scattered the manure in the field manually during the heat of summer. The idea was found quite attractive by the committee and a small risk capital grant was given to him for developing this cart. Subsequently a patent was filed in Indian patent office. State government agreed to provide subsidy on this cart and promote its usage. The patents in India take long time to be granted generally 6-7 years. In the meanwhile three entrepreneurs came forward to take the technology on license.

GIAN (Grassroots Innovation Augmentation Network) was set up in 1997 as an incubator to convert innovations into enterprises by mobilizing or providing investments. It was set up after the participants of an International Conference on Creativity and Innovation at Grassroots, organized at IIMA in January 1997 resolved that one of the most important institutional support needed by grass root innovators was support for intellectual property protection, incubation, micro venture capital etc. GIAN located three entrepreneurs who agreed to license the technology for five districts for five years and pay the license fee of about 2000 dollars. This was the first time a technology was licensed on district basis for

which a patent had only been filed (not yet granted) and it was easy to copy and yet entrepreneurs agreed to license the technologies. Among other things it also showed that a new ethics was emerging in the market place where the respect for the intellectual property of the innovator was beginning to be articulated.

Recently GIAN put together a portfolio of about 12 sprayers of various kinds and sizes for licensing to entrepreneurs. Many of the sprayers were awarded by National Innovation Foundation set up by Department of Science and Technology in March 2000. As would be explained later, NIF builds upon the previous fifteen years struggle of Honey bee network to give respect, recognition and reward to unsung heroes and heroines of our society who have solved technological problems without any outside aid from formal institutions of individuals. The portfolio of these sprayers was publicized among various potential entrepreneurs. Recently in August 2003, an entrepreneur came forward to license four sprayers on non-exclusive basis by paying a license fee of 5000 dollars and a royalty of 2.5% on sales for five years. If the entrepreneur desires to renew the license for another five years he has to pay 15% of license fee paid now as renewal fees. The patents for these four sprayers are still being filed. The individual cost of these sprayers varies from five dollars to fifty dollars per piece only. These are easy to copy and if he had copied these, we would hardly have any legal recourse to prevent him from doing so. Why did this entrepreneur pay fees when patents are yet to be granted and when he could have easily copied the designs and we could have done nothing against him. Perhaps he wishes to use the recognition given by SRISTI and NIF to these innovators as a sale promotion strategy. He also wishes to share the potential benefits with the innovators and he respects the intellectual property rights of the innovators. He has been offered to market goodwill payment to SRISTI for promoting these sprayers in future. Yet another example of increasing respect for intellectual property rights in a society where *imitation and not innovation* has been the rule for a long time.

Arvindbhai has developed an auto kick pump. It helps in filling air in the tubes of two wheelers, when punctured on the way, by using the engine as the air compressor. The device is very handy and costs only five dollars. Many times when people experience punctures in two wheelers while driving long distance they get stranded on the way. They have to either drag the two wheeler to the next repair shop because they do not have a spare wheel or they have to hire another means of transport to carry the two wheeler to the nearest puncture repair shop. Patent for this device has been filed in India as well as US. The innovator received an award at the hands of the Hon'ble President of India at the Second National Award Function award organized by NIF in December 2002. An entrepreneur in Mumbai has licensed this technology (though patent is yet to be granted) and paid a license fee of 1000 dollars and agreed to pay royalty of 2.5% of sales after he has sold 10000 pieces. In India half a million two wheelers are sold every year. This product obviously had a global market and the rights for licensing technology abroad are assigned to SRISTI.

Likewise there are 35 other cases where patents have been filed in India for herbal, mechanical and other technologies and five patents have been filed in USA of which one patent has been granted on April 8, 2003 to Mansukhbhai for developing an innovative cotton stripper. All these patents have been filed through *pro dano* help of intellectual property rights firms in India and USA through GIANs ( see annexure one for details).

In addition to above, several other incentives have been provided to the conservators of biodiversity as well as the other inventors primarily to promote creativity and innovation at grass roots and conserve resources in the process.

## **Part II: Incentives for Conservation, Creativity and Innovation**

In a paper entitled ‘Why poor do not cooperate’, 1984, I had argued that a ‘change not monitored is a change not desired’. If a society does not monitor and reward creativity at innovation and grassroots, it obviously does not desire the same. This may be a strong statement and may not be liked by many but the fact remains that most developing countries see intellectual property right as an instrument of control and manipulation by the developed countries and within them by large multinational corporations. They do not see intellectual property rights as the instruments of rewarding creativity and innovations in their own society so as to make it innovative and competitive in the emerging global markets. It is not my contention that stronger protection of intellectual property rights alone will make societies innovative. I would not even argue that intellectual property rights can be a major instrument of achieving that goal. But respect for intellectual property rights can certainly bring about a change in the ethical barometer of a society as has been shown in the part I of the paper. It does not matter too much, what kind of disputes arise so long as the basic ethics and humanitarian concern lies at the core of consciousness of various actors in the value chain and a framework for ethical resolution is created. Initially, some people will misuse the privilege and many people will not respect the intellectual property rights. The experience of Honeybee network over the last 15 years shows that recognition and reward even in non-monetary forms can be a great motivator for the people and therefore spur creativity.

