
PROTECTION OF INDIGENOUS KNOWLEDGE OF BIODIVERSITY

**REPORT OF THE PROJECT LAUNCH MEETING
AUGUST 2004**



J 235/A, Lane W 15 C, Sainik Farms, New Delhi 110 062
Ph: +91-11-2657248 / 26856841; Fax: +91-11-26965961
E-mail: genecamp@vsnl.com; Website: www.genecampaign.org



CONTENTS

List of Abbreviations	4
Executive Summary	6
Proceeding Report	14
Annex. I - Programme of the Project Launch Meeting	49
Annex. II- List of Participants	50



Protection of Indigenous Knowledge of Biodiversity in India is a two-year research project funded by the International Development Research Centre (IDRC) and implemented by Gene Campaign adhering to multi-stakeholder dialogue process. For more information on the project please visit www.genecampaign.org or write to genecamp@vsnl.com.

A Project Launch Meeting was convened in July 2004 where almost all the leading exponents in India on the subject presented their views. The views expressed touched the basic conceptual framework vis-à-vis protection of indigenous knowledge, which in turn would provide direction to future debate and dialogue as well as the research study.

Ujjwal Kumar, Indrani Bapujai, Nishi Srivastava and Rajnarayan Vankar of Gene Campaign have prepared this proceeding report to induce further debate and discussion on the issue. Errors, if any, in reporting are those of the authors.



LIST OF ABBREVIATIONS

AICPRE	All India Coordinated Project on Ethnobotany
AP	Aumachal Pradesh
AVP	Arya Vaidya Pharmacy
BDA	Biological Diversity Act
BMC	Biodiversity Management Committee
CAM	Complementary and Alternative Medicine
CBD	Convention on Biological Diversity
CES	Centre for Ecological Sciences
CIDA	Canadian International Development Agency
CoFaB	Convention on Farmers and Breeders
CSDS	Centre for the Study of Developing Societies
CSIR	Council of Scientific and Industrial Research
DBT	Department of Biotechnology
DRAG	Development Research & Action Group
EC	Executive Committee
ELDF	Enviro-Legal Defence Firm
FAO	Food and Agriculture Organisation
FRLHT	Foundation for Revitalization of Local Health Traditions
GB	Governing Body
GI	Geographical Indication
IARI	Indian Agriculture Research Institute
ICAR	Indian Council of Agricultural Research
IDRC	International Development Research Centre
IDRC-SARO	International Development Research Centre - South Asia Regional Office
IGC	Inter Governmental Committee
IGNCA	Indira Gandhi National Centre for Arts
IIM	Indian Institute of Management
IISc	Indian Institute of Science
IIT	Indian Institute of Technology
IK	Indigenous Knowledge
ILO	International Labour Organisation



IPRs	Intellectual Property Rights
ITPGR	International Treaty on Plant Genetic Resources
LHT	Local Health Traditions
MAPPA	Medicinal and Aromatic Plants Programme in Asia
MoA	Memorandum of Association
NBA	National Biodiversity Authority
NBRI	National Botanical Research Institute
NE	North East
NGO	Non Governmental Organisation
NIF	National Innovation Foundation
OAU	Organisation of African Unity
PBR	People's Biodiversity Register
PESA	Provisions of the Panchayat (Extension to Scheduled Areas) Act
PIC	Prior Informed Consent
PPV-FR	Protection of Plant Variety and Farmers' Rights
R&D	Research and Development
SBBs	State Biodiversity Boards
SPLT	Substantial Patent Law Treaty
TBGRI	Tropical Botanic Garden and Research Institute
TIFAC	Technical Information, Forecasting and Assessment Council
TKDL	Traditional Knowledge Digital Library
TRIPS	Trade Related Aspects of Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UPOV	International Convention on the Protection of New Varieties of Plants
US	United States
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation



EXECUTIVE SUMMARY

Dr. Suman Sahai, Convenor, Gene Campaign

- The knowledge of the indigenous and farming communities are not only important for their subsistence and livelihood, it is also important for sustainable development paradigm.
- It is unfortunate that global community so far has not been successful in setting up a mechanism to check usurping of indigenous knowledge (IK) without paying the technology transfer fee or resorting to benefit sharing
- The Project titled "Protection of IK of Biodiversity in India" is a two-year research project funded by the International Development Research Centre (IDRC). It has three objectives:
 - a. To review existing documentation of IK of biodiversity in South Asia and customary laws and practices in India, in order to assess what protection is offered to IK of biodiversity.
 - b. To identify and examine existing international instruments and legal mechanisms in India, for the protection of IK of biodiversity.
 - c. To subsequently identify potential mechanisms for protection of IK of biodiversity at national and local levels, including IPR tools and *suu genar*s legislation.

Mr. Raghunandan Velankar, Project Manager, Gene Campaign

- Multi-stakeholder dialogue process is the key of this research project. One or more of the following methodology will be adopted for implementing this research project.
 - Research, survey, review and analysis of literature,
 - Multi stakeholder consultative process.
 - Expert consultations
 - Interviews with select people/communities
 - Field studies/ case studies
- Implementation strategy includes setting up of a Project Advisory Committee, an Expert Panel, a Multi-stakeholder Body, South Asia Committee and the Core Group (comprising of the Project Leader, Project Manager and the Research Team)

Professor Anil Gupta, IIM Ahmedabad

- Reward, Recognition, Respect and Reciprocity (4Rs) constitute the very basic of society's relationship with the IK system.
- Traditional healing system has proved its efficacy in the modern health system, 74% of plant derived human drugs are used for the same purpose for which natives used them in their indigenous healing system.
- There are three knowledge domains with respect to IK - private (or proprietary), community and public. Ethno-botanists have been recording IK and have been



responsible for taking IK from private and community domain and putting them in the public domain.

- There exists an asymmetry amongst the community members with respect to having knowledge and practicing such knowledge. The question arise as to on what basis should the asymmetry be recognised and what are the instruments of such recognition.
- Based on the matrix of knowledge and practice, there can be four kinds of incentives, which are: *Material-Individual* (which may be in the form of money, reward, compensation, royalty, equipment, IPRs); *Material-Collective*(which may be through the creation of venture funds, trust funds, insurance funds and the like e.g. Kari tribe case); *Non-material-Individual* (for example public recognition); *Non-material-Collective*(for instance, a chapter in a book recognizing the contribution of an indigenous community)
- Prior Informed Consent (PIC) is must and it should be strictly according to the conditions imposed by the community. "Disclosure requirements" should be made mandatory. There should be a modification of the relevant provisions of the Patents (Amendment) Act, 2002, which accords no compensation to the IK holder. There should be a National Registry of Innovations and Inventions on IK and giving communities their rightful due. Article 24.2 of TRIPS that provides for the setting up of an International Registry of Geographical Indication for Wines and Spirit, could be extended to IK.
- Sensitising young generation of the indigenous communities to take interest in IK system is necessary.

Mr. Darshan Shankar, Director, FRLHT, Bangalore

- National debate regarding protection of IK is largely looking at certain aspects of *products* of indigenous creativity and innovations but is not sufficiently addressing the *conditions* under which this kind of creativity comes about.
- As far as indigenous medicinal knowledge is concerned, it can be divided into two broad categories - Folk traditions and Codified traditions. Folk traditions are ecosystem specific and community specific, which are largely of (but not limited to) tribal communities. Codified system is constituted of *Ayurveda, Unani, Siddha* and *Suwikqa* (the Tibetan tradition). While folk traditions are in private and community domains, codified system is in the public domain.
- In terms of carriers of knowledge, there are around 500,000 licensed medical practitioners in the codified tradition as per the Registry of Ministry of Health. In folk tradition, there are around 100 million knowledgeable households and about 1 million specialized carriers like bonesetters, midwives (birth attendant), healers of snakebites etc. As far as transmission system of IK is concerned, in the folk tradition it is oral and non-institutional yet a very efficient and remarkable system. In the codified system, the traditional transmission system has been subjugated by law to purely institutional form of transmission system.
- The prevailing view that IK is static and does not really evolve is wrong. In order to understand the evolving nature of the *codified* system, we need to understand the three levels of the system viz., *tatus* (principles), *shastra* (science/treatise) and *vyuthar* (application/usage). *Vyuthar* has to change according to change in the life style of people in order to remain practical. *Shastra* does undergo some change, but not so rapidly. *Tatus* do not really need to change, because they are so

profound. In oral tradition it is based purely on *uyutha* and is largely empirical, and it is changing.

- IK is not patentable in its own light. If there is an innovation done by an IK holder, in terms of its own knowledge systems, it cannot be protected under patent system. The patent system understands the language of only one knowledge system, which is modern/western science. It is a monoculture ruled patent regime in which one will need to describe one's innovation in that language only.
- Although short-term measures of protection such as TKDL (Traditional Knowledge Digital Library) are needed to prevent petty theft of IK, prevention of more sophisticated kinds of thefts are still not being addressed. What may be 'novel' in modern knowledge system, may be very obvious in IK system. This can be understood from the case of *Phytolacca anans* (*Bhuri Amulq*), a plant well known in the IK system for the treatment of jaundice (*kantq*). A modern researcher, who is also a Nobel prize-winner, claims (and obtains patent) that this plant is effective in the treatment of viral hepatitis B and C. Therefore, one cannot easily decide on non-obviousness or novelty, particularly when the claim is based on IK without having inter-cultural approach to looking into the very nature of the novelty.

Dr. Yogesh Gokhale, CES, IISc, Bangalore

- The Biological Diversity Act (of India), which is based on CBD (Convention on Biological Diversity) establishes National Biodiversity Authority (NBA) which is located in Chennai. BDA also talks about State Biodiversity Boards (SBBs) in all states. At local level, BDA provides setting up of Biodiversity Management Committees (BMCs).
- BMCs are required to prepare People's Biodiversity Registers (PBRs) in consultation with local people. The PBRs contain information on availability of and knowledge on local biodiversity.
- The Consent of local people over access to the documented information is encouraged. Under BDA there is a provision for repository of knowledge. As IISc. is closely working with National Innovative Foundation (NIF), the later can be a knowledge repository institution where knowledge gathered under PBRs could be stored.
- New legislation to protect confidential information/ knowledge contained in the PBRs is required, as there is no existing legal mechanism in India for this purpose.

Dr. Madhav Karki, Regional Programme Co-ordinator, MAPPA, IDRC-SARO

- Existing IPR regimes/tools are inadequate in providing protection to IK, as most IK are pre-legal in origin and they are overlapping with social, political and cultural settings. That is why we may need to think of a different kind of regime to protect IK.
- The project should answer questions like "can claims for IPR on IK lead to larger issue of biodiversity conservation" and "does the social use of IK question the relevance of IPR".
- It is to be recognised that there is a loss of bioresources, which disrupts the social and ecological context of generating and maintaining IK. So first of all, we will have to protect the whole biodiversity.



Dr. P. Pushpangadan, Director, NBRI, Lucknow

- IK can be defined as “community-based functional knowledge developed, preserved, maintained and incrementally improved over many generations by the innovative members of the local and indigenous communities through their continuous interaction, observations and experimentation with their surrounding environment”.
- In India there is a tribal population of over 70 million belonging to over 550 communities and inhabiting in 5000 villages located in and around forests regions of the country. These people use around 10000 plant species – approximately 8000 species are used for medicinal purpose; 325 are used as pesticides; 425 as gums, resins and dyes; 550 as fibres; 3500 are edible; and there are 1000 other uses of such plant species.
- Appropriation of IK has been taking place since time immemorial. *Ayurveda* also appropriated knowledge of the people and has validated, rationalized and codified it. But *Ayurveda* was not a case of monopolization, the kind of monopolization of knowledge that is coming from the West.
- He further narrated the whole Kani experience of benefit sharing.

Mr. Raghav Saha, Director, TIFAC

- There is lots of confusion prevailing on IK issues. For instance, World Intellectual Property Organisation (WIPO) has been talking about protection of IK for the last 5 years, and even has set up a committee in this regard, but confusion still persists in the Committee's meetings.
- At international level, any effort towards legislating for the protection of IK meets with fierce opposition from developed countries. Developed countries do not want to develop a consensus on developing a legislation to protect IK.
- Documentation is important, but *per se* it is not an answer to protect IK. Documentation only generates a proof that this knowledge existed before. How do we prohibit the people from using the knowledge without paying any benefits to IK holders, is an important question. The other question is should the government be the sole owner of this documented literature or data. Who should own the huge amount of the collected information – government or some civil society organisation or some other constituents of the country?
- We need to give enough attention to the vigilance - what are the herbal drugs/products around which patents have been filed or are being filed else where in the world (US, Europe, Japan etc.)? We are still not clear as to how we can keep this kind of vigilance.
- We are still not clear on implementation aspect of certain concepts that are emerging. Preparing an action plan for protecting IK is necessary. For instance, the Protection of Plant Varieties and Farmers' Rights Act (PPV-FR Act) provides for registration of farmers' varieties (that farmers have developed) and extant varieties. However, even two years after the enactment of the law, no step has been taken to develop an action plan as to how these farmers' varieties can be registered.
- Do we need a *suu gratis* legislation independently/separately or otherwise? Nine to ten years have passed in discussing *suu gratis* protection for IK, but we are still



not clear as to what it should be like. Other countries' experiences are also not very encouraging.

- The protection of IK has to be looked at in a holistic manner. There are many dimensions to it, which have to run parallel.

Dr. G. G. Ganagadharan, Joint Director, FRLHT

- *Ishaaya* Upanishad reflects the Indian perspective of knowledge sharing i.e. "Everything in universe is owned by the super-consciousness and it has to be shared by everyone in a sense of equanimity". Any single person hence cannot own the knowledge. It has to be shared by everybody. The community system had in-built mechanisms whereby knowledge and resources were shared amongst themselves. However, in this modern era there is a thrust towards privatisation of knowledge and resources. It is up to us how we make compromises between the two perspectives.
- As far as Ayurvedic industry is concerned, today it is in a very primitive stage of development. Out of the Rs.5000 crore (Rs.50,00,00,00,000) turnover that this industry made last year, 80% has gone to the ordinary and superficial products of *ayurveda* which can be categorized as cosmetics, or at the most cosmoceuticals. Only 20% are sticking to the IK system, and they are the ones who are actually keeping this science floating. At present the knowledge base is not a very relevant factor for the industry, because they do not use the knowledge base at all, they are all limited to the product part of the science. One of the biggest threats that this industry is facing is that their R&D is not based on indigenous scientific background/ principles. There is no agenda in their programme as to how they will develop this science further.
- While efforts made earlier (during medieval period) contributed in enhancing (indigenous) science, making innovations on the basis of the basic principles of the science; the modern day efforts are, unfortunately, not improving the indigenous science. On the contrary it tends to deviate from original principles, in order to complement the modern medical science.
- In order to protect IPR enshrined in an IK under the framework of modern patent regime, the IK has to go through an entire conversion to a modern paradigm of knowledge. If we have to protect any IPR in the IK system, we have to first make a legitimate case for this knowledge system. So far we have been talking only in the product terms and not in terms of the science of the IK system. Whether we can work in terms of indigenous scientific background is, however, a big question. In order to protect IPR in the IK system we have to recognize this science. Only then IPR becomes meaningful for this system, otherwise there will always be illegitimate acquisition of knowledge from a politically inferior science to a politically superior science. China has already gone in a wrong direction, and alarmingly we are looking at China as a model. A suitable model for India would have to emerge so that we can get a *longterm* benefit out of it.

