Project Background

I. Problem and Justification

IMPORTANCE OF IK

Indigenous Knowledge (IK) is a valuable and sophisticated system of knowledge developed collectively by *adivasi* (indigenous) and rural communities over a period of time. IK has been developed pertaining to all the important fields related to human life, ranging from human and animal health, home building, food and agriculture, textiles, handicrafts, natural resources management etc. This vast repertoire of knowledge, which is still being developed, is transmitted from one generation to the next in oral form. Biodiversity and the IK developed from it are central to the food and health security of rural and adivasi communities, the basis of income generation and livelihoods, of survival itself.

Biodiversity, and the indigenous knowledge associated with it, is a special strength of today's developing countries. This IK now has a global appeal to an environmental and holistic health conscious population, particularly in the industrialised nations. Today biological diversity and the IK associated with it, provide significant inputs into economic sectors as diverse as agriculture, biofertlisers, biopesticides and pest control systems , pharmaceuticals, nutraceuticals, personal care and cosmetics, food additives, textile dyes, food colorants, industrial enzymes, handicrafts etc. Most importantly, the IK system holds the key to long term sustainable development that includes the sustainable use of biodiversity.

The rural and *adivasi* communities are the custodians of this wealth of knowledge in India. This knowledge is today under threat from neglect by national policy makers who have failed to put in place a system to protect this IK. On the other hand, IK is threatened by a sustained assault from biopiracy and unauthorized use. Policy makers need to be made aware of the immense richness of IK and its potential for the economic development of rural communities. It is necessary to find ways to incorporate the need for its conservation and sustainable use, into national policy.

Importance of IK in Agriculture

The land races bred by farming communities are the foundation materials of modern plant breeding and global food security. These land races are the same varieties that plant breeders use to breed other varieties and for which they seek patents. One could say that if the breeding of a crop variety involved 100 steps, then IK contributed at least the first 80 or 90 steps and laboratory science contributed the next 10 to 20 steps. It stands to reason therefore that ownership of a variety should reflect this fact. Apart from creating several varieties of food and cash crops, local communities have also identified and managed a series of genes conferring valuable traits traits – as diverse as disease and pest resistance, salt tolerance and drought tolerance – for commercial and domestic needs through a highly sophisticated system of crossing and selection.

Traditional agriculture plays an important role in local food security, resource management, and environment and biodiversity conservation. The contribution of indigenous crop varieties (landraces) to the global economy and food security is also significant. According to one projection (UNCTAD, 2000), the global value added to rice yields alone by the use of landraces amounted to US$ 400 million per year. The contribution of landraces for rice breeding in India has been estimated to be US$ 75 million to India's total rice yields (Evenson, 1996). According to one source (Frontline, October 10, 2003), of the 24,000 rice varieties currently available in India, 19,000 are traditional varieties.

IK in Human health

According to the World Health Organization (WHO), traditional medicine serves the health needs of almost 80% of people in the developing countries, where access to "modern" health care services and medicine is limited by economic and cultural reasons. For instance, the per capita consumption of traditional medicinal products in Malaysia is more than double that of modern pharmaceuticals.

According to the All India Coordinated Research Project on Ethno-botany, the indigenous communities are acquainted with the use of over 9000 species of plants. Specifically for the purpose of healing they know the use of some 7500 plant species, compared to the allopathic system of medicine which uses some 100 species. Even the formal Indian Systems of Medicine, *Ayurveda*, *Siddha* and *Unani* use only about 2000 species of plants in healing formulations. There is an urgent need to document the knowledge of indigenous communities because the youth in these communities is disinterested in continuing the tradition of healing.

In the modern era, the global market for herbal products, with its appeal ranging from pharmaceuticals, nutraceuticals and health foods to cosmetics, toiletries, food and textile dyes, colouring agents and ethnic products, is estimated to touch US $ 5 trillion by 2020. This turnover is largely based on the know-how of local and indigenous communities. It should stand to reason that local communities should have a share in the benefits and receive a reasonable percentage of the profits made from such commercialisation.