In this section I first describe the experience of Honeybee network in promoting creativity and innovation. The interface between public, private and common domain knowledge and resources is discussed next. The interface between natural, social, ethical and intellectual capital is described. It highlights the need for tailoring incentives according to the contingent interface between different kinds of capital and different kinds of domain of knowledge. Brief examples will be given of four kinds of incentives i.e. material individual, material collective, non-material individual, and non-material collective. Argument will be that a portfolio of incentive will always be more rewarding and sustainable than any one incentive alone.

### **Context for incentives:**

I have demonstrated in earlier studies that almost every society around the world has attempted segmentation of knowledge market from time immemorial (Gupta 1999, 2000). For instance there are communities which have tried to draw boundaries around knowledge such that not every kind of knowledge was considered public domain. Asymmetry in knowledge production and distribution was essentially responsible for some people to become better known than others in specific skills. There are many stories in which some

such skilled people preferred to suffer ignominy rather than revealing their secret. Any number of examples are available in which the traditional knowledge experts did not disclose their knowledge even to the close kith and kin. Many of them believed that knowledge would lose its effectiveness if shared with others. At the same time most of them did not charge for their services for healing humans or animals. It should be nobody's case that concept of intellectual property protection is a construct developed in the post-industrial societies. However, it is true that modern forms of intellectual property protection which are managed through legal instruments rather than societal norms are indeed developments during last few centuries.

Various societies have evolved different means to protect intellectual property and some of these means were extremely coercive. The word famous monument of Agra known as Taj Mahal was built in white marble by a Mughal King, Shahjahan in memory of his wife Mumtaz. Large number of artisans worked on it for several years to create eighth wonder of the world. However, few people know that right hand of all these workers was cut so that they could never build another Taj Mahal. A monument of love actually became a monument of torture and that too to protect the king's creative design. In manusmruti if scheduled caste people (lower caste untouchable people) were to hear vedic hymns, it was prescribed that molten lead should be put in the ears of such people. They were not supposed to learn and acquire the vedic knowledge, a preserve of Brahmins.

There is famous epic in India called as Mahabharat. It describes the extraordinary reputation Dronacharya had for teaching students among other things the skill of archery. He was a famous teacher who had an Ashram, a kind of elite school for the children of royal families.

Once a tribal student called as Eklavya came to seek admission in his ashram. Dronacharya refused the admission because Eklavya was not a royal scion. Eklavya was very determined to learn archery only from him. He made an idol of his assumed guru, Dronacharya and put it before him in the forest. He started practicing every day to hone his skill in archery. One day Dronacharya was moving in the forest along with his disciples including Arjun who he wanted to be the best archer in the world. Suddenly a dog started barking and disturbing their conversation among themselves. In a few moment they saw that the mouth of the dog was filled with arrows and it could not bark anymore. Dronacharya told his disciple that someone who could aim arrows by hearing sound from a long distance, would be an extraordinary archer. They went around in search of this person. After a while they discovered Eklavya who bent on his knees to pay respect to Dronacharya. Dronacharya asked him as from whom had he learnt such a fine skill of archery. Eklavya confessed that it was Dronacharya himself who had taught him. The teacher was flabbergasted because he had never taught him. When asked further, Eklavya showed him the idol which he had worshiped to practice all these years. Dronacharya asked him to pay *gurudakshina*, that is, a kind of fees if he indeed had learned from Dronacharya. Eklavya agreed and immediately offered whatever he wanted. Dronacharya asked him to offer the thumb of his right hand which Eklavya immediately did. He was incapacitated for his life to practice archery and thus the career of an outstanding archer was snipped in the bud.

This tale is narrated in Indian sub continent to reinforce devotion to teacher and to show what can one achieve by persistence and perseverance. Historically, the attempt Dronacharya made to protect his intellectual property by sharing it only with those in whom he had faith was never obviously considered bad. A kind of a business method protection implied in this restriction was not looked into. The remaining other aspects of the story need a separate discussion. It is obvious that knowledge and skill were not public domain even at this time, thousands of years ago and even when independently developed, were taxed.