Dr. Veena Jha, Programme Co-ordinator, UNCTAD, India

- Equity and fairness demands the sharing of benefits with the community and is the starting premise for devising any system of protection of IK in the international context. Since IK is incremental knowledge, those who refine this



knowledge and those who are holders of this knowledge should be treated as natural custodians of this knowledge.

- The rationale that has been advanced for the protection of IK in the trade negotiations is based on two arguments:
 - Novelty is very difficult to prove in an IK system. Therefore the mechanism to protect IK cannot be the traditional patent system. It also cannot be protected under any of the existing IPR forms of protection without adapting it further.
 - It is widely acknowledged, including in the Millennium Development Goals framework, that IK holders are socially and economically disadvantaged to such an extent that they are unable to utilize their resources. Therefore the argument of equity is further strengthened. This means that space has to be provided within existing bodies of IPR laws for these disadvantaged groups.
- UNCTAD has evolved some of the elements of a *si gratis* system for the protection of IK, which are as follows:
 1. Collectively held rights, no individual rights
 2. Clear system of access to such rights and benefit-sharing (it may be easier to set up mechanisms to prevent misappropriation of IK, but it is very difficult to set up a mechanism for benefit-sharing)
 3. Land-resource rights have to be vested in communities; it should not be vested in individuals. There is a great need for clarification of land-resource rights of IK holders. Measures of vesting land-resource rights with communities will have to be thought out very carefully, because in most cases land is the sovereign property of the government. Most of the plant genetic resources reside in the areas, which are the sovereign property of the government.
 4. Representation from different levels of community should be done for their involvement, as wide participation and consultation is very difficult to actualise.
 5. Creation of effective incentives for research. Incremental knowledge is very important, but today this is being discouraged.

Mr. Ujjwal Kumar, Policy Analyst, Gene Campaign

- It is necessary to be very clear on the meaning of the word 'protection' in the context of protection of IK, because for different meanings, the nature and scope of legal provisions may be different. Categorisation of protection of IK can be done into *four modes*
- The word 'protection' in the context has two types of meaning. The first meaning is straightforward i.e. protecting IK from getting lost, extinct or destroyed. This can be *direct (Mode 1)*, for instance, documenting IK before a person holding such knowledge dies without passing it to the next generation. Protection of IK can also be *indirect (Mode 2)*. For instance, by conservation and sustainable use of a plant, we indirectly protect IK.
- The second set of meanings of 'protection' is in the context of IPRs, which in turn has two connotations. First, it can mean as *defensive measure against misappropriation of IK (Mode 3)*, for example measures protecting IK from getting pirated. Measures like disclosure requirements, prior informed consent can come under this type of protection. The second meaning in the context of IPRs is the *positive protection* to the intellectual property enshrined in a piece of IK (**Mode 4**).



This means granting exclusive/ownership rights over IK and protecting the intellectual property of the community that holds such knowledge. This would bring IK at par with the knowledge/technology created in scientific laboratories, which are protected through IPR tools like patents or plant breeders' rights. Registration of farmers' variety of crops under the Protection of Plant Varieties and Farmers' Rights Act of India, is a good example of Mode 4 protection of IK. The concept of protecting Geographical Indications of a product can also be cited as an example here.

- The research project would analyse and examine the following international instruments and efforts:
 - ♣ The UN Convention on Biological Diversity (along with the Bonn Guidelines on Access and Benefit Sharing)
 - ♣ The FAO International Treaty on Plant Genetic Resources
 - ♣ The WTO Agreement on Trade Related Aspects of Intellectual Property Rights
 - ♣ The initiatives undertaken at WIPO (particularly, the *Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore* and the *WIPO Patent Agency*)
 - ♣ Model Legislation drafted under the auspices of the Organisation of African Unity
 - ♣ Convention for Farmers and Breeders (drafted by Gene Campaign)
 - ♣ The research outputs of the Crucible Group

Mrs. L. Balasubramaniam, IPR Lawyer, Corporate Law Group

- The mechanisms to protect IK could be: by keeping it secret (trade secret) – like what some *vidyās* (local healers) are doing; or by linking it with existing IPR legislation and modifying these IPR laws to provide these linkages; or through a *si gress* system.
- According to the *Biological Diversity Act*, non-Indian citizens or non-resident Indians or a corporate body not registered in India cannot use biological material originated from India for any *research* or commercial activity without prior permission of National Biodiversity Authority (NBA), set up under the Act. The Act also prohibits transfer of results of research (except for the existing collaborative research project) related to such biological material or associated IK to non-citizens of India, without prior approval of NBA. These provisions are to get control over expropriation and exploitation of bioresources and IK.
- Any person who is seeking protection of IPR generated out of bioresources or IK has to take prior permission of the NBA, before s/he can even file for such protection. This provision applies not only to non-Indians but to Indians also.
- The PPV-FR Act acknowledges farmers as conservers, cultivators, preservers, developers and breeders. The Act allows farmers to protect their varieties through a simplified procedure. Most importantly, the Act insists on registering ancestry of material used to develop any new or essentially derived varieties. In other words, the relevant information (such as passport data of the genetic material, source of the materials, whether prior consent has been taken etc.) have to be disclosed in the application claiming protection for the invention.
- The *Patent Act*, as amended in 2002, incorporates exceptions to patentable subject matter to take care of ethical and other related issues. It, among other things, excludes from patentability the inventions derived from IK.



- Under the Indian Patent Act *complete disclosure* is mandatory. Non-disclosure or incorrect disclosure is one of the grounds for opposition and/or revocation of patents.
- According to the Patent Act, the knowledge available (oral or otherwise) within local/indigenous communities is considered to be anticipated and hence not patentable.

Dr. B.D. Sharma, Bharat Jan Andolan

- In English language there is no exact words for *parampara* and *rochi*. Tradition in the form of *parampara* is like the flowing water, the irrelevant elements are discarded and new elements are incorporated. In contrast, *rochi*, which is also taken as equivalent of tradition, is like a closed pool of water which can become a cesspool. Therefore all English-thinking people seem to put tradition, interpreting it as *rochi*, in the backyard to adhere to what is called modern, which may be totally devoid or divorced from the living tradition (*parampara*) of people.
- After the coming of the British, the process of change has been forced from above. The processes of change within the community, which is as natural as life itself, are not even recognised. The biggest tragedy after the advent of the British was that they excluded community from the entire legal frame of India.
- Tradition and community are inseparable - if there is no tradition there is no community. The irony in our country is that people are totally unaware of the legal system of the country, which is meant to govern them. And the legal system, in general, does not recognise the traditions and customs of people. The two (tradition and the modern legal system), therefore, operates on two different planes which do not intersect.
- The rural India remained enslaved even after the independence of the country, while tribal India was enslaved after adoption of the constitution, as the British were never able to conquer the tribal areas. Fortunately, however, there has been some retrieval in 1996, when a new Constitutional provision was added. According to the provision, the whole definition of village, the village assembly, the community etc. are all community-centred. Communities and their traditions of the tribal areas are now a part of the Constitutional frame and are at the centre of governance at that level. Unfortunately, the entire political system, including the bureaucracy, has not got reconciled to this provision.
- Law made with top-down approach is the biggest enemy of the poor. Laws will have to be made keeping communities in the centre. Presumptions are to be made in favour of the communities rather than the capitalists, scientists, administrators and so on.
- Given the fact that communities are facing crisis, the question is how much we are able to retrieve their traditions, in general and their IK in particular. Taking up everything all at once in the name of 'indivisible whole' may not be possible, but the issue of the protection of IK should be considered in light of the total picture. The relationship of IK with the totality is crucial for this research, particularly when it comes to framing a legal model for the protection of IK.



Project Launch Meeting
PROTECTION OF INDIGENOUS KNOWLEDGE OF BIODIVERSITY
7 July 2004, New Delhi

REPORT

Session I

Speaker	Topic
Dr. Suman Sahai, Convenor, Gene Campaign, New Delhi	Introduction to the project ' Protection of IK of Biodiversity
Mr. Raghunandan Velankar, Project Manager, Gene Campaign	Approach, methodology and working out the project
Prof. Anil Gupta, IIM, Ahmedabad	Protection of IK: Present Scenario and Suggestions for the research.
Dr. Amrit Srinivasan, IIT, Delhi	Chair
Open Discussion	

Dr. Suman Sahai deliberated on the need for the protection of Indigenous Knowledge (IK) of Biodiversity and highlighted the gravity of the problem that IK system faces. She was particularly disappointed with the global community, which is usurping IK without paying the technology transfer fee or resorting to benefit sharing. In this background she weighed the importance of the project.

Dr. Sahai further illustrated the objectives of the project, which are:

- A. To review existing documentation of IK of biodiversity in South Asia and customary laws and practices in India, in order to assess what protection is offered to IK of biodiversity.
- B. To identify and examine existing international instruments and legal mechanisms in India, for the protection of IK of biodiversity.
- C. To subsequently identify potential mechanisms for protection of IK of biodiversity at national and local levels, including IPR tools and *su gratis* legislation.

Mr. Raghunandan Velankar briefed on the approach and methodology adopted for implementing this research project. One or more of the following methodologies will be adopted depending on the particular research question:

- Research, survey, review and analysis of literature,
- Multi stakeholder consultative process.
- Expert consultations
- Interviews with select people/communities
- Field studies/ case studies

Mr. Velankar also elucidated on the implementation strategy and the expected project output. He informed the gathering about the setting up of the Project Advisory Committee, Expert Panel, Multi-stakeholder Body, South Asia Committee and the Core Group. He sought from the participants periodic inputs/ leads for research, leads/ contacts on documentation in South Asia on an urgent basis, critical comments on project output so as to facilitate wider dissemination.



Prof. Anil Gupta began with questions like “Why are the local communities who are rich in knowledge economically poor?” “How is it possible that the rights of local communities over their knowledge are taken away without any reciprocity, reward, recognition and respect?” According to him the 4Rs - Reward, Recognition, Respect and Reciprocity - constitute the very basic elements of our (society’s) relationships with the informal knowledge systems.

In his opinion, there are three dimensions of IK based on biodiversity, which it is necessary to understand in order to grant rights over such knowledge base. The first dimension is in the context of putting IK in public domain without the consent of the community. There are three knowledge domains - private or proprietary, community and public. Over the years ethno-botanists and other scholars have been visiting indigenous communities in order to record their IK. These scholars have been publishing their findings (as authors, without any recognition of contribution from the communities) thereby taking away IK from the private and community domain and putting it in the public domain. They have been doing this without any consent from such communities. So, historically, the first usurpation of rights over IK happened when knowledge was brought into public domain (by way of publishing the research findings) without the consent and involvement of the people whose knowledge it was.

However, there is a paradox. Had indigenous communities been asked for their consent to publish their knowledge base, they would not have refused it (at least 90% of them). This is because a large number of these people are guided by superior ethics and are generous enough to freely share their knowledge. It is this spirit of generosity, which has unfortunately led to their exploitation, and the usurpation of their knowledge. Over the years, fortunately, consensus is emerging among the people all over the globe that this is grossly unfair to the community.

Second dimension is that there exists an asymmetry amongst the community members with respect to having knowledge and practicing such knowledge. This asymmetry lies not only in the amount of knowledge that each individual in a community has, but also in its practice. Not everyone practices with equal expertise and rigour. In every community, there are specialists or experts who are the only ones having the expertise to put the knowledge into practice. This is especially pertinent in the context of healing knowledge. An issue arises here, i.e. whether this asymmetry should exist in the rights of individuals over IK? The community’s contribution to the evolution of such knowledge, its refinement over time and conservation of resources (biodiversity) cannot be ignored. The community has been contributing in maintaining the background condition necessary for the IK to flourish and evolve. However, we must recognise that theoretically there is a case for asymmetry in the knowledge itself and rights on this knowledge amongst individuals and the community members.

Third dimension is on what basis should the asymmetry be recognised, what are the instruments of such recognition. Based on the matrix of knowledge and practice, Prof. Gupta suggests four kinds of incentives, which are:

1. Material-Individual which may be in the form of money, reward, compensation, royalty, equipment, IPRs (which can be licensed) etc.
2. Material-Collective which may be through the creation of venture funds, trust funds, insurance funds and the like (e.g. Kani tribe case).



3. Non-material-Individual for example public recognition.
4. Non-material-Collective, for instance, a chapter in a book recognizing the contribution of an indigenous people.

Lastly, Prof. Gupta made the following law/policy suggestions for the protection of IK:

- (1) Emphasis on Prior Informed Consent (PIC), which apart from ensuring fairness, should be strictly according to the conditions imposed by the community. PIC is a form of contract between knowledge provider and knowledge receiver and is enforceable in a court of law. (for more information visit www.nifindia.org)
- (2) Modification of the relevant provisions of the Patents (Amendment) Act, 2002 which accords no compensation to the IK holder. It regards all IK to be already existent in the public domain thus constituting prior art.
- (3) Setting up of a system of National Registry of Innovations and Inventions on IK, giving to the community their rightful due as well as enhancing competitiveness of small enterprises.
- (4) Article 24.2 of TRIPS that provides for the setting up of an International Registry of Geographical Indication for Wines and Spirit, could be extended to IK as well in the form of an International Registry for Indigenous Knowledge. Geographical Indication is the only provision in TRIPS that is meant to protect IK.
- (5) Every applicant must be obliged to declare that knowledge and/or the material used in developing the claims, which are filed before the patent office, have been obtained lawfully and rightfully. For instance, PIC must be required both lawfully (CBD provisions) and rightfully (morality says so). Disclosure standards under TRIPS can be amended accordingly.
- (6) A lot of research is going on in the country and products are made (and commercialised) based on IK, but communities are not getting even a penny out of it. For instance, 75% of raw materials to the Ayurvedic industry operating in Gujarat are taken from one district i.e. Dang. Despite that the people of Dang are the poorest in the State. Companies take raw materials for Ayurveda products and do not contribute to the community and people. In India, 90% of raw materials used by herbal sector is collected from the wild, which indigenous people have conserved. Not a single penny has been paid by the industry for the conservation of biodiversity or towards the contribution of the local communities. Biodiversity is seen to be best preserved in areas untouched by civilization where tribal people lead a pre-modern existence. The attitude of trying to conserve biodiversity by keeping these people poor and marginalised is unethical. This is correct neither ethically/morally nor from the human rights perspective.
- (7) Sensitize young generation of communities to take interest in practicing/applying IK. We do not find young healers in indigenous communities. The young generation has given a no-confidence vote on indigenous healing system. This is most alarming from the perspective of the protection of IK. There are several reasons for this, for instance, weakening link between grandfathers and grandchildren, lack of incentive for the young people to seek an honourable occupation. The dilemma, however, is that often traditional healers do not ask for money for their services. Prof. Gupta, agrees that his inclination is to make the minds of indigenous people capitalistic. To him nothing comes free to them. They have to pay for their food, their clothes, on education etc. And they have virtually nothing to sell. The only thing they are rich in is their knowledge, which should be made use of to earn their livelihood. If they are not compensated for the use of their knowledge, then how will they be able to earn their livelihood? He requested all participants to make use of this project in order to



make IK work in the benefit of the local community.