IK leads to finding new compounds

According to an UNCTAD report, in 1988, of 119 plant-based compounds, 74% had the same or related uses as provided by IK. Following the German ban on chemical Azo dyes in the textile sector, the search is on for suitable vegetable dyes for leather and textiles. Plant-based coloring agents, known from IK are also being sought for the food processing industry due to the rising incidence of allergies to chemical colors and additives. So, a number of industry programs are under way to research and record traditional uses of plants as a starting point for commercial product development by companies. These companies mostly come from the pharmaceutical, agricultural, personal care and cosmetic sectors, each of which depends upon IK as the primary source of information. A number of pharmaceutical companies rely extensively and sometimes exclusively on the knowledge of indigenous and local peoples when they screen forests for plants with medicinal value that could be turned into blockbuster drugs.

IK in conservation of biodiversity and environment

IK plays a key role in conservation and sustainable use of biodiversity. Indigenous peoples' traditional economic systems have a relatively low impact on biological diversity because they tend to utilize a great diversity of species, harvesting small numbers of each of them. The indigenous people also try to increase the biological diversity of the territories in which they live, as a strategy for increasing the variety of resources at their disposal and, in particular, reducing the risk associated with fluctuations in the populations of individual species.

The indigenous communities have several strategies for conservation, like establishing sacred groves, recognising taboos relating to nature and giving special status to totemic species. The degree of sanctity of the sacred groves varies. In some forests even the dry foliage and fallen fruits cannot be touched. In others, the deadwood may be picked up, but never the live trees or their branches. It is believed that such sacred groves date back to several thousand years and many of these have been turned into the 'Biosphere Reserves' of today. These sacred groves are important today because they are the best samples of the forests that might have flourished in the region, housing rare and endangered plant species, many of which may have disappeared from the region outside the groves. For example, in the Uttara Kannada region of southern India, the only remaining natural strands of *Dipterocarpus* and a large patch of *Myristica indica* persist in a sacred grove of the Goddess Karikannama.

The Unjust Discrimination between IPRs and IK

Intellectual property is the creation of ones intellect and is therefore recognized as the property of that intellect/individual. Since these creations are given the recognition of property, they involve the concept of ownership. The owners of the intellectual property have the right to exclude others from using or producing their creation for commercial gains without their authorization.

The creation of intellectual property should be accorded the same status irrespective of whether the knowledge/ property generated by the intellect is in a laboratory or in a field or forest. However the modern intellectual property right (IPR) regime is willing to recognise the intellectual property generated by scientists and innovators in the formal system but not that generated by local communities in the equally valid informal system. Just like knowledge generated in the laboratory is considered the intellectual property of the scientist/innovator, the knowledge generated in fields and forests must be considered the property of the adivasi/innovator. But this does not happen. This constitutes the central and highly unjust discrimination between indigenous knowledge and intellectual property.

So far all nations have had the right to develop IP regimes in a way that suited their particular interests and protected their vulnerabilities. All this changed with the coming into force of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organisation (WTO). The TRIPS agreement did away with the individual rights of nations to set up their own IPR regimes. It is now TRIPs, which enforces an IPR regime in all its member states. The implementation of the TRIPS Agreement so far has demonstrated quite clearly that the concept of IPRs promoted by it does not serve the needs of the developing nations.

Nowhere is this more evident than in the treatment of IK. The TRIPS provisions allow the patenting of so called inventions that are based on indigenous knowledge. This is patently unjust and a violation of the property rights of

indigenous people whose intellectual property their IK is. Apart from this, these unjust patents take knowledge that is in the public domain and which is accessible to all and lock it up as personal property through the instrument of the patent.

The TRIPS Agreement is interpreted to facilitate biopiracy since it does not recognize that local communities have any rights over their IK and allows patents to be taken on it. TRIPS does not oblige its Members to protect IK nor does it prevent its Members from providing statutory protection to IK. It is therefore in the interest of developing countries with rich traditions of IK, to lobby for the inclusion of IK in the TRIPs provisions so that an IP protection regime is made mandatory for all WTO member states.

The Problems Confronting IK

The central problem that confronts IK, is the fact that despite being a body of knowledge generated by intellectual exercise, it is not recognised as the intellectual property of the communities that have generated this knowledge and know how. The present status is that IK has not been granted the status of property. As a result it is free for anyone to use that knowledge. Not recognizing IK as property results in the denial of any right with respect to it as is recognized in the modern IPR systems.