There any number of healers and herbalists who believe that their particular formulation sometimes kept secret, would loose its effectiveness if it was revealed to anybody. Many times knowledge of such formulations dies with the death of such healers. Likewise there are many healers who reveal the knowledge of the particular healing technology only to their closest kith or kin. In Patan there is an old traditional technology of dyeing and weaving patola silk sarees in such a manner that same design appears on both side of the sarees. This is a 750 years old tradition involving use of vegetable dyes and is considered one of the most complex manual weaving technology of the world. Only three families are continuing with this tradition. However, the fake imitations of Patola sarees are known to flood the markets. If geographical indication is not applied to this particular fast vanishing tradition technology, no incentive might remain for few families to carry on this tradition in a manner in which it started hundred of years ago. It is said that there used to be a custom among many of these families earlier in which they would teach the skill only to their daughter in laws and not daughters. According to Indian custom daughters shift their house after their marriage to husband's place. If they taught the skill to heir daughter, it would spill over to their son in laws family. They wanted to protect their intellectual property rights and keep the technology within the family.

There is another story about a community in Murshidabad, Northern part of West Bengal which was known for a very exquisite variety of mangoes. There was a custom that a basket of this mangoes was sent to the king and later the British viceroy. This variety of mango was endemic to this region. But people were claver. They used to take a very thin needle and puncture the seed of each mango before sending it to the king. The idea perhaps was that this variety should not be grown elsewhere - a kind of plant variety protection through indigenous *terminator* technology.

There could be numerous other examples where communities have tried to assert their rights over intellectual property in past and wish to continue this assertion in present. There is a famous case in Australia where Federal Bank of Australia used a painting made by a particular aborigine artist on a five-dollar bill. The community of the artist came to know about this and protested against this. The community leaders believe that the artist had no right to license his art to the Federal Bank because he had made the painting after following certain rituals sanctified by the community. The painting could not have been what it was, they argued, without the community cultural codes and rituals. Therefore, only community had the right, they claimed, to license or not the work of their members to any outside agency. In the court this particular argument was not accepted but the judge was sympathetic.

The entire debate on bio-piracy rests on the assumption that property right exists in the biodiversity. Whether these rights exist at the level of nation states, communities or individual farmers or tribal healers, is a matter of detail and the recent treaties under FAO and CBD provide a framework for dealing with that. The safe conclusion can however be that neither the resources nor the knowledge around these resources can be considered a public domain resource. Otherwise the entire case for compensation and benefit sharing falls.

Let us look at the issue of property rights around creativity and innovation at grassroots which may or may not involve traditional knowledge. Generally when we deal with the issue of traditional knowledge three aspects have to be kept in mind:

- a. Traditional knowledge as evolved by people to cope with various stresses and challenges around them. In many cases, institutional norms, ethical values and cultural codes also evolve along with traditional knowledge. While some of the knowledge bits perform very specific functions of solving health, conservation or production problems, others help in shaping the broader worldview. With passage of time, some of these knowledge, innovation and practices survive in their functional forms and some as part of belief systems, in fact, even as superstitions. Not everything in the tradition need either be functional or even morally desirable. A healthy skeptic approach provides answers to the constant struggle, which takes place between traditional technologies and contemporary consumer needs. Not everything, which is rejected by the consumers, need be wasteful and likewise not every part of tradition carried forward by community members need be synergistic with demands of a modern rational and communitarian society.
- b. Traditional ways of solving problems will always remain a powerful means of generating grassroots innovations and improvised traditional knowledge. Trial and error, keen observation, experiments and eye for detail contribute to many innovations at individual or community level. The tradition of invention is a continuing one. Though given the colonial history and defeatist mentality it might have spawned, many people may not recognize this tradition. The problem thus arises when many of these innovations developed recently or long time ago at grassroots level are not recognized or rewarded. Diffusion of such innovations may not take place and people may struggle with the same problems that might have been solved in another part of the society. Farmers men or women might select an odd plant which eventually generates a new plant variety, or develop a new machine, or develop anew drug or use fat of fish for killing pests etc. These solutions might even be seen as contemporary grassroots innovations.
- c. Traditional technologies many times involve modern materials, scientific concepts and tools. In many ways these innovations are quite similar to the innovations generated in the formal scientific and technological systems except the process by which these solutions are evolved. Fishing community develops a new use of dynamite for catching fish ( a non sustainable means ), farmers use



soap solution ( soap made of new chemicals and different from old natural oil soaps) for controlling pests, or potter uses concrete to make tiles for roof etc.