Prof. Gupta concluded by appreciating the efforts of Gene Campaign through this project and otherwise, to establish the rights of communities over their knowledge base. He appreciated progressive efforts like the creation of Gene Fund under the Protection of Plant Varieties and Farmers' Rights Act as well as protection of intellectual property of farmers in developing crop varieties. He also appreciated the provision in the National Health Policy of 2002 that talks about protection of IK. However, to him, it is unfortunate that this policy failed to address non-documented folk medicine. He suggested including National Health Policy 2002 in the project research. Overall, he opined that we are moving in the right direction, however we need to be more vigilant and make our parliamentarians realize the importance of communities' rights over IK. This knowledge is important not only for the communities, whose livelihood depends upon them, but also for the whole of humanity.

Dr. Amit Srivastava, commenting as Chairperson, said that legality is a crucial issue but not enough. The debate has gone into moral and ethical dimensions including corporate social responsibility. Apart from moral, ethical and legal problems there are technical problems as to what is to be protected, for instance, can *ugga osans* be protected? She further insisted on the need for change in the larger cultural attitude towards these knowledge systems.

Open discussion

Mr. Arjun Dutt, Society for Citizen Concerns, offered a suggestion that past knowledge gathered all over the country by organisations like the ICAR, IARI, DBT such as gene gardens or gene banks must be put together and made fullest use of. *Dr. K.V. Surdhan*, Chairman, Bhu Vikas Foundation, added that biodiversity conservation is a very complex process and has to be related to modern education and systematically incorporated into the mainstream knowledge system.

Mr. Gautam Vora, DRAG, expressed concern over issues like disappearance of biodiversity with the expansion of civilization, erosion of IK with the younger generation's disenchantment with it. Emphasizing the link between non-civilization and maintenance of biodiversity, he mentioned about a Taluka in Raigarh District where most indigenous people have become so much part of the mainstream that most biodiversity has been lost, including some important *jari-butis* (medicinal herbs). No IK is left even with the old healers and is fast dying. He cites another example of the Gujjars of Faridabad, Haryana who used to grow only Bajra and used traditional seeds of Bajra, which was resistant to several diseases. Now, they have all taken to modern varieties for which seeds are supplied from Andhra Pradesh. These modern varieties do not thrive and flourish in the local conditions, thus contributing to their impoverishment.

Dr. P. Pushpagan, NBRI, Lucknow, clarified that till oral traditions are documented they are not in public domain and hence do not constitute prior art. As far as Traditional Knowledge Digital Library (TKDL) is concerned, the knowledge contained in it is already in the public domain since it constitutes *Ayurveda*, *Siddha* and *Unani*, which are codified. What NIF is doing is documenting all the non-codified knowledge (oral knowledge/folk tradition). This documentation is very much required as oral traditions are fast disappearing. However, this documentation should not be in the public domain.



We will have to enact certain legislation that could protect these oral traditions.

According to *Mr. Suresh Sharma*, CSDS the enormous efforts at cataloguing IK have ignored the domain of the community that mediates the relation not only between individual and the world but also, in a philosophical sense, between the individual and the cosmos. In his view, in the contemporary situation the attempt to preserve fragments of memory is a belated response. The abiding sign of life in any IK system (or any living things) can only be conceived of on the ground - in its capacity to cope with new situations and changes. In this context he referred to the thriving tradition of *Ajraiyu* smelters that made it possible for them to smelt iron according to the requirements of a suspension bridge, which they had not seen earlier.

Dr. B.D. Sharma, Bharat Jan Andolan, opined that we are facing a conflict between two systems. The modern system does not recognise indigenous systems of knowledge. It would be a contradiction if we were to protect IK through patent system. Whether the tribal people will be able to negotiate upon the modalities (modern tools of protection), which some are working upon, is a moot question. These tools can end up being their worst enemy. We should not impose upon tribal people any system that is alien to them. We will have to take into account the tribal worldview and provide legal protection to their systems or build a legal framework based on their system.

Prof. Anil Gupta responding to these observations admitted that as a believer in practical politics, it is best for one to correct it with what one is equipped to correct, though it might not be feasible to correct the whole life support system of indigenous people. Whatever inability he has in dealing with the whole life support system, he would not like to be handicapped in dealing with a part that he is capable of dealing with. On negotiation capacities of local communities, he said that while capital can hire labour, labour could also hire capital, which has happened in Amul cooperative movement. Responding to Mr. Suresh Gupta's point on archival approach of protection, Prof. Gupta said that they (NIF/Honey Bee Network) are not following this approach. He said that traditional healing system in any case has proved its efficacy in the modern health system, 74% of plant derived human drugs are used for the same purpose for which natives used them in their indigenous healing system. He clarified that he is not advocating selling of IK but only that this must be contractually used with the best ethical practice and highest degree of reciprocity between the two knowledge systems.

Session II

Speaker	Topic
Mr. Darshan Shankar, Director, FRLHT, Bangalore	Indigenous Knowledge of Biodiversity: What Needs to be Protected?
Dr. Yogesh Gokhale, CES, IISc, Bangalore	Peoples Biodiversity Register and its role in IK protection
Dr. Madhav Karki, Regional Programme Coordinator, MAPPA, IDRC, New Delhi	Discussant
Dr. Neera Burra, UNDP, New Delhi	Chair
Open Discussion	

Mr. Darshan Shankar, Director, Foundation of Revitalization of Local Health Traditions, Bangalore, began with his main concern that national debate regarding protection of IK



is largely looking at certain aspects of *products* of indigenous creativity and innovations but is not sufficiently addressing the *conditions* under which this kind of creativity comes about.

Confining his presentation to medicinal plants and associated IK, he illustrated the nature of IK that we are seeking to protect. He divided the entire indigenous medicinal knowledge system into two broad categories - Folk traditions and codified traditions. Folk traditions are ecosystem specific and community specific, which are largely of (but not limited to) tribal communities. There are 4600 ethnic communities in India and folk medicines represent knowledge of these communities. Codified system is constituted of *Ayurveda*, *Unani*, *Siddha* and *Suwikqa* (the Tibetan tradition).

As far as resource base is concerned, in folk tradition the communities use around 8000 plant species (estimate), while in codified tradition only 1800 species are mentioned. In terms of knowledge base, in folk traditions plants are used for human health, veterinary and agriculture use and around 50,000 different formulations are estimated for these uses. In codified traditions, there are around 40,000 formulations available, which according to him is a low estimate. Apart from these formulations, in the codified systems we have biological properties and documentation on the systemic effects of the plants. We also have botanical and ecological knowledge of plants in both codified and folk traditions. In terms of carriers of knowledge, there are around 500,000 licensed medical practitioners in the codified tradition as per the Registry of Ministry of Health. In folk tradition, there are around 100 million knowledgeable households and about 1 million specialized carriers like bonesetters, midwives (birth attendant), healers of snakebites etc.

As far as transmission system of IK is concerned, in the folk tradition it is oral and non-institutional yet a very efficient and remarkable system. Social scientists should study this remarkable transmission system of folk medicinal knowledge system. Prof. Mathai has done some study on this transmission system in handicraft sector. In the codified system, the traditional transmission system has been subjugated by law to purely institutional form of transmission system. There are certain advantages with it, but there are also some serious disadvantages with it. Policy makers should consider the point that while traditional transmission system has been working so efficiently for such a long period, is it necessary to confine and shackle it to only an institutional system. In the last 100 years this institutional system has reduced the quality of the codified traditional systems of medicines, it has failed to attract good students towards *Ayurveda*, *Unani* or *Siddha*

In order to understand the evolving nature of the codified system, we need to understand the three levels of the system viz., *tattva* (principles), *shastra* (science/treatise) and *vyutha* (application/usage). *Vyutha* has to change according to change in the life style of people in order to remain practical. *Tattva* do not really need to change, because they are so profound. *Shastra* does undergo some change, but not so rapidly. In the context of the evolving nature of IK, social scientists have again failed to understand its true nature. The prevailing view that IK is static and does not really evolve is wrong. No society will uphold a knowledge system in static form across centuries. In oral tradition it is based purely on *vyutha* and is largely empirical, and it is changing. There are cases where *calusa* have found a use for entirely exotic species that have come into this country from outside.



Having understood the nature of this knowledge, now we can think about the protection of this IK system. In the short term we may focus on protecting the outputs (products, process, plants etc.) of this knowledge system through laws such as Biodiversity Act or Plant Variety Protection Act or measures like TKDL. But if we have to address the protection of IK system seriously then we need to, in the long run, look at the *conditions* under which this kind of knowledge was created and which was needed for it to grow and prosper. Long term measures of protection could be establishing schools for promotion and advancement of the epistemology of the IK system or even go further in addressing the cultural requirements for this kind of epistemology to flourish.

In the context of patenting IK (if indigenous community or the IK holders are interested in IPRs, which they are not according to traditional ethics) the fact is that IK is not patentable in its own light. If there is an innovation done by an IK holder, in terms of its own knowledge systems, it cannot be protected under patent system. The patent system understands the language of only one knowledge system, which is modern/western science. It is a monoculture ruled patent regime in which one will need to describe one's innovation in that language only.

Although short-term measures of protection such as TKDL are needed to prevent petty theft of IK, there are also more complicated short-term problems, which are not being addressed. Prevention of more sophisticated kinds of thefts are still not being addressed. What may be 'novel' in modern knowledge system may be very obvious in IK system.

Mr. Shankar cited the example of the use of *Phyllanthus amarus* (*Bhuri Amud*), a plant well known in the IK system for the treatment of jaundice (*kanla*). A modern researcher, who is also a Nobel prizewinner, says this plant is effective in the treatment of viral hepatitis B and C. He claimed it to be an invention, because tradition does not know about virus (certainly not about virus B & C). In order to find out whether this really was an innovation, one needs to go into the whole issue of *kanla* and what it means and what it describes. FRLHT has done this exercise and found that there was significant amount of overlap between the symptoms described for *kanla* in the indigenous system and that described in the modern system for Hepatitis B and C. So if we approach the claim from the angle of symptoms, we can say that the plant was being used for treatment of Hepatitis B and C, without having the understanding of epistemology of the disease. To him these are problems that require inter-cultural resolution. One cannot easily decide on non-obviousness or novelty, particularly when the claim is based on IK without having inter-cultural approach to looking into the very nature of the novelty.

Dr. Yogesh Gokhale from Centre for Ecological Sciences, Indian Institute of Science began by looking at short-term measures for the protection of IK available in the present legal framework especially in Biological Diversity Act & Rules and Convention on Biological Diversity (CBD). CBD establishes sovereignty of nation states over biodiversity in their respective political boundaries. The Biodiversity Act, 2002 incorporates CBD objectives of conservation & sustainable use of biodiversity and equitable sharing of benefits arising out of utilisation of biodiversity and associated IK. The BDA establishes National Biodiversity Authority (NBA) which is located in Chennai. BDA also talks about State Biodiversity Boards (SBBs), which have been set up only by a handful of states such as Karnataka, Madhya Pradesh and Kerala. At local level, BDA provides setting up of Biodiversity Management Committees (BMCs), for which the process would be initiated soon. The BDA further talks about repository institutions for biological materials (like



herbariums) and also knowledge associated with biodiversity.

The Section 41 of the BDA, which deals with BMCs provides that every local body shall constitute a BMC within its area for the purpose of conservation, sustainable use and documentation of biodiversity, including preservation of habitats, land races, folk varieties, cultivars, domesticated breeds of animals and chronicling of knowledge related to biodiversity. This chronicling is called as People's Biodiversity Registers (PBRs). Therefore BDA gives a large mandate to BMCs. The Biological Diversity Rules, which have come into force very recently in April 2004, talk about the main function of BMCs. According the Rules, BMCs are required to prepare PBRs in consultation with local people. The PBR shall contain information on availability of and knowledge on local biodiversity.

As BDA will have to be implemented in tandem with *Parhayti Raj* institutions, there will be bodies/agencies at all the levels viz., National, State, District, *Tduk* and *Parhayti*/ Municipality. The process of preparing PBRs and respective roles & responsibilities of such agencies will have to be minutely studied and clarified. Dr. Gokhale is working on a manual on it, the draft of which is ready for comments at CES, IISc with Professor M. Gadgil.

In his view, the scope of PBR would mainly be to document the IK related to landscape and waterscape and over local biodiversity. This will be of immense use for local level management of natural resource. It will also highlight the need for scientific investigation. PBR will also streamline the measures for biodiversity conservation, for instance, it will help to know about the biodiversity of a region and the species that need to be preserved and protected.

Regarding confidentiality of the documented data in the PBRs, Dr. Gokhale assured that consent of the community would prevail. Consent of local people over access of information is encouraged. Under BDA there is a provision for repository of knowledge. As IISc is closely working with National Innovative Foundation (NIF), Dr. Gokhale suggested that NIF can be a knowledge repository institution where knowledge gathered under PBRs could be stored. NIF has linkage with R&D institutions like CSIR (Council for Scientific and Industrial Research) through which deposited knowledge could be applied for obtaining useful products by adding value, and *facilitate filing of patent* based on IK in cases where applicable.

Dr. Gokhale talked about his first hand experiences of documenting IK in a village called Mala in Karnataka where eight people agreed to disclose their confidential knowledge. As IISc does not have the mandate to serve as a repository institution, they tied up with NIF and signed a Memorandum of Agreement (MoA) with people in order to safeguard their knowledge from getting misappropriated by others. He differentiated between PIC and MoA – while the former provides only consent, in the latter people also incorporate their conditions as to how they would like to use their knowledge.

BDA also suggested that electronic databases of IK be collected through efforts like PBR. Dr. Gokhale suggests that the people's knowledge database (or biodiversity information system) should have two components - public and confidential. NIF has a vision to set up a National Register that will contain all documented knowledge, which in turn will be linked to R&D institutions in order to add value to such knowledge. Based



on the MoA, there are good possibilities of commercialising products developed by using such information database and assure benefit sharing.

Concluding the presentation, he felt that a few things are still needed, such as, additional bye-laws/rules under the BDA and *Panchayati Raj* Act to expand the scope of functioning of panchayats, BMCs and SBBs by enhancing their powers. New legislation to protect confidential information/ knowledge is also required, as there is no existing legal mechanism in India for this purpose.

Dr. Næra Burra, UNDP commented as the Chairperson on the two presentations. In her view, people seem to only document that which is valuable. The major concern sought to be addressed today is medicinal plants and related knowledge as it has monetary value. Other IK (non-medicinal uses) are not very much emphasised upon, although it is important from the perspective of conservation and sustainable use of biodiversity. Is it right to look at only that IK which has monetary value and discard the others, asked *Dr. Burra*. She also flagged the monoculture ruled patent regime issue, which tended to downplay IK. She further showed concern over the fact that those speaking on behalf of the indigenous community in the international fora are English-speaking representatives who may not adequately represent the local community's perspective and needs. An understanding is developing among the indigenous people organisations around the globe that in the interest of their knowledge system, they should be involved directly. Indian government, interestingly, has taken a position that all citizens of this country are indigenous to this country. Consequently, those people who come under scheduled area (scheduled tribes) cannot be said to be more indigenous than ordinary Indian citizens are.

Dr. Machu Karki said that IDRC looks at IK from Access and Benefit Sharing framework. He believes that existing IPR regimes/tools are inadequate in providing protection to IK, as most IK are pre-legal in origin and they are overlapping with social, political and cultural settings. That is why we may need to think of a different kind of regime to protect IK. He expects the project to answer questions like "can claims for IPR on IK lead to larger issue of biodiversity conservation" and "does the social use of IK question the relevance of IPR".