As a result of this, indigenous knowledge is being used rampantly in so called 'inventions', including biotechnological 'inventions', and consequently intellectual property rights are being acquired on it by way of patent grants. This phenomenon popularly referred to as biopiracy entails the unauthorized use of the IK that belongs to communities, without taking permission from them or coming to any kind of 'licensing' or benefit sharing arrangement with them.

The consequence of biopiracy is that the holders of IK do not get any share of the benefits derived from the commercial exploitation of the patented product that is based on their knowledge. Second, once a patent is granted the holders of IK themselves, are in principle, barred from using their knowledge to make products and commercially exploit them. This injustice leads to a situation where the rightful owners of the knowledge end up paying to the patent holder for use of and access to the patented product, which is based on their knowledge. This situation clearly needs to change.

There are other problems confronting Indigenous Knowledge:

- *Loss of IK due to loss of biodiversity*: Biodiversity and associated IK are inextricably linked. The wealth of biodiversity in a region leads to the development of an extensive and complex system of IK based on the many properties of the various components of the flora and fauna contained in that biosphere. Usually, the richer the biodiversity, the more sophisticated the IK that evolves from it over time. Because of this interdependence, the physical destruction of biodiversity leads to the inevitable loss of the IK associated with it.

- *Loss of IK due to neglect of the knowledge itself and neglect of the communities that developed that knowledge*: In India and South Asia, as also in some other developing countries, IK has lost its appeal, particularly among the youth. This has happened because of official policies that have failed to accord any value and prestige to the knowledge and its holders. In an attempt to 'modernize', developing countries have often chosen high-tech, expensive and unsustainable options, neglecting the solutions available in their indigenous systems. This has caused IK to be viewed as inferior to the so-called modern alternatives, and led to its devaluation. The decreasing respect for practitioners of IK, like traditional healers, cultural erosion and so called "modernization", a lack of understanding of the sophistication and utility of the IK systems, chiefly among policy makers, has led to a lack of coherent policy.

- *The absence of an explicit system at the national and international level*, to accord legal protection to IK in the interest of the communities, is the greatest challenge facing rural and adivasi communities that are the repositories of vast and elaborate systems of IK.

The last seems to be the most outstanding problem. In recent years there is an increasing awareness about the loss of biodiversity, habitats and ecosystems across nations and national laws and international conventions have come into being in the last years with the aim of conserving biodiversity. The problem is recognised and is being addressed to smaller or greater extent. The neglect of the indigenous systems in official policies like health care and medicine is also being addressed to some extent. IK based systems of healing are being gradually included in government health care though much remains to be done. It is in the third area, the legal protection of IK, where there has been little progress.

Whereas national governments have rushed to comply with TRIPS requirements for the recognition of formally generated knowledge with (often, draconian) IPR regimes, the legal protection of IK remains largely neglected. Some efforts have been made at the national and international level in this respect, in the form of agreements, legislative and non-legislative efforts, but these have been largely ineffective, suffering as they do, from lack of serious intent and lack of an implementation framework.

That this disregard for IK continues despite the burgeoning instances of biopiracy and illegitimate patents on products derived from indigenous knowledge, is a matter of grave concern. It is this subject of legal protection that this project attempts to address.

The Demand of Indigenous People to Protect IK

The Indigenous people have been vociferous and articulate in their demand for protecting IK through several declarations, for example the Kari-Oca Declaration, 1992, the Mataatua Declaration on the Cultural and IPRs of Indigenous Peoples, 1993 and the Indigenous Peoples' Seattle Declaration, 1999. Demands for ownership rights over IK are also found in the Charter of the Indigenous-Tribal Peoples of the Tropical Forests, 1992 and Recommendations from the Voices of the Earth Congress, 1993. The Joint Forum of Indigenous Women from Northeast India had demanded in 1997: "Our indigenous systems of knowledge and biodiversity must be recognised and protected from exploitation and appropriation by commercial interest."