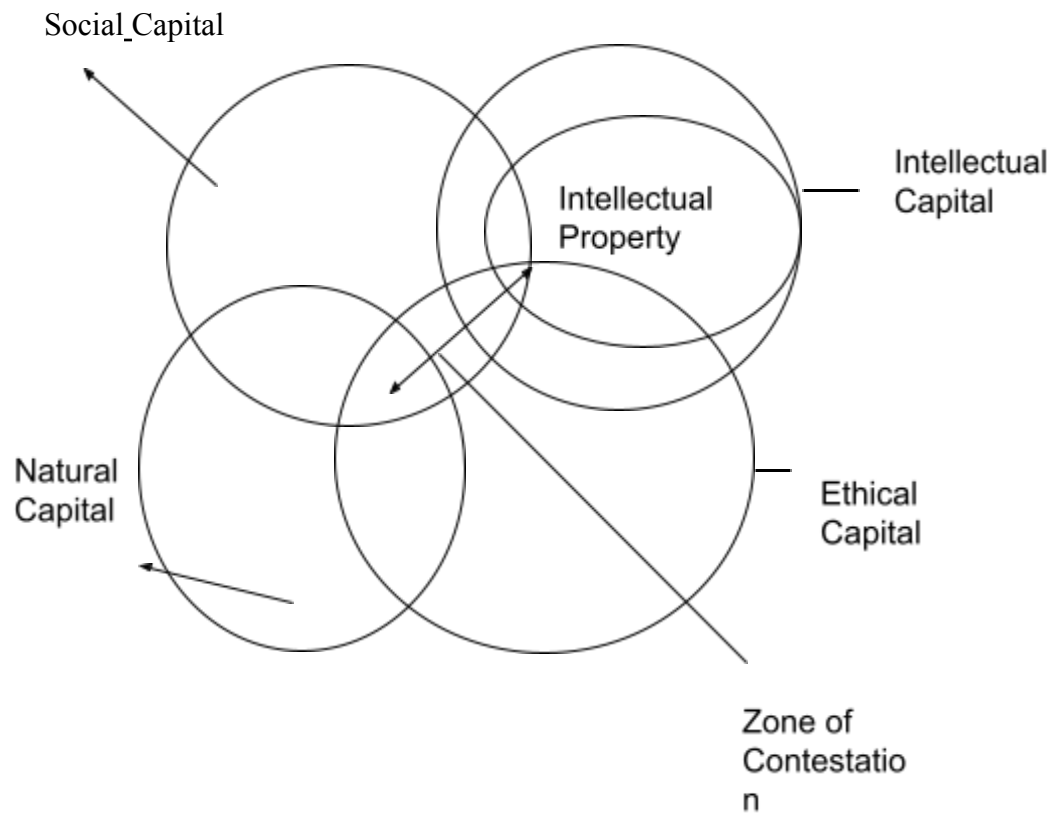
The values guiding these solutions also differ from some of the dominant values in the modern system. For example, most innovators generously share their knowledge, innovations and practices whether based on local resources, traditional technologies and tools or modern materials or tools. Because of this sharing, the users may benefit but the producers of knowledge do not, except in spiritual sense. However, that is the reason also perhaps why many of them remain poor. The children do not want to pursue the knowledge path, erosion of traditional knowledge takes place, and society loses a very valuable source of local solutions. May be, giving creative people their due will restore the respect for traditional knowledge and help in blending it with modern science and technology and produce valuable intellectual property.

Historically, natural capital was the first to be created when domestication of species began. Human kind used several approaches to define the property rights in natural resources. (a) Earmarking territories within which one group claimed rights for hunting food gathering or fishing etc. (b) evolving norms, values and rituals restricting the use of various species over time, space and social categories (c) Developing technologies for harvesting storing, distributing or exchanging natural produce to extract economic and social rent (d) cultivation of crops, rearing of animals or managing fishing grounds through common property institutions or common poor resources (e) privatization of rights in land, or water or biological species reared on common property or open access territories (f) private assignment of rights in land and water and the natural resources found or grown in them (g) multiple layers or rights over same resource varying over time and/or space<sup>3</sup> etc. Given various ways of generating natural capital as shown in figure 1 some of it may overlap with social and ethical capital. The social capital involves evolution of norms, trust and reciprocities such that private transaction cost of using resources or internalizing the externalities go down. The ethical capital is the subset of social capital where institutional norms govern the way natural and social capital are used within the ethical framework evolved by the communities. The intellectual capital is the sum total of knowledge produced while generating natural social ethical capital. Only a small part of intellectual capital is governed by intellectual property norms, whether formal or informal or customary in nature.

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<sup>3</sup> For instance if radio active minerals such as uranium or precious metals are found underneath the private property land than state has a right to claim property rights on those resources in certain countries like India with or without compensation. Likewise an individual has a right to grow sandal wood trees on private land but does not have a right to cut them without government permission. In Bhutan individuals have right to kill an animal if it strays into the field and damages the crop but they do not have the right to kill the animals in the wild. Problems arise when an animal moves after having wounded on private land into the public land. There are communities which allow private rights in trees growing on community lands and vice versa. In Rajasthan, individuals having private water wells cannot refuse to give water to someone for drinking purposes. A private well becomes common property or open access for drinking water purposes.