Dr. Karki also felt the need to recognise that there is a loss of bioresources, which disrupts the social and ecological context of generating and maintaining IK. So first of all, we will have to protect the whole biodiversity. To him there is a limitation in the existing IPR regimes because they are subject to individual manipulations, which can impact equitable sharing of benefits amongst the people. Therefore, IDRC would like to build capacity of their partners in South Asia about *suu generis* laws (or feasibility thereof) in their countries, because we are dealing with community rights over knowledge and resources. For this purpose, there is a need to understand the law/policy environment vis-à-vis the protection of IK in the country. In this context he flagged what *Mr. Darshan Shanker* had said that the present law/policy is targeting only the products of IK and is not giving much attention to conditions for generation and creation of IK. However, he also felt it important to resolve the issue of ownership over IK and bioresources.

Accepting the importance of PIC and efforts like PBR, he noted that certain problems remain, such as how to identify the real owner and what should go into the public domain and what into private domain. Next he talked about the very crucial aspect of all



laws and policies i.e. implementation. He brought to notice that only 19 sections of the BDA have so far been notified. He wants the project to address the issue of protection of IK by adopting a *holistic approach*

Open discussion

Mr. Ramit Basu, Gene Campaign, suggested that *Gram Panchayats* should be endowed with more powers and made more accountable so that they are equipped to take legal action for the protection of IK of biodiversity.

Dr. B D Shama talked about the symbiotic relationship of the *adwis* with their environment and usefulness of every plant species to them. The state is guilty of exploiting the forest to draw out resources regarded as valuable in market economy, and not focusing on other plants. He cited the example of teak plantation in this regard. To adequately protect IK, perception about usefulness and value has to undergo a transformation. He also pointed out the prevailing confusion about the meanings of *gram sabha*, *gram panchayat*, community etc. According to him these concepts are not the same or similar and *must not* be used interchangeably. He opined that the definition of village in the provisions of Panchayats (Extension to the Scheduled Area) Act, 1996 which covers the areas under the 5th schedule of the constitution should be accepted as sacrosanct. Dr. Shama is vehemently against the vesting of IK ownership in a single individual as it is the community, which is the real repository of knowledge.

Ms Bhatr Dutt of Wild Life Trust wanted to know what are the safeguards provided under BDA for the confidential knowledge of communities and against the unsustainable use of biodiversity. She also wanted to know the criteria that determine which knowledge should go in public domain and what should remain in private domain.

Dr. Pushpangadan stressed on the need to adopt holistic approach for documentation of IK, which should include the cultural panorama of the indigenous community including even their performing arts, totem etc and not only the use of certain plants.

Dr. Amit Srinivasan, IIT- Delhi, wanted to know from Mr. Shankar as to what is that leap between the system or the *shashtra* and *uyahara*, which makes it innovative. And also what is the mechanism that through this documentation can lead to innovation? In her view if IK does not come to the public domain, and is kept away from people, that knowledge might die - unless you use it, you lose it.

Mr. Sajay Upachaya, ELDF, feels that the project study will incorporate “how do the people/community want to protect knowledge”. He opined that there are different levels of IK that we have to understand from the law and policy standpoint. He also showed concern over interchangeable use of customary laws and customary practices, while legally they are different. Customary practices need certain ingredients in legal discourse to become customary law. He further opined that we need to look at the geographical differentiation in our country with respect to a repository of biodiversity and their treatment in Constitution and other national laws. For instance, when we are dealing with the present subject matter in 5th Schedule Areas and 6th Schedule Areas (Constitution) or applying Panchayati Raj Act or PESA, such geographical differentiation need to be taken into account.



Mr. Manjot Saluja, Development Alternatives, raised two concerns over the PBR initiative - first, certain valuable documented information would lead to over exploitation of bioresources, and second, from the commercial perspective, it is the rich and powerful who tend to benefit much more than the real holders of the IK. *Dr. Rajendra Gupta*, Ex-Project Coordinator, Medicinal & Aromatic Plants, New Delhi, wanted to know whether efforts like PBR have been able to generate funds through their very act of documentation of IK and by selling any knowledge/innovation to any commercial entity. Otherwise, to Dr. Gupta, this kind of exercise and documented IK remains a matter of academic importance only.

Dr. Sundaram expressed his concern about which is the best methodology that should be adopted since IK is community knowledge and community knowledge is vested in certain individuals. He also emphasised importance of biodiversity and heritage and culture of indigenous people, and symbiotic relationship with one another. He suggested project implementers to select a bio-cultural area which would be a *community of interest area* and to study in that *community of interest area* how people act, react, and how they reinforce the idea of protecting IK, what they want to be protected and how they want to be protected, etc. This should be complemented by resource/biodiversity mapping exercise of that area. He also mentioned a National Biodiversity Strategy Action Plan initiated Ministry of Environment and Forests and coordinated by Kalpavriksh, an NGO, and said that there is much to learn from this exercise.

Dr. Ghayr Alan wanted to know from Dr. Gokhale, whether he has positive attitude towards commercialisation of information contained in PBRs; is he in favour of it or is he indifferent of it; if he is in favour of it then how does he publicize it to commercial entities; can he cite some examples where PBRs have contributed to conservation of knowledge which might have not been conserved other wise.

Dr. Bura flagged the fact that the communities are not homogeneous in the context of holding knowledge, and that women in the communities have particular knowledge. She opined the need for consideration of the special knowledge that women have, in the project implementation.

Dr. Sunn Sahi clarified a concern raised by Dr. Anil Gupta in the earlier session with respect to treatment of IK protection in the Indian Patent Act (second amendment). To her Patent Act deals only in the purview of patents and nothing else, and keeping IK out of the purview of patent is a much needed and absolutely focussed requirement. Gene Campaign has been largely responsible for pushing this provision in the Patent Act. She further said with regard to the protection of Geographical Indication, that although we have this law now, until we get this protection at the WTO level, *in effect*, we might not really have any such protection. On documentation, she opined that unless we protect that documentation, it is actually up for grabs by people other than the IK holders. In this regard, she suggested creation of a database along CBD principles, in which ownership remains with the communities.

On the issue of English-speaking people representing communities, Dr. Sahai said that groups like Gene Campaign are grassroots organisations, who work with communities and draws their views and opinions at the national and international levels and communicate to them views from meetings such as this. There is a two-way information flow. For instance, Gene Campaign staff from field offices in states like Jharkhand,



Chhattisgarh, and Utranchal were present in this meeting. Dr. Sahai particularly appreciated Mr. Upadhyaya's suggestion to find out clearly as to 'how do communities want to protect their IK'.

Mr. *Darshan Shankar* responding on the concerns and issues raised, opined that commercial use of IK (and sharing benefits with the community) is important but it is just one of the issues vis-à-vis IK. He said that out of the 50000 formulations that have been estimated in our herbal traditional usage, only a handful of them would have commercial viability and importance in the present context. But those 50000 formulations have their value in their ecosystem specific applications - they help to enhance, improve and maintain the quality of life in a particular habitat. This is something that we should also actively encourage and promote. He endorsed the idea that documenting of IK should not be to lock it [IK] up, but it [IK] should be promoted in several ways for its use and application. This is how innovation will continue.

Dr. *Yagsh Gokhale* began his response with respect to the ownership over bioresources. Although Forest Department seems to be *de facto* custodians of forests, BDA have a say in the management of biodiversity. Through the decentralized mechanism, as proposed by the BDA vis-à-vis its implementation, local people are getting a say in an authorised way in the management of biodiversity. On safeguarding against the over-exploitation of biodiversity under BDA, he said that at this point of time Forest Departments are the sole agencies to safeguard. BDA has to work in connection with the Wildlife Protection Act and Forest Act. The BDA does not supersede the existing forest and wildlife conservation laws.

On what is public and what is private/confidential knowledge, so far IISc has been dealing with information which has been available in *public* (community knowledge in public domain at the local scale), however, the only case they have come across of private/confidential information was that of 8 people in Mala village. So they decided to deposit information shared by those 8 people with NIF, as IISc has not been mandated under the BDA to be a repository of IK.

Responding to Dr. Ghayur Alam's queries, Dr. Gokhale said that PBR has been positive as far as conservation of biodiversity is concerned. The focus of PBR is basically to identify and raise the kinds of prevailing issues and problems, *protecting IPR is one of the aspects* (as PBR is database to cross check various claims). National Resource Management is one of the foci of PBRs. On selling information to commercial entities, he said that IISc is not authorised to sell such kinds of information, as it is a research organisation. *The information/data collated through PBR is only for research purposes* So, IISc has not sold any kind of information.

Summing up the session, Dr. Karki said that the community would have to be empowered. We also need to understand differences between *Panchayati Raj* institutions and community. PR institutions may not be bodies in which decentralization can occur, it has to go beyond. It has to go to the communities, who generate IK. Therefore empowerment and capacity building of communities and then sharing of information is the key, but it is also important to understand what needs to be protected, how they need to be protected etc.

Session III

Speaker	Topic
Dr. P.Pushpangadan, Director, NBRI, Lucknow	Benefit Sharing: The Strengths and Weaknesses of <i>Kari</i> Experiment
Mr. R. Saha, Director, TIFAC, New Delhi	Discussant
Dr. G.G. Gangadharan, Joint Director, FRLHT, Bangalore (Chairperson)	Needs of Ayurveda Industry
Open Discussion	

Introducing Dr. Pushpangadan and appreciating his efforts for promoting IK through Kari experience, Dr. Gangadharan, chairperson informed that he was also part of this effort, then representing the industry.

Dr. Pushpangadan defined IK as a “community-based functional knowledge developed, preserved, maintained and incrementally improved over many generations by the innovative members of the local and indigenous communities through their continuous interaction, observations and experimentation with their surrounding environment”. IK has been cared, shared and freely distributed without any monetary commitment. The third world never had the concept of privatising the knowledge and making profit out of it. IK system is unique to a given society or community and is result of co-evolution and co-existence of indigenous cultures and their traditional resource use.

In India there is a tribal population of over 70 million belonging to over 550 communities and inhabiting in 5000 villages located in and around forests regions of the country. These people use around 10000 plant species – approximately 8000 species are used for medicinal purpose; 325 are used as pesticides; 425 as gums, resins and dyes; 550 as fibres; 3500 are edible; and there are 1000 other uses of such plant species.

According to Dr. Pushpangadan, appropriation of knowledge has been taking place from time immemorial. *Ayurveda* also appropriated knowledge of the people and was validated, rationalized and codified it. But *Ayurveda* was not a case of monopolization, the kind of monopolization of knowledge that is coming from the West. When bio-prospectors from western countries visited indigenous people, they took back with them information on biodiversity, worked upon such information, and monopolized the products (and processes) thorough IPR tools. They did not even share profits (made out of such products/processes) with people whose information was the basis. Fast development of science and technology in early 20th century helped them to appropriate and monopolise rights over IK. Towards the end of the 20th century CBD came into being, which acknowledged for the first time that biodiversity is the sovereign property of a nation. CBD provides for conservation & sustainable use of biodiversity as well as equitable sharing of benefits arising out of utilisation of biodiversity.

Dr. Pushpangadan traces the roots of the *Kari* experiment as far back as 1965 (much before the CBD came into the picture), when Prof. M. S. Swaminathan mooted the idea of documenting the tribal knowledge system. He and some other eminent scientists observed that there exists an immense reservoir of knowledge with the communities. However, this knowledge system is not coming into the mainstream and a lot of erosion and corrosion and even it may be lost forever unless something is done to preserve it urgently. So they suggested conserving and preserving it by way of documentation and



this deliberation finally conceived for launching an All India Project on Ethnobotany (AICPRE), which was then, launched in 1982. Dr. Pushpangadan functioned as the Chief Coordinator of this multi-institutional and multidisciplinary project operated at about 27 centres in the country. The objective of the project was mainly to undertake an in-depth survey, documentation, study and analysis of the multidimensional perspective of the like, culture, traditions, belief and knowledge system on the use of the local bioresources by the tribal communities of healers.

Dr. Pushpangadan was, among other things also entrusted with the task of filtering the knowledge of communities in the light of available scientific knowledge. After scanning of published scientific knowledge (stored in different scientific institutions, such as in botanical institutes), he found that the world scientific community did not know about 80% of the collected knowledge. Out of enthusiasm they (Dr. Pushpangadan and others) started publishing the information obtained from communities, with the intention of enriching the 'scientific' body of knowledge. As a response, lots of letters from professors and scientists from all over the globe came to Indian institutions. Most of these letters requested for samples (1 kg or so) of the plants narrated in those published documents. More than 200 samples were sent to different universities. Later the group decided not to publish any information, as the knowledge was going without any kind of protection. This was around 1985. However, they (Dr. Pushpangadan and others) continued to build up a database, without publishing it.

Around this time, Dr. Pushpangadan also got involved in an international movement for the rights of the indigenous people and was witnessing (and getting motivated) discussions in the international ethnobotanical society about the importance and value of IK. Partly motivated by all these developments and partly to meet demands of the new scientific expedition, Dr. Pushpangadan decided to visit fields and spend time with tribal communities.

In December 1987, a team of scientists led by Dr. Pushpangadan was conducting an ethno-botanical survey and exploration in the Agasthya hills of Western Ghats in South India with the help of young Kani men as guides. *Kanis* are a tribe living in the forest and are traditional collectors of minor forest produce, including medicinal plants. Dr. Pushpangadan and his colleagues noticed that the Kani men were not taking any food and were eating only some small dry fruits. But they were quite energetic and agile. Once after a strenuous mountain trek, he and his colleagues got exhausted and were taking rest. Then the Kani men accompanying them offered those dry fruits saying that when consumed it will reduce fatigue and will provide energy. Dr. Pushpangadan and his colleague accepted those fruits and ate them. On consuming 30 to 50 fruits they felt a sudden flush of energy within 10-15 minutes. They tried it again during the next two days and felt the same magical effect. When asked about the source the Kani men were very reluctant to reveal, saying that it was sacred information not to be revealed to outsiders.

Dr. Pushpangadan and his colleagues assured them that they would not misuse this information and would carry out scientific investigation, and if any positive results were obtained the *Kanis* would be rewarded appropriately. It was after a great deal of persuasion that they showed the plant from which *Kanis* collected fruits. In 1987 he took a sample, but without any prior informed consent for which there was a policy vacuum then. The plant was growing abundantly in that very forest where Dr. Pushpangadan and his colleagues were trekking. Dr. Pushpangadan gave *Kanis* his words that if the scientific



investigation of this plant led to development of any marketable product, *Kanis* will be given certain share of benefits (50%) arising due to this.

The Kanis named this plant *Aragppatha*, meaning the plant that can provide ever green health. Later the plant was identified as *Tridopus zaiortius*. Although this species was documented and described earlier, its traditional use and special properties were not known to the scientific world. Dr. Pushpangadan and his team carried out detailed scientific investigation at Regional Research Laboratory (Jammu), including chemical tests and pharmacological tests. Dr. Pushpangadan conducted the standard 'swimming performance' on Swiss mice under three different conditions. The mice were given swimming test in tubs of water under: (1) Control mice fed with normal diet; (2) mice fed with synthetic steroid drugs (Amphetamine) to boost stamina; and (3) mice ingested with macerated kernels of the fruits of *Aragppatha*. The initial results were very good. Some 15 scientific papers and three patents were the outcome of this scientific research. The Kani people were kept informed of the progress and were reassured that if any marketable products were developed out of this plant, benefits derived from the products would be shared equally with them.