The International Situation

In recent years, the protection of IK has entered the debate in various international forums. These include the Food and Agriculture Organization (FAO), Convention on Biological Diversity (CBD), World Intellectual Property Organization (WIPO), United Nations Conference on Trade and Development (UNCTAD), United Nations Environment Programme (UNEP), United Nations Economic and Social Council (UNESCO) and the World Bank. Recently, at the instance of developing countries, the subject has also been introduced into the TRIPs debate in the World Trade Organization (WTO). Some efforts have also been made at the regional level, such as the Model Law proposed by the Organisation of African Unity (OAU). None of these efforts have so far led to any explicit or concrete measures for the protection of IK. Unlike the WTO, which is binding on all member states, declarations and agreements on IK are not binding on national governments and are therefore unenforceable.

Model law on Folklore

In 1981-82 one of the earliest attempts was made for the protection of IK when the WIPO and the UNESCO adopted a model law on folklore. But like most subsequent efforts, no binding framework was put in place for its implementation, so the law remained on paper.

FAO and Farmers' Rights

In 1989, recognising the IK of farming and indigenous communities in agriculture, the FAO Commission adopted the International Undertaking on Plant Genetic Resources (IUPGR), which introduced the concept of Farmers' Rights. This led to the adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR) in November 2001. The ITPGR recognises the contributions that farming and local communities have made (and will continue to make) for the conservation and development of plant genetic resources, which constitute the basis of food and agriculture production throughout the world. It also provides for protection and promotion of Farmers' Rights, which are largely assigned to national governments to define and implement as they see fit.

Farmers' Rights includes:

- The right to save, exchange and sell farm-saved seeds;
- Protection of indigenous knowledge relevant to PGRFA (Plant Genetic Resources for Food and Agriculture);
- Right to equitably participate in sharing benefits arising from utilisation of PGRFA; and
- Right to participate in making decisions, at national level, on matters related to the conservation and sustainable use of PGRFA.

The ITPGR establishes a Multilateral System of Access and Benefit-Sharing (MLS) to facilitate collection and exchange of plant genetic resources. Access to material in the MLS is to be provided under terms specified in a standard material transfer agreement (MTA). The terms of the MTA are to be agreed to by the ITPGR Governing Body and will bind recipients to benefit-sharing arrangements in particular defined circumstances.

CBD and IK

The Convention on Biological diversity (1992) recognizes the sovereign rights of nations over their biodiversity and the rights of local communities who have conserved these resources and who have knowledge of their properties. The objectives of this Convention are:

- the conservation of biological diversity;
- the sustainable use of its components; and
- the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Article 8(j) of the CBD requires parties to "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 utilisation of such knowledge, innovations and practices."

Article 15 of the CBD lays down provisions for the access of genetic resources, according to which access is subject to Prior Informed Consent (PIC) from the donor State on Mutually Agreed Terms (MAT) between donor and recipient. It also requires parties to take legislative, administrative or policy measures with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilisation of genetic resources with the party providing such resources. Such sharing shall be upon mutually agreed terms.

Bonn Guidelines of the CBD on Access and Benefit-sharing

The sixth meeting of the Conference of Parties to the CBD in April 2002 (COP 6) deliberated on the interpretation of Article 15, and arrived at Decision VI/24. This decision brought forth the "Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization". One of the stated objectives of the Guidelines is to contribute to the development of mechanisms and access and benefit-sharing regimes that recognise the protection of indigenous knowledge, innovations and practices of indigenous and local communities.

WIPO and IK

The WIPO has sent out Fact-Finding Missions to interact with indigenous people in many parts of the world. The aim is to understand their perception about IK and about its protection. No definite proposals have been made by WIPO yet about IK protection, but their approach seems to be to adopt existing tools of IPR protection for the protection of IK. This approach has been widely criticised by civil society groups.

Other Efforts

Some other initiatives towards preparing a framework for the protection of IK include those by the Crucible Group and by Gene Campaign which has proposed Convention of Farmers and Breeders (CoFaB*),* to protect the rights of farming communities in *sui generis* legislation protecting plant varieties.

Limitations of International Instuments

The Bonn Guidelines are purely voluntary and do not impose any obligation on member states to comply with the suggestions made.