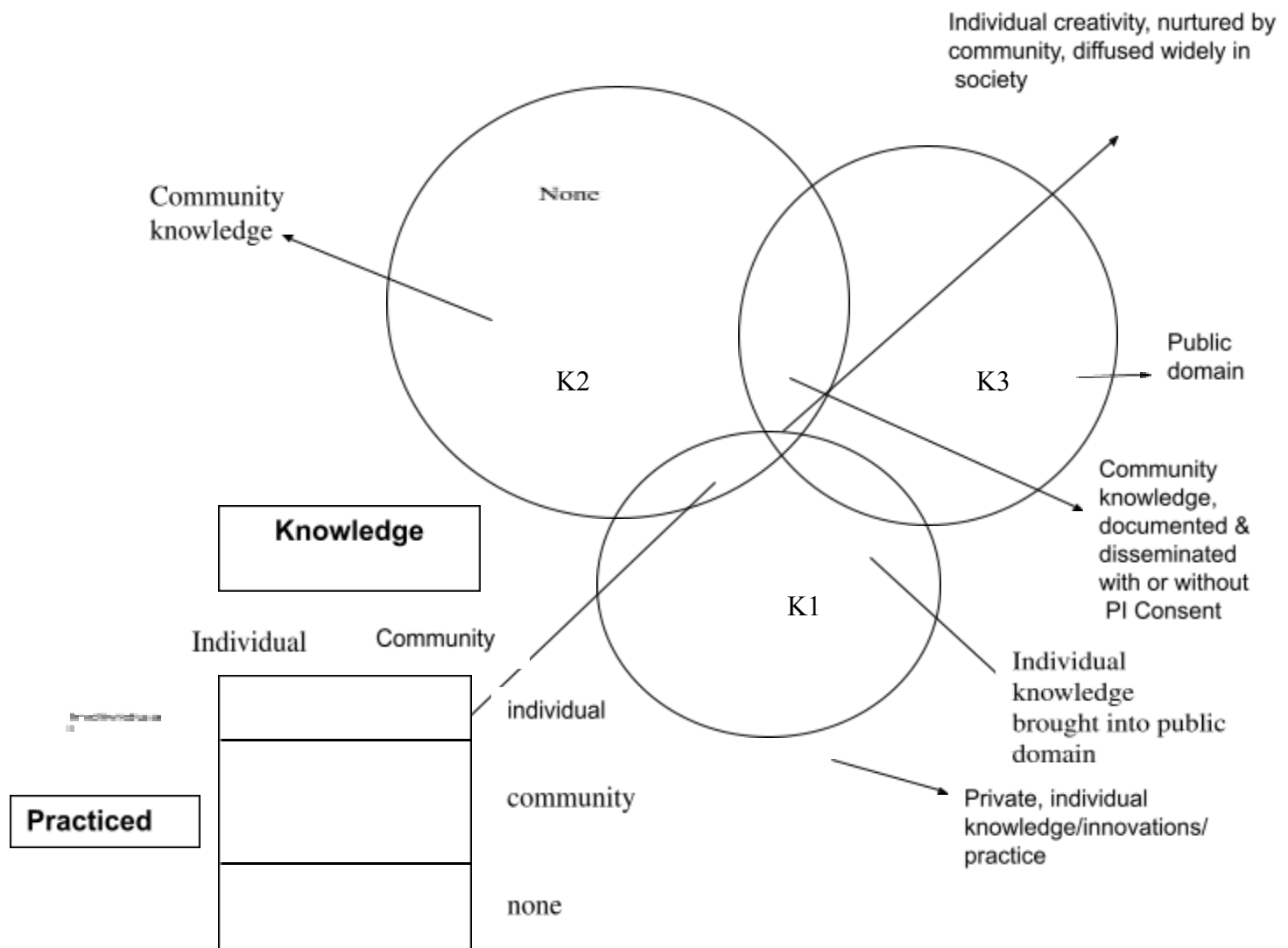
**Figure 1:** Relationship between natural, social, ethical and intellectual capital and intellectual property



Source Gupta,, 2001.

The evolution of intellectual capital can be understood through the interface among the private or individual driven production of knowledge, community based knowledge system and public domain knowledge systems (see figure 2). Various kinds of pathways through which knowledge systems can interact are given in Table one (Gupta and Sinha 2002).

**Figure 2: Contested domains of local knowledge**



Source: Gupta, 2001.

The three subsets in Figure 1 refer to the three overlapping domains of knowledge. Contestation emerges when the producers and users of knowledge have unequal access, ability and assurance about the resources and the benefits emerging from commercial or non-commercial usage of the resources with or without value addition (Gupta, 1995).