Dr. Pushpangadan soon realised that the classical pharmacological approach to study the traditional remedies of medicinal plants by isolating single compounds may not be satisfactory and an ethno-pharmacological approach was adopted to evaluate this plant. By this time Dr. Pushpangadan was offered the Directorship of the Tropical Botanical Garden Research Institute (TBGRI) in Thiruvananthapuram, Kerala, which he accepted. At TBGRI, Dr. Pushpangadan established a full-fledged Ethno-pharmacology Division and recruited scientists from disciplines of Botany, Pharmacology, Photochemistry, Biochemistry, Pharmacy and Ayurveda.

After some more research at the TBGRI, Dr. Pushpangadan and his team finally came out with a scientifically validated and standardised herbal formulation 'Jeevani,' with *Tridopus zaiortius* and three other medicinal plants as its ingredients. Evaluations related to toxicity efficacy, shelf life and clinical properties were carried out by TBGRI and the drug 'Jeevani' was ready by the end of 1994, when it hit the market all over the world. The CBD also came into the picture by then, which helped Dr. Pushpangadan to convince the TBGRI management authorities to agree for this benefit sharing deal with Kani tribe. Technology transfer for commercial production of 'Jeevani' was given to Arya Vaidya Pharmacy (AVP), Coimbatore after negotiation with TBGRI. Dr. G. Gangadharan, then with AVP, played a leading role in the negotiation. TBGRI followed CSIR pattern of technology transfer. In CSIR system 60% of the license fee & royalty received from such technology transfer goes to this institute and 40% is given to the inventors (80% of the 40%) and the remaining to the supporting staff. Since Dr. Pushpangadan gave a word to the Kani tribe he convinced his scientific team and also the TBGRI's management authority, i.e. the Executive Committee (EC) and the Governing Body (GB) to agree to pay 50% of the benefits (the license fee and royalty) to the Kani tribe. Dr. Pushpangadan and his team voluntarily surrendered their share. As Director, TBGRI, Dr. Pushpangadan was able to convince the then EC and its Chairman Dr. P.K. Ayyangar (former Chairman, Atomic Energy Commission) and GB and its Chairman Shri A.K. Antony, the then Hon'ble Chief Minister of Kerala to approve this historical decision to share the benefit with Kani tribe as proposed by Dr. Pushpangadan.

The industry (AVP) gave Rs.1 million as license fee and royalty of 2.5%. The product



was accepted by the scientific world as a scientifically validated product. It is even marketed in the US as a safe non-steroid herbal anti-fatigue and energy-boosting agent.

However, there were bureaucratic hurdles/problems associated with the experiment. Although the raw material (the plant) was available in plenty, the forest department was stopping the Kanis from collecting it, saying that this is a rare plant. Not able to convince forest bureaucracy, it was thought that this plant could be cultivated. Many Kani families were trained to cultivate them, out of which they were generating good income. Suddenly even cultivation was banned. However, now (after 7 years) the government has allowed it to be cultivated. But in practice, things are not moving even now.

As far as the Kanis are concerned, from a nomadic tribe dwelling in forests, they are now an organised society having a trust in which benefits accruing from Jeevani would go. Initially, when money came, Dr. Pushpangadan was worried as to how to distribute it to the Kanis. At one time they thought of giving all the money to the tribal welfare department. But with the timely intervention of Prof. Anil Gupta (who participated *pro bono* as NGO representative - Honey Bee), they helped form a trust of Kani people, known as 'Kerala Kani Samudaya Kshema Trust'. In order to obtain greater participation of Kanis, who were illiterate, Dr. Pushpangadan and his team first started a literacy mission targeting youths. Finally a trust was formed by their own involvement in 1998. After this the money was transferred to the Kani Trust (around Rs.6.5 lakhs). Arrangement was also made to pay the share of royalty received from AVP every year.

Reiterating 'bureaucratic mindset' as one of the most prominent weaknesses of the *Kari* Experiment, Dr. Pushpangadan updated people on the latest. It is around seven years that the product (Jeevani) was launched, but TBGRI has not taken any initiative either to transfer the technology (of the product) to other parties (some are willing to pay more than Rs.5 million as license fee) or renewing the contract with the *Anjuidysha* which had originally launched the product. Although Dr. Pushpangadan has written 2-3 letters to TBGRI (he is at present in National Botanical Research Institute, Lucknow), there was no response. He also felt bad to know that the money accruing to the *Kanis* (regular share of the profit) is not being transferred.

Dr. Pushpangadan, however, felt relieved with the coming of some newer laws like Biological Diversity Act, which to him, has provided legal validity and backing to the *Kari* experiment. Dr. Pushpangadan opined that NGOs have to play a vital role in making things happen, particularly developing action plan for the enforcement of newer laws. He attributes successes of *Kari* experiment to NGOs and also the then functioning of TBGRI including the then Chief Minister (Shri. A.K. Antony), who is the Chairman of G.B (while blaming bureaucracy for the sad side of the experience). He particularly thanked Professor Anil Gupta for his timely interventions.

Now, Dr. Pushpangadan wants to educate and train *adusi* youths (*Kari* youngsters are getting educated) so that they can be involved in the whole exercise and ultimately they (*adusi*) are able to negotiate things on their own, and achieve social up-gradation. He seemed a satisfied person to see that once the nomadic forest tribe called *Kari* is now a settled, organized and dignified community, having homes, and are becoming (have become) part of the mainstream society. This experiment, to him, can be replicated hundreds of times.



Mr. *Rajiv Saha*, Director, TIFAC, Ministry of Science and Technology, has been looking after IPR issues for 10 years, including the issues with respect to the protection of IK in the inter-ministerial network. He found from his experience that there is lots of confusion prevailing on IK issues. For instance World Intellectual Property Organisation has been talking about protection of IK for the last 5 years, and even has set up a committee in this regard, but confusion still persists in the Committee's meetings. Lots of papers have been researched and written, but all of them virtually repeat almost the same things. At international level, any effort towards legislating for the protection of IK meets with fierce opposition from developed countries. Developed countries do not want to develop a consensus on developing a legislation to protect IK.

India has taken certain measures to protect IK, for instance the Indian Patent Law requires an applicant to disclose the origin of bioresources and whether or not the impugned claim is based on IK. If it is found that these disclosures have not been made, opposition to the grant of patent can be made. This is a very potent tool. However, there are still lots of issues that we need to discuss.

Documentation is important, but *per se* it is not an answer to protect IK. Documentation only generates a proof that this knowledge existed before. How do we prohibit the people from using the knowledge without paying any benefits to IK holders, is an important question. The other question is should the government be the sole owner of this documented literature or data. Who should own the huge amount of the collected information - government or some civil society organisation or some other constituents of the country?

Talking about the turmeric experience, Mr. Saha said that we talk about protection only but do not pay enough attention to the vigilance aspect. Is anybody vigilant on what are the herbal drugs/products around which patents have been filed or are being filed else where in the world (US, Europe, Japan etc.)? He does not know any group which is sincerely working in this [vigilance] area. Unless we have a vigilance system in place, the talk about protecting the IK will not have much meaning. Although this is important, we are still not clear as to how we can keep this kind of vigilance. In India making such efforts can be more difficult. For having a vigilance system in place, computers with Internet, power supply and most importantly money for accessing the patent databases (which is very costly) is required.

To him *implementing* our thoughts is the most important thing. From experience, we are still not clear on implementing aspect of certain concepts that are emerging, with respect to the protection of IK. Preparing an action plan for protecting IK is necessary. He further emphasized educating people who actually own IK. It is important to empower farming and tribal communities and for them to realize the importance and value of their knowledge system, and that they should not keep sharing their knowledge casually.

Mr. Saha pointed out inaction on the part of government and/or others. The Protection of Plant Varieties and Farmers' Rights Act, provides for registration of farmers' varieties (that farmers have developed) and extant varieties. However, even two years after the enactment of the law, no step has been taken to develop an action plan as to how these farmers' varieties can be registered. Regarding extant variety the Act says that any variety that has been in use for not more than 15 years can be registered. Two years have passed, no action has been taken. Mr. Saha feared that by the time we take any step, 15 years



would have passed and then such provisions would be of no use. He was disappointed to note that even though a lot of efforts were made to incorporate provisions to protect IK, we as a nation are not doing any groundwork to implement such provisions.

Talking about Geographical Indication, he said that we will be able to protect certain aspects of IK, but for this we will have to organize ourselves. He informed the participants that Darjeeling Tea as Geographical Indication has been notified and people are working on *Charbi Saxe*. He wanted the nation to use GI Act optimally.

He raised a very relevant question with respect to legislation on (positive) protection of IK. Do we need such legislation independently/separately or otherwise? Nine to ten years have passed in discussing *sui generis* protection for IK, but we are still not clear as to what it should be like. He was also not very happy with the experience of other countries, in this regard. The Mexican effort is somewhat closer to establish Trade Marks kind of IPR over IK, which in turn is limited in coverage and time span. The Peruvian model has given special rights to the parliament to provide special protection to IK. Analyzing this model will be an interesting exercise, particularly when Mayan civilization (in Peru) like that of India, is also very old. However, we need to be very careful when we look at these models, as these are not in many cases totally decided by the people of the country. There are external pressures on developing countries, so we have to be vigilant on that aspect.

Mr. Saha then highlighted the issue of translation of IK, which is another way of protecting it. Although we have gathered enough information about usage of various plants (some were already there in the codified texts like *Charak Samhita*), we have not taken any visible steps to make further uses of these plants. For instance, it is known for very long that turmeric has a wound healing property, but we have not ventured into questions like can we convert turmeric into injectable forms. That is the addition of knowledge, which our labs can provide. The translation of IK into new products and processes is very important.

Mr. Saha concluded by saying that the protection of IK has to be looked at in a highly holistic manner. There are many dimensions to it, which have to run parallel. He also suggested making efforts on synthesizing different issues, aspects and dimension vis-à-vis protection of IK. But there are unanswered questions, such as how we are going to do it, what instruments do we require to achieve this goal? He expects from this project to obtain some useful documents that contain some new findings that are India-specific, and are not repetitive in nature and content like many international documents are.

Dr. G. Gangadhar, an Ayurvedic physician working in various capacities, shared some of his thoughts. He quoted from *Isha Upanishad* the Indian perspective of knowledge sharing i.e. "Everything in universe is owned by the super-consciousness and it has to be shared by everyone in a sense of equanimity". Any single person hence cannot own the knowledge. It has to be shared by everybody. The community system had in-built mechanisms whereby knowledge and resources were shared amongst themselves. For instance, in ancient times the king was supposed to collect 1/6th of the total grains as tax to be distributed to intellectual people, like wandering monks, so that the latter should not have to worry about their livelihood and could keep on helping people at large by creating and sharing knowledge. However, in this modern era there is a thrust towards privatisation of knowledge and resources. It is up to us how we make compromises between the two perspectives.

Shifting from the philosophical aspect to purely material aspect, Dr. Gangadharan opined that in order to protect IPR enshrined in an IK under the framework of modern patent regime, the IK has to go through an entire conversion to a modern paradigm of knowledge. Citing his experience from Jeevani/Kani experiment, he said that to get a license for Jeevani from the Drug Controller of India, the local knowledge had no basis. In order to obtain a license either the product (Jeevani) was to be explained in terms of modern pharmacological framework or in the codified Ayurvedic formulay. So the several plants and associated knowledge collected from *adusis* will have to be explained either in terms of the codified indigenous systems (ayurveda, siddha etc.) or in terms of modern pharmacology, if the derived products are to be commercially used. Dr. G questions this process itself, particularly in light of what our ancient texts say – everything in the universe has medicinal value/properties, it is another matter that the people who have all the knowledge are hard to find.

Quoting Mr. Darshan Shankar that according to the codified texts there are around 40000 formulations, Dr. Gangadharan clarified that according to an ayurvedic text itself, “[t]here can be any number of formulations. There is no limit. The 40000 formulations mentioned here are only examples that people with ordinary intelligence can accept as sacrosanct. It is always open for the people with higher level of intelligence to come out with more formulations.” This is the capacity of this knowledge, but people (as carriers of this knowledge) at this point of time are not able to understand the depth of this science and are not willing to carry it further. That is what we lack today, which (deeper understanding) is true even for interpreting the texts for products and services.

Coming back to Industry, he said that today it is in a very primitive stage of development. Out of the Rs.5000 crore (Rs.50,00,00,00,000) turnover that this industry made last year, 80% has gone to the ordinary and superficial products of ayurveda, which can be categorized as cosmetics, or at the most cosmoceuticals. Only 20% are sticking to the IK system, and they are the ones who are actually keeping this science floating. The industries that are growing fast these days are those interested in developing the dosage form, the delivery methods, making it acceptable to the modern practitioners to use as a complementary (not core) component of their prescription. The third category, which has nothing to do with Ayurveda or IK, is the science working on this knowledge, developing a bio-molecule, studying it further, synthesizing it, and selling it. Once that happens it is no more part of the IK system, it becomes an entirely different system.

Of these three categories of industries, the first two are very dominant in this country; the knowledge base is not a very relevant factor for them. Because they do not use the knowledge base at all, they are all limited to the product part of the science. One of the biggest threats that this industry is facing is that their R&D is not based on indigenous scientific background/ principles. There is no agenda in their programme as to how they will develop this science further.

Historically, changes in dosage form of ayurveda happened in the 8th century when *Ravana* became a scientist of ayurveda. He developed an entirely new dosage form called *arka* (obtained through distillation process, which was unknown till then). Many of the usages of metals came into the science in the later part of the 8th century, thereby enhancing science and its resource-base. There is one big difference between the kind of changes that happened around the 8th century, and those that are happening now, on the

effect of the science and principles of the IK system. While earlier efforts contributed in enhancing science, making innovations on the basis of the basic principles of science; the modern day efforts are, unfortunately, not improving the indigenous science. On the contrary it tends to deviate from original principles, in order to complement the modern medical science.

If we have to protect any IPR in the IK system, we have to first make a legitimate case for this knowledge system. So far we have been talking only in the product terms and not in terms of the science of the IK system. Whether we can work in terms of indigenous scientific background is, however, a big question. In order to protect IPR in the IK system we have to recognize this science. This is all the more important for the survival of this science. Dr. Gangadharan cited *Triphala* as an example. *Triphala* can be said to be an ayurvedic product only when it is used based on ayurvedic principles. Otherwise it will just be an herbal product. People may use *Triphala* as laxative, although laxative is the last use for *Triphala* in ayurveda. *Triphala* in ayurveda is a *rasayana* which is a rejuvenating, immunity enhancing agent, one of the best thing for our eye protection and promotion of eyesight, and it is incidental that it happens to be a laxative also. But today *Triphala* is sold in the market as a laxative alone. This type of distortions will keep on taking place unless we understand and recognize this knowledge system within its own scientific background/descriptions.

Effort in this direction is very necessary in order to save this industry. Only then ayurveda as a science can prosper, IK as a science can prosper, and the industry can prosper. Only then IPR becomes meaningful for this system, otherwise there will always be illegitimate acquisition of knowledge from a politically inferior science to a politically superior science. He expects that this project will take into account all this. To him, China has already gone in a wrong direction, and alarmingly we are looking at China as a model. From this project he expects that a suitable model for India would emerge so that we can get a *larger* benefit out of it. Otherwise we will be getting status of just CAM - Complementary & Alternative Medicine.