The CBD and the ITPGR while legally binding do not succeed in enforcing the provisions internationally. It is left for nation states to implement provisions like farmers' rights and recognise the contribution of IK. At best they could be considered examples of best practices, but they fall far short of an implementable regime. These instruments, like other international instruments, lack the teeth for implementation. It is only the WTO, with its Dispute Settlement Mechanism, that has the teeth to force nations to comply with its provisions. Apart from this, the clout of the CBD and ITPGR is considerably eroded because the US, which is not a signatory, continues to act from the outside. It allows large-scale biopiracy through its patent offices and thwarts all attempts to recognise IK.

Because the WTO is the only binding international instrument, developing countries are seeking an amendment in TRIPs to include the principles of CBD and ITPGR and thus make the protection of IK enforceable. Developing countries like India, Brazil, China, Cuba, Dominican Republic, Ecuador, Pakistan, Thailand, Venezuela, Zambia,

and Zimbabwe have jointly communicated to the TRIPS Council for the inclusion of the following in the TRIPS Agreement:

That an applicant for a patent relating to biological materials or IK, shall provide, as a condition to acquiring patent rights:

- disclosure of the source and country of origin of the biological resources and of the IK used in the invention;
- evidence of prior informed consent through approval of authorities under the relevant national regimes; and
- evidence of fair and equitable benefit sharing under the national regime of the country of origin.

However, due to opposition from developed countries, particularly the US, no action has been taken on this proposal.

The international instruments regarding protection of IK are ineffective for a variety of other reasons, for instnace:

- The focus is by and large on providing 'access' to bioresources in developing countries to agencies interested in commercial exploitation, rather than on protecting IK;
- Although the issue of 'benefit sharing' is raised, it remains a recommendation (Bonn Guidelines);
- Even when there are elements that could provide protection to IK, these are not internationally binding. Implementation is left to the discretion of national governments.
- Not one of the instruments has the force for compliance like the WTO;
- There is no effective dispute settlement mechanism under the CBD and ITPGR to tackle non-compliance;
- There are no provisions in any international instrument that explicitly provides protection for IK;
- Determined opposition by the developed countries, mainly the US, to reconcile TRIPS with CBD/ITPGR principles has ensured that IK remains unprotected.

The Indian Situation

Constitutional provisions

The *Constitution of India* has not directly addressed the issue of protection of IK. However, it grants the Fundamental Right to protect the culture of minorities vide Article 29, which makes it possible to protect certain aspects of IK of the distinct groups in India. However, no framework exists for this protection. Furthermore, considering the special cultural identity of the tribal population in India, the Constitution envisages special protection of these communities. The area where there are only tribal communities, as per Article 371 read with the Schedule 6 of the Constitution, habitats are permitted to have separate Autonomous Councils for self governance in accordance with their customary laws. The normal laws of the land are applicable only if accepted by the community. These Councils enjoy wide powers, even to make laws to protect their social customs. Where tribal communities are in pockets, as per Schedule 5 of the Constitution, the government has the power to create scheduled areas to protect the interests of the tribes. The head of the State can prohibit the application of normal laws if they are in conflict with tribal customs in the scheduled areas.

National Legislation

In accordance with its international commitments, India has enacted four new legislation related to bioresources and IK:

- *Geographical Indications of Goods (Registration and Protection) Act, 1999*: This may help in providing (limited) protection to some forms/aspects of IK such as that involved in Basmati rice or Darjeeling tea. At present, international recognition of GI products is limited by the WTO itself, which accords this form of protection exclusively to wines and spirits but not other products.

- *The Protection of Plant Varieties and Farmers' Rights Act, 2001*: This law grants Breeders and Farmers' rights and incorporates principles of the CBD and ITPGR. The Act incorporates Prior Informed Consent (PIC) and a mechanism for benefit sharing. It recognizes the IK of farming communities by providing IP protection for plant varieties developed by farmers, The Act however, applies only to IK of crop varieties and does not cover IK of other forms of biodiversity. There are other deficiencies, such as no penal provision for the violation of Farmers' Rights, or ambiguous provisions with respect to registration of farmers' varieties.