One of the issues which we intend to develop now is the relationship between property right regimes governing resources vis-à-vis the knowledge associated with these resources ( see figure 3)

Resource right regime

		Private	Community	Quasi Public	Public
Knowledge right regimes	Private	PKPR	PKCR	PKQPR	PKPUBR
	Community	CKPR	CKCR	CKQPR	CKPUBR
	Public	PUBKPR	PUBKCR	PUBKQPR	PUBKPUBR

Figure 3

**PKPR:** Private resource and private knowledge right: If an individual has proprietary knowledge about the use or application of a particular plant or variety found only in her land, then the right to exclude from the physical property and intellectual property are privatized. It is possible that such a case may be very rare because single plant may not exist in one habitat alone. However, in Latin American and African context there may be individuals owning large tracts of land or water bodies having endemic biodiversity around which proprietary knowledge might be developed.

**PKCR:** Private knowledge around community resource: A healer may develop specific knowledge about the use of a plant or a fish or any other natural resource found in common property land or tank. The right to disclose, dispense or disseminate the knowledge developed by this individual may be governed by customary knowledge rights such as trade secret or contemporary protection under intellectual property rights laws. Community may or may not demand any rent from the income generated by the concerned individual through use of this knowledge and the resource. It is also possible, as is generally the case, the concerned individual may not disclose the knowledge but dispense the medicine or any other service associated with community resource free of cost.

**PKQPR and PKPUBR:** Individual may likewise produce private knowledge about resources governed by quasi public (neighbourhood resources) or public resources such as public forest or public lake or public grazing land. The nature of right and its legal derivations may not vary much from PKPR except in the case when public authorities may govern the right of extracting resources from public properties. In such cases the right to use proprietary knowledge may be circumscribed by the access to public resource.

Likewise, the implications of other subsets can be studied.

### **Part three:**

#### **(A) National Level Policy**

##### **1) National Technological Innovation acquisition fund**

There are always a few inventions and innovations which the concerned innovator (in private, public or informal sector) may not have wherewithal to scale up. Some of these innovations may need to be diffused for larger social good. For instance, improvements in design of kerosene stove which saves energy may be very vital for national interest but the concerned innovator (as is indeed the case with some of the innovators with NIF who have improved stove design ) may have neither the incentive nor the capacity or both, to diffuse the design among large number of small scale manufacturers. But then who will invest in the diffusion of such technologies and why. A National Technological Innovation acquisition fund may be created to acquire the licensing rights of such innovations and inventions for eventual out licensing these at low or no cost to small scale manufacturers under technological upgradation program.

##### **2) Protection of Traditional Knowledge**

Traditional knowledge systems help a very large section of our society not only survive against all odds but also generate in the process, some of the products, which might have national and global markets if properly developed. Within the Traditional knowledge systems, there are innovations and improvements by individuals and communities which need protection so that potential investors can have incentives to invest and recover one's investments. It has to be appreciated that if traditional knowledge is assumed to be in public domain, then there is no reason for any exploiter of this knowledge with in or outside the country to have obligation to compensate or reward the knowledge provider. Further, the traditional knowledge systems in many cases when blended with modern science and technology can generate immensely valuable solutions for societal problems and opportunities for improving livelihood opportunities for knowledge holders. *Another very important ethical, moral and institutional issue is as to why should traditional knowledge holders be expected to disclose their knowledge with National Innovation Foundation if NIF can not protect their rights?*

**Proposal:** Systems of protection may require that any community or individual disclosing their knowledge for National Register on green Grassroots Innovations and Outstanding traditional knowledge may get provisional protection for say, ten years with maximum of five claims per innovation or traditional knowledge subject to the conditions:

- (i) *if any other community also claims the similar knowledge, then that community will be considered the co-holder of the rights*** (we will not like to encourage inter -community fights about this matter). We will also make assumption that unless there is some thing very unique, it is quite possible for similar solutions to emerge across communities over time and space for similar

problems particularly when base resources, say same plants, exist in those regions.