Open Discussion

Dr. Rajeeta Shama wanted to know from Dr. Gangadharan the concrete picture with respect to ayurvedic formulations, the number of which is estimated to be around 4000. Are these formulations documented? He wants to know this because, according to his knowledge about the industry around 500 formulations are used. The industry says that only 10% are sold, the rest are prepared only because they want to complete the chest as otherwise hospitals would not buy the medicines.

Dr. Gangadharan replied that there are more than 40000 formulations and they are well documented. One simple text in Kerala, which is used widely in the State, has documented 1000 formulations developed by generations of physicians since 13th century. There are 150 books in Kerala alone, which are in wide circulation. There are also 20000 medical manuscripts, which are related to ayurvedic formulations. If one sums all this up it will make more than 40000 thousand formulations that are documented. If we take *Charaka's Gara* and make the permutations and combinations, it goes beyond that. If we take even 50 *rasayanas* and make permutations and combinations, it will exceed 2000. Out of the 8000 documented plants, around 2000 are used in Ayurveda. Around 650 formulations are made by a typical classical ayurvedic industry, of which around 150



are very popular. They make 650 formulations because a clinic cannot function without them. Therefore theoretically there are more than 40000 formulations but only around 1000 are used in practice. Even within these formulations there are differences between those made in southern India and those made in north India. This diversity, according to Dr. Gangadharan, is the beauty of this science.

FRLHT has documented all formulations corresponding to *Charak Samhita*. From the 620 plant species (which has 800 botanical co-relations) mentioned therein, there are around 1750 direct formulations, without going into permutations and combinations. If one takes into account 56 texts on Ayurveda, as approved by the Drugs and Cosmetics Act, there will be around 10000 formulations. In the last 10 years, FRLHT has documented formulations corresponding to 20 classical ayurveda texts. One of the outputs is in CD form, which has around 3000 formulations using 50 plants. The TKDL is also looking forward to documenting all formulations pertaining to all the classical texts.

Dr. Sunan Saha wanted to know the proportion of plants/use/formulations that are mentioned in the codified texts (Ayurveda etc.) as against those that are still in oral domain within *adusis* (folk medicines). Dr. Pushpangadan replied that out of the 8000 plants used in India, around 1800 are mentioned in *ayurveda*, *siddha* and *unani* texts put together, while more than 6000 are still in the oral domain.

Dr. Pushpangadan, reverting back to problems with respect to Jeevani's registration, added that when drugs are made by involving activity-guided isolations, or single molecules they will take 15 years to become a commercial product. So, ayurvedic route was adopted for developing 'Jeevani'. Taking a leaf from an ayurvedic sloka, they were able to convince the Drug Controller that the plant *Trichopus zeylanicus* is referred to in ayurvedic parlance as *Diuga Vardi*.

Dr. Sunan Saha mentioned that the research project is trying to look at various national laws and international instruments vis-à-vis protection of IK. One of the focuses would be to highlight impediments that come from law and policy as far as protection of IK is concerned. She wanted to know the systemic impediments, of the kinds faced in bringing *Jeevani* to the market, which prevent commercialisation of products based on IK. To her, preventing commercialization would amount to blocking the development of the IK system. What are the impediments that Dr. Pushpangadan and Dr. Gangadharan faced during commercialization of *Jeevani*? What are the things that we need to look at in policy, rules, guidelines etc. that should change?

Dr. Gangadharan, speaking from his past experience as a member of the *Ayurveda, Siddha* and *Unani* Drug Technical Advisory Board, a body which is responsible for bringing changes into Drugs and Cosmetics Act with respect to these systems, said that the main problem is due to the fact that newer plants and their formulations are being (re) discovered on a regular basis, which might not fit into the categories mentioned in the Act. The two mentioned categories are: (1) traditional medicine in the traditional dosage form, such as *Chaurprash*, *Dasmulaish* etc. and (2) new combinations invented by a physician not mentioned in the texts, however ingredients should be mentioned in the texts. Dr. Gangadharan wants to incorporate into the Act two more (3rd and 4th) categories viz. (3) if there is a plant reported in any of the local health tradition (LHT) practices, which has a *prima facie* case (that is, a certain ethnic community has been using



it effectively since long). At present there is no *laissez faire* for LHT under the Act and, (4) the fourth suggested category is of food supplement. At present one cannot get a license under the Act, even if he is able to prove that certain plant/products, if taken as food supplement will enhance health benefits (say enhance digestive capacity), because it is not directly acting as a pharmaceutical. Once these two categories are included in the Act, one can get the legal stand to make products like *Juiri* available to the market. And only then the backward integration (production to raw materials/IK) will come into the picture.

Dr. Pushpangadan gave other dimensions of 'impediments' to the development of Ayurveda (and other IK systems). According to him, *ayurveda* was broadening its pharmacopoeia till 600 AD, after which orthodoxy came into the system. Consequently today the 56 texts of *Ayurveda* are treated as sacrosanct and we do not want to go beyond them. The eastern part of India was never in mainstream *Ayurveda* when the system was being developed. A large number of plants used by the *adasi* communities of the eastern-Indian region are extensively used in the Chinese system of medicine but do not find a place in *Ayurveda* or *Siddha*. The success of China was that they continue to integrate the ethnic knowledge into the Chinese system.

Another dimension is with respect to clinical data, which is not available even in the *ayurvedic* system. Such data have not been documented, only the formulations are available. Thousands of clinical trials done by *ayurvedic* physicians were never documented. According to the modern world requirements, first of all we should have safety with data to prove it, efficacy with data, and stability of the product. These are the things that we are unable to confirm and which are necessary for the contemporary global market. The success of China is attributed to producing such data. But China is now threatened because their science credentials are not very high. However, we have plenty of science in India, although we are unable to bring it together.

Mr. Ujjwal Kumar, Policy Analyst, Gene Campaign suggested a policy option with respect to *Mr. Saha's* concern on 'vigilance'. There are many patent search firms that are being employed by the patent lawyers while filing the patent application. If an obligation is placed on such patent search firms, that if during the course of their patent search they come across a bioresource-based patent or a patent claim taking lead from IK, they should report it to the Government or to agencies like National Biodiversity Authority. Necessary action can be taken on the basis of that information.

Although *Mr. Saha* appreciated the suggestion, he was not very optimistic about it. It is a good suggestion in principle, but how do we put it into practice? How many obligations can be put on people? The way the government functions, it is very likely that any such relevant information will go in the dustbin. However, he was optimistic that the agencies/ NGOs, which are actually involved in this specific area of activity, can be made more vigilant. This would be a more practical way of dealing with this concern. This is already happening, but it is not happening at the scale that is needed.

Session IV

Speaker	Topic
Mr. Ujjwal Kumar, Policy Analyst,	International Instruments and Initiatives for



Gene Campaign	protection of Indigenous Knowledge
Mrs. L. Balasubramaniam, Corporate Law group, New Delhi	New Indian Legislation (BDA, PPV-FR Act, Patent Act) in the context of protection of IK.
Dr. B. D. Shama, Bharat Jan Andolan	Giving Indigenous People Rights over Indigenous Knowledge: The Way Ahead
Dr. Veena Jha, Programme Coordinator, UNCTAD, New Delhi	Chair
Open Discussion	

Dr. Veena Jha began by highlighting the importance of this session, because it is the international scenario today, which, to a large extent, is leading changes in IPR law and policy at the national level. Without going into the rationale of protection of IK, she said that equity and fairness demands the sharing of benefits with the community. This, to her, is the starting premise for devising any system of protection of IK in the international context. Also, since IK is incremental knowledge, those who refine this knowledge and those who are holders of this knowledge should be treated as natural custodians of this knowledge.

The rationale that has been advanced for the protection of IK in the trade negotiations is based on two arguments:

1. Novelty is very difficult to prove in an IK system. Therefore the mechanism to protect IK cannot be the traditional patent system. It also cannot be protected under any of the existing IPR forms of protection without adapting it further.
2. It is widely acknowledged, including in the Millennium Development Goals framework, that IK holders are socially and economically disadvantaged to such an extent that they are unable to utilize their resources. Therefore the argument of equity is further strengthened. This means that space has to be provided within existing bodies of IPR laws for these disadvantaged groups.

The thinking in UNCTAD is that IK should be dealt with in different ways. For example, traditional medicine does find a place in Article 27.3(a) of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). This Article permits countries to exclude from patentability the diagnostic, therapeutic, and surgical methods for the treatment of humans or animals. This could provide permit access, on a much wider basis, for IK-based medicines. But at the same time, the interaction between modern and traditional medicines has to be carefully studied according to our thinking. There is a need for more research into the effective views of traditional medicines, particularly in universities, polyclinics and hospitals, and the protection systems that already exist.

On traditional agriculture, *Dr. Jha* felt that there is a need ensure that innovation systems are supported and rewarded. The traditional innovation systems should not be locked out of the body of agriculture research. She mentioned about an UNCTAD study done by *Dr. Ghayur Alam*, wherein several ways were outlined in which public funded research and other ways of traditional research could be incorporated into the body of ongoing research. There should be attempts to make sure that the systems, especially patent systems, which would make a lot of this research difficult, are adjusted appropriately.

Dr. Jha further felt that traditional and indigenous knowledge skills, which have been



mobilized to solve basic problems and to reduce agriculturists' dependency on the expertise from outside, are very important. Traditional expertise, which has been in long usage, is a good substitute for outside expertise. Therefore it must be regarded as a body of research, which is as valid as other forms of research that are taking place in agriculture, such as biotechnological research.

With respect to handicraft and folklore, UNCTAD feels that it is important not only for economic and aesthetic functions, but also for the environmental benefits. The raw materials that are traditionally used also have many environmentally friendly qualities, which have not been exploited so far in commercialization. This needs to be done. Dr. Jha also felt that there is a need to raise awareness amongst the creators of IK on the rights and uses of intellectual property. Therefore tools like Trade Marks etc. need to be explored in great detail. Some countries, like Ghana, have been exploring it. India should also do this.

There are a few recommendations vis-à-vis protection of IK that UNCTAD has to offer and it would like to know views on these by other stakeholders. They are: (1) support should be provided to archiving traditional folk culture and folklore and databases should be formed on this; (2) the effort to protect such databases against misappropriation should be made; and (3) educational institutions should be encouraged to introduce classes in traditional folk culture.

Dr. Jha also felt that China has very useful lessons for us in this field. Softer forms of IPR protection such as certification could be usefully explored to see what could be done to protect Indian Systems of Medicine as well.

Mr. Ujjwal Kumar, Policy Analyst, Gene Campaign dealt with international scenario vis-à-vis the protection of IK. He, however, made it clear that he will not be deliberating upon the contents of the international instruments and initiatives that he will be dealing with in the course of research, but will focus on *how* the research team will be approaching it.

After introducing the international instruments and initiatives (viz. WTO Agreement on TRIPS, CBD, ITPGR, the OAU Model Law, CoFaB, WIPO initiatives, and Crucible Group efforts), and before venturing into his thoughts about the research approach, Mr. Kumar, wanted to be very clear on the meaning of the word 'protection' in the context of protection of IK. Based on his learning and experience, he categorised protection of IK into *four modes* and invited comments from the participants on this categorisation.

The word 'protection' in the context has two types of meaning. The first meaning is straightforward i.e. protecting IK from getting lost, extinct or destroyed. This can be *direct (Mode 1)*, for instance, documenting IK before a person (or persons) holding such knowledge dies without passing it to the next generation (as we know IK often passes to the next generations orally). Some customary practices of communities may also be directly protecting IK from getting lost.

Protection of IK can also be *indirect (Mode 2)*. For instance, by conservation and sustainable use of a plant, we indirectly protect IK. How? If a plant gets extinct or lost, the associated IK will become irrelevant, as both are inextricably linked. Access & Benefit-sharing can also indirectly contribute in protecting IK. While regulation of access can help in keeping track of endangered species, sharing of benefits with local



communities on the utilisation of genetic resources and associated IK can serve as incentive for them to protect biodiversity and IK.

The second set of meanings of 'protection' is in the context of intellectual property rights, which in turn has two connotations. First, it can mean as *defensive measure against misappropriation of IK (Mode 3)*, for example measures protecting IK from getting pirated. Measures like disclosure requirements, prior informed consent can come under this type of protection. As documentation can establish prior art (e.g. TKDL) and hence stop patents from being granted on IK, it can also come under Mode 3 (apart from providing Mode 1 protection to IK).

The second meaning in the context of IPRs is the *positive protection* to the intellectual property enshrined in a piece of IK (**Mode 4**). This means granting exclusive/ownership rights over IK and protecting the intellectual property of the community that holds such knowledge. This would bring IK at par with the knowledge/technology created in scientific laboratories, which are protected through IPR tools like patents or plant breeders' rights. Registration of farmers' variety of crops under the Protection of Plant Varieties and Farmers' Rights Act of India, is a good example of Mode 4 protection of IK. The concept of protecting Geographical Indications of a product can also be cited as an example here.

Mr. Kumar asserted that it is necessary to be clear as to what we mean by the word protection in the context of protection of IK, because for different meanings (modes), the nature and scope of legal provisions may be different.

Mr. Kumar then introduced the following relevant international instruments and initiatives that are subject matters of the research and illustrated how the research team would be proceeding with respect to them.

1. *Convention on Biological Diversity (CBD)*, signed in 1992 during the Rio de Janeiro Earth Summit, recognises the importance of IK and requires member countries to protect and promote it. The research team will first scan the CBD text to find out which provisions provide for the protection of IK and under which (above-explained) mode(s). The research team will also review further works done on such relevant provisions of the CBD. Of particular importance in this regard would be various COP Decisions and Documents (COP stands for Conference of Parties, which is the highest decision-making body under the Convention). For instance, on Article 8(j) (which obliges members to preserve and maintain knowledge, innovations and practices of indigenous & local communities) there are many decisions like, Decision XIV of COP-3, IX of COP-4, XVI of COP-5, X of COP-6 etc. Developments in the Working Group on Article 8(j) will also be considered for the research. Similarly there is an *Ad Hoc* Group on Access and Benefit Sharing. The research study will take into account developments in this *Ad Hoc* Group as well. Apart from all the relevant official documents, selected secondary literature will also be reviewed.

The research on CBD will also take into account the *Born Guidelines on Access and Benefit Sharing* which was adopted in April 2002 during COP-6 and developments, if any, made since it was adopted.



2. Food and Agriculture Organisation's *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGR), which was adopted in 2001 and which would have come into force on 29th June 2004. The text will be scanned, like the CBD, in order to understand the scope and mode of protection that ITPGR would provide to IK. As ITPGR is based on CBD principles and is mandated to go along with developments under the CBD, insights gained on the latter would be useful here.
3. In the WTO Agreement on *Trade Related Aspects of Intellectual Property Rights* (TRIPS) the team will review secondary literatures to understand, among other things, the scope of the flexibilities that it provides to parties for the protection of IK and how such flexibilities can be used optimally by the WTO members. The team will also review the debates and discussions in the TRIPS Council in the post-Doha scenario. Many countries, including India, are pushing for the inclusion of "disclosure requirements" (Mode 3 protection) in the TRIPS Agreement. They are also demanding an international framework for (Mode 4) protection of IK. The researchers will particularly review the scope of TRIPS-CBD interface. Scope of protection of IK through Geographical Indication under TRIPS will also be analysed in detail.
4. The World Intellectual Property Organisation (WIPO) has taken certain initiatives for the protection of IK. In 1997, WIPO created Global Intellectual Property Issues Division, which is exploring the intellectual property needs of holders of IK and genetic resources. During 1998-99 it had undertaken *Fat Finding Missions* in this regard. In 2000 WIPO Assembly established an *Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore* (IGC). The discussions that have taken place in the IGC and the findings of FFM will be reviewed and examined.