- *The Patent (Amendment) Act, 2002*: The amendment in the patent law through The Patents (Amendment) Act, 2002 does not recognize as invention that which in effect, is IK or which is an aggregation or duplication of

known properties of traditionally known component(s). However, this is only a defensive measure to check biopiracy, and does not grant IPR protection to IK *per se*.

- *The Biological Diversity Act, 2002*: This Act attempts to incorporate some of the CBD principles. It aims to promote the conservation and sustainable use of biological resources and the equitable sharing of the benefits arising out of their exploitation. However, the Act does not expressly reiterate the sovereign rights of the state (India) over its bioresources nor does it expressly vest ownership rights in communities over bioresources and associated IK. The Biodiversity Act, which is a poorly framed law, aims to check biopiracy and provides a benefit-sharing mechanism. There is no express protection granted to IK.

There are other laws, such as the Forest Act, 1927 and the Wildlife Protection Act, 1972 which have some provisions that respect and recognise customary practices of tribal communities, and have a limited bearing on the protection of IK.

Non-legislative Efforts

- *Documentation of IK*: Documentation of IK and biodiversity has been undertaken by a variety of agencies including NGOs (Sristi, Gene Campaign, Beej Bachao Andolan), State governments (Kerala), *Panchayats* (local self governments) (Tamil Nadu), academic institutions (the community biodiversity registers organised by the Indian Institute of Science).

  At the national level, a *Traditional Knowledge Digital Library* (TKDL) is being compiled. The aim is to record the IK of healing known in the three principal systems of indigenous medicine i.e. *Ayurveda, Unani* and *Siddha*. This is being done to try to prevent the granting of patents on products derived from existing knowledge, by establishing 'prior art'of the supposed invention. The major shortcoming of the TKDL is that it deals only with the already documented systems of *Ayurveda, Unani* and *Siddha* but does not include the vast body of knowledge contained in folk medicine, leaving it vulnerable to misappropriation.

  There has been concern that documentation of IK could end up facilitating biopiracy by making available valuable information which is not protected under any legal regime.

  A review and analysis of such documentation efforts is needed to understand their purpose and scope, the methods used, their strengths and weaknesses and what features, if any, might contribute to protecting IK.

- *Other measures*: India's efforts for the protection and promotion of IK are also reflected in the some measures undertaken by the Government of India (GOI) in the recent past:
  - Establishing Department of *Indian Systems of Medicines* (ISM) under the Ministry of Health and Family Welfare to promote the commercialisation of IK. Whereas commercialization may promote the use of IK, it cannot provide protection to IK. In fact, in the absence of an adequate regime to protect IK, commercialization would work against the interests of indigenous and local communities.
  - The *Jai Vigyan Campaign*, sponsored by the Ministry of Science and Technology has emphasized the importance of IK in the field of medicine. The focus is to promote use and research on IK-based medicines.
  - The recently launched nation-wide *Haryali programme* by the GOI focuses on indigenous systems of water harvesting.

The communiqué from an International Seminar on Systems for the Protection of Traditional Knowledge, organized in 2002, by the GOI in association with the UNCTAD, says with respect to protecting indigenous knowledge, that:

1. given the serious and irreversible loss to biodiversity at the global level, there is a need for creating and strengthening systems for protecting biodiversity and associated traditional knowledge, innovations and practices, and
2. there is a need to understand the viability of various instruments including national *sui generis* systems of protection and their recognition at the international level.

Since then, UNCTAD's focus seems to have shifted more to commercialization than protection of IK. A greater emphasis on commercialization is likely to favor business interests at the cost of the interests of the community, in the absence of an effective legal protection regime for IK.

Parallel to the GOI-UNCTAD seminar, a civil society consultation was organized by Gene Campaign. The recommendations from this consultation, highlighted some basic issues for protecting IK, like:

- The commercial use of IK should be handled under the same terms and conditions as other technologies.
- To conserve and protect IK, it is crucial to accord it prestige and value.
- Local communities should be involved in policy formulation and decisions on IK
- The youth must be involved and given a stake in the conservation and use of IK.
- National legislation is needed specifically to protect IK. This should be accompanied by negotiations at the international level for an international agreement to protect IK and the rights of local communities.