- (ii) ***The duration of protection may be extended if any further improvements have been made and disclosed***
- (iii) ***It may be considered whether a small tax on every herbal and ayurvedic product and forest product import as well as domestic trade above a particular scale, be levied to collect the revenue for conservation, reward and information dissemination to traditional knowledge holders***
- (iv) Local language databases (of such disclosed innovations and traditional knowledge as well as of patents issued on herbal knowledge) be developed of such claims which should be made available at district level for scrutiny by the traditional knowledge holders and tribal communities. Such a service must be insisted upon at international level also.
- (v) All university and research institute scientists working on Traditional knowledge must be advised to use PIC form ( see [nifindia.org](http://nifindia.org) ) with whatever modifications MHRD may consider relevant so that they do not publish the results of their research without (a) sharing it back with the knowledge holders and providers, (b) consent of the traditional knowledge holders, and (c) ascertaining uniqueness of their results so that intellectual property rights protection opportunities are not missed. They must be obliged to share part of their pecuniary gains if any, through the licensing of such technologies produced through value addition in traditional knowledge, back with the specific communities or a national fund. This fund may be managed by non-bureaucratic body responsible for sharing it fairly and without much transaction costs with traditional knowledge holders.
- (vi) All commercial organizations ( such as Dabur, Zandu, Procter and Gamble) must be obliged to share part of their profits with the National Biodiversity conservation fund since they draw upon wild biodiversity (on which local communities depend and survive ) without any reciprocity and responsibilities for conservation. This is important because traditional knowledge systems cannot survive and grow if the resource base on which they rest itself does not survive.
- (vii) A national fund needs to be set up to promote filing of patents by grassroots innovators and TK holders internationally. NIF has facilitated five patents for innovators in US of which one has already been granted with the help of SRISTI and THT, a Boston based law firm without any fees to be paid.

### 3) Disclosure requirement in patent applications

The following suggestions need to be pursued at international level also. Every patent applicant is obliged to disclose whether the resource and/or knowledge obtained from third parties for developing the patent claims have been obtained lawfully and rightfully. The 'lawful' access would imply that whatever laws exist in the source countries, have been complied with. The 'rightful' would imply that the prior informed consent of the

knowledge providers has been obtained. It is obvious that India can plead for this change only if it brings it about within its own territory.

India should consider developing laws requiring such consent and disclosure by any domestic or international party proposing to work on traditional knowledge.

#### 4) Product Patent

Product patents are must if traditional herbal knowledge system has to be valorised for generating new products and services for increasing social welfare as well as providing a new knowledge-intensive model of poverty alleviation and employment generation. It may be mentioned here that in a study of herbal patents done a few years ago, I had found that China had about 45 per cent share of the total herbal patents followed by Japan, about 20 per cent and Russia about 16 per cent. Most of the inventors were individuals and not corporations. The concentration of patent was very low and most people had protected only in one or two countries. Two other observations make this point even more important. One in five Americans has used Chinese medicine and in China, Chinese herbal medicine finds a place of honour in the chemist's shop unlike India where such medicines would generally be kept in an obscure corner. Without product patent, we cannot protect herbal knowledge in any significant manner. The TKDL provides only a defensive protection through disclosure so that patents on public domain Indian traditional knowledge are not issued by various patent offices in the world. This is a very useful purpose being served in a pioneering manner, but it obviously is an answer to a limited but important problem. The larger problem of protecting the rights of traditional knowledge holders remains unaddressed by TKDL.

### **(B) International level Policy**

#### 5) International registry of sustainable technological innovations and traditional knowledge

SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) had made a proposal for INSTAR (International Network for Sustainable Technology Applications and Registration) in 1993. The purpose is to provide a low transaction cost system to innovators and traditional knowledge holders to obtain worldwide protection and have incentives for disclosure. Traditional knowledge holders in many developing countries which do not have capacity to set up such systems in next decade or two would suffer if such a registry was not there<sup>4</sup>.

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<sup>4</sup> National and international registry systems have been proposed to incorporate the elements of innovation patent system so as to provide incentives to local communities, herbalists and developers of plant varieties to share their knowledge without forgoing the benefits possible through intellectual property protection. The issue still remains as to whether knowledge produced over a long period of time through cumulative contribution of communities in a given region should get only a short duration protection and that too with limited claims. There are several other reasons why a registry may help the innovators and TK holders even if with shorter duration protection:

- a) the possibility for potential investors, entrepreneurs and R and D partners to seek collaboration with innovators and TK holders would be very low if they did not have access to registry which would reduce transaction costs (TC) in the process,

In TRIPS there is a provision for an international registry to be negotiated for wines and spirits. There is no reason why such a negotiation should only concern itself with the interests of a particular European country at whose behest, this clause was incorporated in the TRIPS.

#### 6) Geographical Indications and service Marks

The collective marks could also be utilized by association of healers, seed producers and others to provide guarantee about quality as well as authenticity of claims. Accordingly these could improve the prospect of market returns and consequent benefit sharing. These provisions can go a long way in safeguarding the traditional habitats and lifestyles without constraining these by non-sustainable livelihood strategies and poverty. It is obvious that if a particular production process and output does not derive any specific advantage from a given region, this might move to the locations where it is cheaper and more profitable to make it. Accordingly the local producers might have to emigrate to these regions where production now takes place or may have to become unskilled labourers in the other urban and rural regions. Patan silk is a good example, only three families are left in north Gujarat and one on Baroda which pursue authentic 750year old patan silk tradition. Rest all is unauthentic.