Furthermore, in 2001 the WIPO Assembly endorsed an initiative called "*WIPO Patent Agenda*". Main activities under this agenda are: to promote the ratification of Patent Law Treaty; the reform of Patent Cooperation Treaty; and the negotiations on Substantial Patent Law Treaty (SPLT). Scholars like Prof. Carlos Correa have cautioned that SPLT may reduce the policy space that the TRIPS Agreement provides. The SPLT aims at creating uniform standards on issues such as prior art, novelty, utility and inventive steps, disclosure, drafting and interpretation of claims, grounds for refusal of an application, and issues related to revocation and invalidation of patents. Some of these issues can have a bearing on the protection of IK. The research team will critically analyse the draft SPLT and country submissions made in this regard.

5. Research and analysis of the *OAU Model Legislation* (Organisation of African Unity Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources) will also be done. The OAU Model Legislation seems to be strong from the community perspective. For instance, it lays down in the context of Access & Benefit Sharing (ABS) that the state and collector of bioresources can enter into written contract only with the full participation and approval of the local communities concerned. The institutional mechanism under the Model Legislation also seems to have taken into account customary practices and laws



of indigenous and local communities. The Model Legislation also has provisions on documentation and provides guidance for collectors of bioresources.

6. *Convention for Farmers and Breeders* is a model agreement drafted by Gene Campaign in December 1998 as an alternative to UPOV (International Convention on the Protection of New Varieties of Plants) and has been commended in the UNDP Human Development Report. This model agreement will be revisited to see what clues it offers for the (international) protection of Farmers' Rights and whether or not any improvement is needed in this draft agreement.
7. *Crucible Group Initiatives* Crucible Group is the name given to a group of experts, representing all stakeholders, who met periodically in 1990s and came out with few very well researched documents covering macro and micro law/policy issues with respect to genetic resources and IK. This Group was facilitated among others by the IDRC. The Research Team will be benefited by reviewing the research documents by the Crucible Group. The Crucible reports are very sensitive in dealing with the micro legal questions that the Research Team might face in this study. Reviewing these documents would help in understanding various options that can offered to cover different aspects of a model law to protect IK.

After this initial research exercise, the Research Team will venture into research and analysis in order to answer research questions, such as:

- What clues do the existing international instruments and efforts offer for protecting IK in India?
- Would the implementation of such international instruments in India have an overall positive or negative impact, at the national level and at the community level?
- Are the provisions contained in these instruments adequate to protect the interests of the rural and *adwasi* communities in India?
- What are the other initiatives required at the international level, to protect the interests of rural and *adwasi* communities in India and the developing world?

Mr. Kumar requested the participants to critically comment on the categorisation of 'protection' of IK, and the research design that has been adopted.

Mrs L. Balasubramanian of Corporate Law Group presented her viewpoint on the existing provisions for the protection of IK in various IPR laws of India. She tried to define IK as a body of knowledge transmitted from one generation to another and in the process it is getting further developed, evolved or modified to the advantage of the society. IK is generally not documented and is not accessible to all common people. The need to protect IK arises due to its piracy, exploitation and expropriation. The indigenous people are not getting due reward and recognition for their knowledge.

The mechanisms to protect IK could be:

- by keeping it secret (trade secret) – like what some *vidyas* (local healers) are doing; or
- by linking it with existing IPR legislation and modifying these IPR laws to provide these linkages; or



- through a *sui generis* system.

Mrs. Balasubramaniam limited her talk to the existing provisions in the IPR laws. Such IPR laws are:

- Biological Diversity Act, 2002 (BDA)
- Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV-FR Act)
- Patent Act, 1970 (including subsequent amendments in 2002)
- Geographical Indication Act, 1999 (GI Act)
- Other legislations (Trade Marks Act and Copyright Act)

Biodiversity Act has the main aim of conservation and sustainable use of biodiversity. While doing so the Act also recognises and provides for rewards to the developer of the new biological material. According to the Act, non-Indian citizens or non-resident Indians or a corporate body not registered in India cannot use biological material originated from India for any *research* or commercial activity without prior permission of National Biodiversity Authority (NBA), set up under the Act. There are penalties for not adhering to this provision. The Act also prohibits transfer of results of research (except for the existing collaborative research project) related to such biological material or associated IK to non-citizens of India, without prior approval of NBA. These provisions are to get control over expropriation and exploitation of bioresources and IK.

Any person who is seeking protection of IPR generated out of such bioresources or IK has to take prior permission of the NBA, before s/he can even file for such protection. This provision applies not only to non-Indians but to Indians also. The BDA regulates access to biological materials and/or IK by Indian and non-Indian citizens. However the regulation of access for the Indian citizens applies only when there is commercial involvement or monetary gain. For research purpose Indians are not required to obtain permission from the NBA. The BDA empowers the NBA to impose royalties (and compensation when somebody is doing something wrong) to ensure equitable sharing of benefits to all concerned parties. Furthermore, the NBA can stop access to any bioresources that are in danger of getting extinct.

The BDA, like the PPV-FR Act, has constituted a fund which helps in sharing benefits as well as to support conservation efforts. This Fund is to be raised through fees, royalties, fines etc. The BDA provides penalties of imprisonment up to five years or a fine of up to Rs.10 lakhs (Rs.1 million) for the contravention of the prior approval provisions. In addition, if the loss is more than Rs.10 lakhs, then the fine has to be commensurate with the loss. Penalties for the contravention of the other provisions of the Act or any direction of the NBA or the Government can be a fine up to Rs.1 lakh for the first offence, which multiplies for subsequent offences. Such stringent penalties are expected to act as a preventive deterrence for breaking the law.

PPV-FR Act was notified in 2001, the Rules were notified in September 2003 while the Regulations are not yet notified. The Regulations are pending because the Authority has not been formed yet, which will publish it. However, the Regulations have already been framed and given to the Ministry of Agriculture. The PPV-FR Act acknowledges farmers as conservers, cultivators, preservers, developers and breeders. The Act allows farmers to protect their varieties through a simplified procedure. Most importantly, the Act insists on registering ancestry of material used to develop any new or essentially derived



varieties. In other words, the relevant information (such as passport data of the genetic material, source of the materials, whether prior consent has been taken etc.) have to be disclosed in the application claiming protection for the invention.

The PPV-FR Act has provisions for the farmers to claim a share for their contribution in development and registration of a variety, if it has been derived using a farmers' variety. There is also a provision for the setting up of a Gene Fund for sharing of benefits and to support conservation efforts. The Act also protects extant varieties. The Government has powers to regulate varieties to be protected, for instance, it may restrict certain varieties if it feels that the variety should not be developed further on account of some damage to the society at large. Compulsory licensing provisions are also incorporated in the Act.

The *Patent Act*, as amended in 2002, incorporates exceptions to patentable subject matter to take care of ethical and other related issues. For instance, the Section 3(b) excludes from patentability materials that are harmful to the society (ethical and moral aspects); Section 3(d) excludes discovery (only inventions are patentable, if other criteria are met); Section 3(j) excludes plants, animals and their parts as well as essentially biological processes from patentability; and Section 3(p) excludes inventions from patentability that are in effect traditionally derived knowledge.

Under the Indian Patent Act *complete disclosure* is mandatory. That means the patent application has to give complete details such as origin of the material used, owner of the material, and whether prior consent has been obtained from the owner. Non-disclosure or incorrect disclosure is one of the grounds for opposition and/or revocation of patents. In addition to that the applicant has to deposit the material being used in a depository, which has to be made accessible to the public for research after the patent is published. The Act prohibits Exclusive Marketing Rights for the claims based on Indian Systems of Medicine. According to the Act, the knowledge available (oral or otherwise) within local/indigenous communities is considered to be anticipated and hence not patentable.

In light of the Biological Diversity Act, the third amendment to the Patent Act (which is being introduced in the Parliament) is proposing at least two changes. The first is the provision for submitting the evidence that prior informed consent of the owner of the genetic resources and/or the IK has been obtained. The second is to submit a certificate from the National Biodiversity Authority before the sealing of the patent in case the invention relates to biological resources.

Geographical Indication Act, 1999, which is basically meant to prevent misusing the origin of any product, can also be used to protect IK. It is meant for the community and not for individuals as against patents. For instance, the words 'Assam Tea' can only be used for tea produced in Assam and by the people who are cultivating it in Assam. Kanjivaram saree can be another example. Similarly, *Trade Marks Act* (certification marks) and Copyright (for database) can also be used to protect IK.

Dr. B.D. Shama began with appreciating the project as it is making an effort towards conceptual clarification and set a clear basic premise. To him, however, some of the concepts are very basic and the group has to continue working towards arriving at a clearer frame.

He began with the concept of 'tradition' itself. In the English language there is no exact words, which may distinguish between *parampara* and *raahi*. Today 'tradition' is presumed to be something old, something archaic and therefore it is to be preserved. Actually this is not the case. Tradition in the form of *parampara* is like the flowing water, the irrelevant elements are discarded and new elements are incorporated. In contrast, *raahi*, which is also taken as equivalent of tradition, is like a closed pool of water, which can become a cesspool. Therefore all English-thinking people seem to put tradition, interpreting it as *raahi*, in the backyard to adhere to what is called modern, which may be totally devoid or divorced from the living tradition (*parampara*) of people. To Dr. Sharma, there can be nothing more modern than tradition or *parampara* of a people.

Reflecting on Mr. Kumar's categorization of "protection", he was of the opinion that it is not the question of protection, but keeping the tradition alive. More so, it might be impossible to convince the communities of the prevailing concepts of protection. In their perception the knowledge is to be universally shared. Dr. Sharma, therefore, emphasized the need to clearly understand as to what do we mean by "protection", and that positive connotation has to be given to such a meaning. Revival of IK system should be inherent in the 'protection' of IK.

Giving his views on the fact that "traditional methods are not being recognized as scientific", Dr. Sharma questioned how a few people experimenting within the four walls of a laboratory can be said to be scientific while millions of people observing something and coming to a certain conclusion is said to be unscientific or less scientific. He lamented on the self-centeredness of the modern scientists, who think that their laboratory is the universe. To him, there has to be a reversal in the conceptual frame (of what is scientific) itself.

After the coming of the British, the process of change has been forced from above. The processes of change within the community, which is as natural as life itself, are not even recognised. To him, the biggest tragedy after the advent of the British was that they excluded community from the entire legal frame of India. Communities and their traditions do not find any place in the legal frame of this country; consequently the natural process within community has become legally irrelevant. He, therefore, suggested that the 'process of change' has to be perceived from the internal sense.

Giving an example from China, Dr. Sharma appreciated the fact that they acknowledged whosoever was practicing medicine (traditional healers etc.), and made those practitioners the foundation of their medical system. On the contrary, in India such traditional medical practitioners are classified as quacks, which was true even for ayurveda practitioners for quite long. He cited the example of traditional *daai* (Traditional Birth Attendant) being excluded from the modern childcare and maternity services system. Such *daais* continue to be the foundation of the maternity and childcare system in rural India. The irony is that the midwives, who do not really attend to the women, are taken as the foundation of our modern childcare and maternity service system, whereas the *daai*, who does everything from ten days before birth (of the child) and ten days after, is not recognised. He felt disappointed that he could not succeed in incorporating *daais* as the foundation of the childcare system, while he was in the Ministry of Home Affairs and the Secretary of the Department of Tribal Affairs. This, according to him, is reflection of antipathy against anything called traditional. According to him, we are not able to take advantage of

the knowledge that exists in the traditional system, which is still a living system and not a dead one.

Dr. Sharma made it clear that tradition and community are inseparable - if there is no tradition there is no community. According to him the biggest irony in our country is that people are totally unaware of the legal system of the country, which is meant to govern them. Yet ignorance of law is no excuse. And the legal system, in general, does not recognise the traditions and customs of people, which governs their life in reality. The two, therefore, operates on two different planes which do not intersect. "The rural India remained enslaved even after the independence of the country, while tribal India was enslaved after adoption of the constitution," he added. The British were never able to conquer the tribal areas, because the entire tribal population was up in arms against any intrusions. The British, in general, excluded tribal areas from their administrative systems. The communities in the tribal areas have been weakened after independence. Fortunately, however, there has been some retrieval in 1996, as stated earlier, when a new Constitutional provision was added. According to the provision, the whole definition of village, the village assembly, the community etc. are all community-centred. Communities and their traditions of the tribal areas are now a part of the Constitutional frame and are at the centre of governance at that level. Unfortunately, the entire political system, including the bureaucracy, has not got reconciled to this provision. He emphatically suggested for the purpose of this project that whatever research/activities are to be done the *tradition* has to be the basic unit.

Dr. Sharma was quite emphatic in saying that whatever alternative system built in terms of law, is built from above, will be against the community and their traditions. Law made with top-down approach is the biggest enemy of the poor, because in that only money and manipulation win. Laws will have to be made keeping communities in the centre. Presumptions are to be made in favour of the communities rather than the capitalists, scientists, administrator and so on. Unless we take that caution, even the best laws will be against the communities.

He suggested visiting some of the areas where the communities are still functioning (for example, Bastar in Chhattisgarh, many areas in Jharkhand etc.) and to take the community as a unit and try to understand the system in its totality, because if we want to retrieve only one part of their tradition, it might not be possible. According to Dr. Sharma it is clear that even though constitutional provisions are made in favour of the tribals, in tribal areas the state and the communities are still at loggerheads. Today the community is facing the worst crisis. The Naxal phenomenon is basically a phenomenon between people and state. Given the fact that communities are facing crisis, the question is how much we are able to retrieve their traditions, in general and their IK in particular. For the purpose of this study, he is not suggesting taking up everything all at once in the name of 'indivisible whole', but he recommends that the issue of the protection of IK should be considered in light of the total picture. The relationship of IK with the totality is crucial for this research, particularly when it comes to framing a legal model for the protection of IK.

Dr. Sharma concluded that he has been extremely benefited by deliberations made during the Meeting and thanked Gene Campaign for giving him the opportunity to share some of his thoughts with respect to the conceptual frame itself, which, according to him, is crucial for the project study.

Dr. Gargdhan appreciated Dr. BD Sharma's views and pointed out that these views are of much relevance for the Ayurvedic system. Dr. G wanted to use the word 'revitalisation' instead of 'protection' or even 'revival'. To him, 'revival' is something that would reinstate the past in the present, while 'revitalisation' keeps the dynamism intact – it changes as per the changing time based on the principle, which is universal. In other words, revitalisation of IK will mean making it applicable for the contemporary need.

Dr. Kalyan Kumar Chakravarty Member Secretary IGNC and Director General, National Museum informed about his involvement in opening around 60 hospitals. These hospitals are based on tribal medicine (folk medicine hospitals). This was executed when he was working as Additional Chief Secretary in Chhattisgarh and was in charge of forest, culture, education etc. To him, the non-recognition of folklore medicine system (unlike Ayurveda, Siddha and Unani systems) should not come in the way of their application. He further opined that the erosion of the knowledge is faster than the erosion of the resources. Therefore conservation of knowledge should be the aim and the joint forest management (or community forest management) should immediately pursue this aim.