Lot of traditional knowledge and products have disappeared precisely through such erosion of opportunities associated with geographical regions. Most developing countries have not yet taken, steps to provide protection to the locally distinct and characteristic products and process based on value addition in local knowledge and bio diversity.

#### 7) Sacred Marks registry at International Level

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- b) the possibility of willing partners filing joint IPRs for longer duration may also be low if the registry was not there,
  - c) the technological obsolescence factor being high, many leads might not have much value if not explored within ten years any way,
  - d) the possibility of learning from one another might increase if there was a registry. Many times this goal gets neglected in the debate and to us in Honey Bee network, lateral learning among the local innovators and communities is a central concern. Surviving collectively is some thing that registry can facilitate.

The cost of filing patent can be very high. For example, a US patent application in 90s could be about 20,000 USD while in EU, it could cost twice that amount. However, this cost varies a great deal and in thirty two countries it was found to vary from USD 355 to 4772 in 1990s (Helfgott, 1993). We need to devise ways of reducing these costs for small innovators and traditional communities. INSTAR, an international registry might offer one way.



**There have been many cases where sacred signs and marks of one culture have been used by another culture in an irreverent manner causing hurt and disrespect to other cultures. India should plead strongly for an international registry of such marks and also a general agreement that names and signs associated with God and goddesses venerated by any culture would not be allowed to be used in a disrespectful manner (some years ago, a US company had put such pictures on toilette seats and in another case on chappals). Of course such respect should be shown domestically also.**

#### 8) Intellectual Property Information System

The ability of the local communities to avail of the existing intellectual property instruments depends considerably on their ability to access existing IP information in their own language and in a manner that is accessible to them close to their place of residence. Granting that much of the traditional knowledge is available in the ecologically rich regions where market forces and administrative support systems are weak. One has to recognize the complexity of providing IP information system in a widely accessible manner.

The essential elements of IP information system in such a context would include following institutional and technological arrangements:

- a) A very wide information technology based communication network in some of the remote regions enabling community leaders and educational research institutions to scan prior IP existing on the plants, animal products or other associated knowledge or innovations innovated by these communities. In the absence of prior experience and training many of these communities would find it difficult to make sense of the IP information even if available in local languages.
- b) Capacity building among the educational research community local NGOs and public service legal agencies for providing support to the local communities in searching and interpreting existing IP on the biodiversity, genetic resources and associated knowledge system.
- c) It is to be expected that there would be many cases where traditional knowledge and or genetic resources have been obtained without prior informed consent, or developing mechanisms for sharing of intellectual property or any kind of benefits. Many of such cases could relate to periods before CBD came into being and also before national sovereignty on biodiversity was recognized. It will be difficult for the local communities to recognize and appreciate that they should not object to the violation of their ethical and intellectual property rights simply because the legal system was not in place to defend their claims in the absence of such rights. There could also be cases where the opposition could not be filed even if the patents have been issued in such cases using prior known TK of some specific communities, as was the case in ayahuasca (*Banisteriopsis caapi*) patent. The conventional legal constraints of the period

within which opposition can be filed may have to be reviewed so far as it relates to the knowledge of communities.

- d) The legal help to local communities to file objection in cases where intellectual property has been obtained on prior traditional knowledge could pose two problems: (1) if local community knowledge is considered prior art then it might facilitate questioning of some of the existing patents but it also might prevent seeking new intellectual property on the unclaimed intellectual property of the local communities, (2) it will be difficult to make the case that a plant found in many places could not have been identified as a source of a particular compound or use independently for which a particular local community had found the use. Therefore this issue of prior art is very complex. My own preference in the matter is that communities have more to gain by accepting that much of the local knowledge is considered outside the prior art definitions unless it is well known, and is in public domain through widespread practice. For all other cases where knowledge is restricted only among a small localized community otherwise inaccessible to outside scholars or corporations, it should be considered a patentable subject matter.
- e) The information system will have to have a national and international hub in such a way that national and international IP support organizations can play a role in educating as well as empowering local communities in dealing with a whole range of issues affecting their rights. In other words IP help desks capable of handling queries from local communities in local language would need to be created to provide the support.
- f) It is obvious that current capacity of WIPO and also national IP systems is grossly inadequate compared to the need of large number of communities all around the world. This has led to the widespread feeling of violation of rights among these communities. Many communities which do not support the concept of IP on their community knowledge would also like to make sure that others not authorized by them do not seek private individual IP rights on their knowledge. The IP information system which could be administered by WIPO should take care of the needs of such communities as well

Pilot projects for providing access to IP information system with the help of NGOs and willing national agencies need to be started to learn first hand various complexities involved in the task.