Dr. Chakravarty further said in the context of documentation that the orality and the contextuality of the tradition should be respected. There are certain spiritual and cultural obligations attached to IK, that a mechanical documentation exercise may exclude and which should not happen. Although IK is mostly spoken knowledge, communities have the capacity to codify, classify, communicate, disseminate etc. It is necessary that a *sui generis* discourse be evolved. Finally, he said that the north-south problem – matter is in South and mind is in North; production is in laboratory and reproduction is in the forest – has to be tackled. This is important because of the present IPR laws that allow protection only for the chemical modifications that are done in the laboratories, but discard various modification processes used by the communities in the forest.

Ms Dilruba Mcharty International Labour Organisation, informed the meeting about ILO Convention 169 which deals with the rights of the indigenous and tribal peoples. Prior to Convention 169, it was Convention 107 that was ratified by India in 1958. Convention 107 was integrationist in nature and tended to bring indigenous communities into the mainstream development process thereby diluting the diversity/ ethnic difference existing amongst such communities. Convention 169, on the other hand, which has not been ratified by India, recognises and supports the ethnic differences and respects them. It further speaks of the rights to be different for different communities. Although there is no direct reference to IK, there are many provisions in the Convention 169 which do support the preservation of IK, such as protecting traditional culture and traditional occupations, including the agricultural practices. The Convention is also concerned with the erosion of indigenous seed varieties, which are more hardy, pest resistant and drought resistant, but which are giving way to the modern crop varieties, as these are not considered to be economically viable. She suggested that the Project should endeavour to create some niche markets for indigenous crop varieties and other organically grown foods. This will do away with the concern of not being economically viable and hence encourage the people to preserve indigenous seed varieties.

Ms. Mohanty further suggested that the Project should consider developing a curriculum in the local education system of the *actus* children, which will in turn counteract the tendency of erosion of IK by bringing the youth into the loop. She also informed the

meeting about one initiative that ILO jointly with the CIDA (Canadian International Development Agency) and the World Bank had undertaken a few years ago. They have developed a generic set of guidelines on integrating IK in project planning and implementation. The Project might like to take into account these guidelines in order to see how best it can be adapted for consultative processes.

Mr. Sansar Chandra from Development Alternatives, appreciating and supporting the remarks made by Dr. BD Sharma, said that we need to be clear that the present mode of the centralised governance (which is bureaucratic, opaque and corrupt) is basically anti-community. He drew attention to the fact that the government is pursuing illegal governance since the last 10 years, because according to the Constitutional amendment (Article 243 ID) the Planning Commission is obliged to send money directly to the District Planning Board. Although the amendment had been made 10 years back, the provision is not followed even today. He had brought this to the notice of the present government, but no action has been taken. There seems to be no political will as well. He suggested creating a strong lobby group to meet this end.

Ms Santita Barch, NE Network, Guwahati, reflected on Dr. BD Sharma's remarks on quackery. Learning from her experience in Arunachal Pradesh, the very topic of the meeting – protection of IK of biodiversity – seems conflicting to her. In the Sujusha district of Arunachal Pradesh, Moon Bears are killed by the local adivasi community and their skin and nails are used for traditional healing systems. She further informed how the Hornbills, which are killed by the *Nishi* tribe of AP in order to use the bird's beak as traditional headgear, are becoming extinct. How are these customary practices helping the protection of IK and biodiversity? Are there any laws that can protect biodiversity from these kinds of customary practices?

Ms Arita Sharma, INTACH, reflected on Samhita's observations in AP. From her field experience in AP, Ms. Sharma found that even though some of the practices of the tribal communities were apparently against some of the environmental laws, such practices had their own sanity. For example, today not many Nishis wear Hornbill hats and most of them are passed down from generations. Many of the community members who still aspire to hunt for Hornbills and other wildlife wish to meet their food requirements, because when they visit the nearest towns (which are not so near though) the vegetable items are very costly for which they might not have enough money. So when they come into conflict with the market there could be discrepancies, otherwise if we look into the laws (read customs) of the land, there is a sanity that prevails.

Ms Barch at this point informed us about the effort by the Wildlife Trust of India in distributing plastic Hornbill headgear amongst the Nishi people. Initially people accepted these, but now they are resisting it.

Dr. Bhasker Sirta from Ashoka Trust for Ecology and Environment, New Delhi, was of the opinion that apart from documenting the IK of particular products and processes, it would be important to study and understand some traditional institutions that have impacted on biodiversity conservation. He shared information that in Orissa there are many villages, acting collectively as a federation, which were able to regenerate forests which in turn has led to the increase in the forest cover. He was of the opinion that this Project should make an endeavour to document such manifestations of communities at the institutional level which have contributed in the conservation of biodiversity and the



associated IK. Endorsing Dr. BD Sharma's remarks, Dr. Sinha pointed out that although there are laws and policies that require participation by communities, in general it does not happen so on the ground.

Mr. Ujjwal Kumar, in his concluding remarks said that the Hornbill issue raises one generic question – that if a customary practice of a tribal community is apparently destructive of biodiversity, then what should be the course of action. “How to address such customary practices into the legal framework” is a question that the project can address. He, however, believed that protective measure vis-à-vis any endangered species are built in tribal customs. For instance, generally speaking, it is a taboo amongst the tribal communities to kill any wild animal in its mating season or when they are pregnant. This should be correct with respect to Hornbill also. In his opinion, it may be that this aspect in Nishi's custom (that takes care of the reproduction of Hornbills) might have been eroding due to their interface with modern developmental process. They might still be using Hornbill headgear, but would be forgetting to take care of the bird's reproduction. We need to make them aware about the aspect of their customary practice that is protective of biodiversity, instead of introducing “plastic” hornbill headgears. (Later *Ms Indira Bajpai* from Gene Campaign clarified that killing of hornbills is prohibited by customary laws of that community during their mating season. Most of the customary practices have in-built mechanisms to preserve biodiversity).

With respect to overall observation about the meeting, Mr. Kumar learnt that the project would have to adopt a decentralised process. “While pursuing the study we will have to take into account most input from the community level – what communities want rather than what we (as researchers) want. We need to reverse the top-down approach of policy-making and follow the bottoms-up approach”, concluded Mr. Kumar.

Mrs L. Balasubramanian, in her concluding remarks said that there are provisions of laws to protect IK, but they are not enforced to the required extent. The implementation of laws like Biodiversity Act has to be done at the local level. Secondly, she opined that we should take community with us rather than being a regulator for the community.

Dr. BD Sharma talking about ‘taking community with us’ or ‘people's participation’, said that these are all colonial concepts. We have to go with the community and not take them along with us. He also challenged the *laissez-faire* of the State to endow powers on the *Gram Sabha* comprising the village community, as provided under laws (concerning the Gram Sabha for general areas), including Constitutional provisions. “Community is self created,” is the concept that has to be at the centre. For instance, with respect to forestry and forest management, the law/policy provides to “take along the communities...” Unless the community has the control & command over the resources and forest, how can we expect the forest to be protected. Today so long as forest stands, tribal community can claim only one thing, i.e. the wage when the forest is cut. Otherwise, in general, they are banned even from venturing into the forest.

If the symbiotic relationship of the tribal community and the forest is respected, these people will protect the forest even at the risk of their lives. According to Dr. Sharma this is the basic contradiction in our whole system. He was happy to say that in the case of tribal areas they have been able to correct this basic conceptual flaw, although the political executives and the bureaucrats have not reconciled themselves to it. He mentioned the definition of the *Gram Sabha*, which is community at the village level and



hence is not created by the State. Village has been defined as a community functioning according to its customs and traditions. This village community in the form of *Gram Sabha* is competent to safeguard and preserve the traditions and customs of the people, their cultural identity, community resources and customary mode of dispute resolution.

Therefore, to Dr. Sharma, the principle of eminent domain becomes incongruous. In the case of Scheduled Area with *Gram Sabhas* competence to manage all its affairs and command over resources, the Constitution virtually stands on its head, because under the Constitution the whole frame is based on the fact that “the State is the owner of every resource”. So long as the State is the owner of resources, we can see what is happening – open loot of the resources is going on in this country. This loot can be countered only by the people who command these resources and whose livelihood depends on these resources. With this change in perception (rather U-turn) has to be brought about in this country.

If community is in the centre, all our problems will be taken care of. Unfortunately, today the State is the operator and protector, so the communities have nothing to do, and no place to apply their minds. There is no alternative, but to bring communities in the centre.

Dr. *Vera Jha*, concluding as the Chairperson, appreciated Gene Campaign for this effort and wished well for the project. With respect to the international instruments on the protection of IK, she mentioned about *suu gravis* systems and UNCTAD’s works on this. UNCTAD has evolved some of the elements of a *suu gravis* system for the protection of IK, which are as follows:

1. Collectively held rights, no individual rights
2. Clear system of access to such rights and benefit-sharing (it may be easier to set up mechanisms to prevent misappropriation of IK, but it is very difficult to set up a mechanism for benefit-sharing)
3. Land-resource rights have to be vested in communities; it should not be vested in individuals. There is a great need for clarification of land-resource rights of IK holders. Measures of vesting land-resource rights with communities will have to be thought out very carefully, because in most cases land is the sovereign property of the government. Most of the plant genetic resources reside in the areas, which are the sovereign property of the government.
4. *Representation* from different levels of community should be done for their involvement, as wide participation and consultation is very difficult to actualise.
5. Creation of effective incentives for research. This has to be a very important part of any system of protection of IK. Incremental knowledge is very important, but today this is being discouraged. Research into the IK, even by so called modern people will be very useful.

Summing up the Meeting, Dr. Suman Sahai thanked all the speakers and participants. She found this meeting to be very useful and going in the direction that the Project Research Team was hoping to take. She hoped to have access with all the speakers and participants in a more interactive manner in future.



ANNEX. I

PROTECTION OF INDIGENOUS KNOWLEDGE OF BIODIVERSITY

Project Launch Meeting Programme

Date: 7 July 2004

Venue: Conference Hall No. 2 (above dining hall)
India International Centre, New Delhi

9.30-10.00 Registration

10.00 - 11.30 Session I - The Project (**Chair - Dr. Amrit Sinivasan, IIT, Delhi**)

- **Dr. Suman Sahai** - Introducing the project ' Protection of IK of Biodiversity
- **Prof. Anil Gupta, IIM, Ahmedabad** - Protection of IK: Present Scenario and Suggestions for the Research.
- **Open Discussion**

11.30 - 11.45 Tea Break

11.45 - 13.15 Session II - Overview: IK Protection (**Chair - Dr. Neera Burra, UNDP**)

- **Mr. Darshan Shankar, Director, FRLHT, and Bangalore** - Indigenous Knowledge of Biodiversity: What Needs to be protected?
- **Dr. Yogesh Gokhale, CES, IISc, Bangalore** - Peoples Biodiversity Register and its role in IK protection
- **Dr. Madhav Karki, Regional Programme Coordinator, MAPPA, IDRC -SARO** - Discussant
- **Open Discussion**

13.15 - 13.45 Lunch Break

13.45 - 15.15 Session III - Customary Practices and Documentation of IK
(**Chair - Dr. G. Gangadharan, Joint Director, FRLHT, Bangalore**)

- **Dr. P. Pushpangadan, Director, NBRI, Lucknow** - Benefit Sharing: The Strengths and Weaknesses of *Kari* Experiment
- **Dr. G. Gangadharan** - Needs of Ayurveda Industry
- **Mr. R. Saha, Director, Director, TIFAC, New Delhi** - Discussant
- **Open Discussion**

15.15 - 15.30 Tea Break

15.30 - 17.00 Session IV – International Scenario and Conclusion

(**Chair - Dr. Veena Jha, Programme Coordinator, UNCTAD, India**)

- **Mr. Ujjwal Kumar, Policy Analyst, Gene Campaign** - International Instruments and Initiatives for protection of Indigenous Knowledge
- **Mrs. L. Balasubramaniam, Head, IPR Practice, Corporate Law Group, New Delhi** - New Indian Legislation in the context of IK protection
- **Dr. B. D. Sharma** - Giving Indigenous People Rights over Indigenous Knowledge: The Way Ahead
- **Open Discussion**



ANNEX. II - LIST OF PARTICIPANTS

Ms. Dilnawaz Mahanti
National Project Manager
International Labour Organisation
India Habitat Centre, Core 4 B, 3rd Floor, Lodi
Road, New Delhi 110 003
Ph: 011 2460 2101-3
dilnawaz@ilodel.org.in

Mr. Dilip Jha
Sr. Scientist, Faith Healthcare Pvt. Ltd.
57, Manjusha Building, 5th Floor, Nehru Place,
New Delhi 110 019
Ph: 011 2629 2599
badaljha@yahoo.com

Mr. Debendra Biswal
Sr. Research Fellow
Dept. of Anthropology, University of Delhi
90, Jubilee Hall, University of Delhi, Delhi 110 007
Mobile: 98684 04812
dkbiswal@rediffmail.com

Dr. Gautam Vohra
Chairman
Development Research & Action Group (DRAG)
75, Paschim Marg, Vasant Vihar
New Delhi 110 057
Ph: 011 2614 2383, 2614 4146
priyasen@id.eth.net

Mr. Hari Dang
President, The World Education Centre Society
(TWECS)
Wilderness House, 1 Factory Road (ring Road
South), New Delhi 110 029
Ph: 011 2619 8954/ 8255, 2616 3766,
26713879 (D), 98107 43433
Fx: 011 2619 8954
haridang@vsnl.com

Mr. Jyotiraj Patra
Research Scholar
School of Environmental Sciences
Jawaharlal Nehru University
Room No. 108 Kaveri Hostel, JNU
New Delhi 110 067
Mobile: 98113 20123
raj_1515@rediffmail.com

Dr. Kumud Sharma
Sr. Fellow, CWDS, 25, Bhai Vir Singh Marg,
New Delhi
Ph: 011 2335 530
kumud@cwds.org

Dr. Krishan Bir Chaudhary
Executive Chairman
Bharat Krishak Samaj
A1 Nizamuddin West, New Delhi
Ph: 011 2435 9508-09
bksnd@vsnl.net

Mr. Avinash Jha
Librarian, Centre for the Study of Developing
Societies
29, Rajpur Road, New Delhi 110 054
Ph: 011 23942199 extn. 209
avinash@csdsdelhi.org

Mr. Ajey Lele
Research Fellow, IDSA
Block III, Old JNU Campus, New Delhi 110 067
Ph: 011 2687 7541
avlele@sify.com; ajeylele@yahoo.co.in

Dr. A. P. Dikshit
Vice Chancellor, Srishti University
C-49, First Floor, East of Kailash,
New Delhi 110 065
Ph: 011 2632 2639
apdikshit@yahoo.com

Dr. A. T. Dudani
Former President
Society for Citizen Concerns
C-35, Panchsheel Enclave, New Delhi 110017
Ph: 011 2649 7724, 2649 9764
Fx: 011 2649 9764 (Fax)
neemath@vsnl.com; atd@touchtelindia.net

Mr. Ashok B. Sharma
Agriculture Editor, Financial Express
9-10, Bahadurshah Zafar Marg, New Delhi 110 002

Dr. Aseema Sinha
University of Wisconsin-Madison



Mobile: 98109 02204; Fx: 011 2370 2164
ashoksharma@yahoo.com

asinha@polisci.wisc.edu

Ms. Bahar Dutt
Project Manager, Wildlife Trust of India
C-644, New Friends Colony, New Delhi 110 065
Ph: 011 2632 6025
bahar@wti.org.in

Mr. Abdul Jaleel Ansari
Proprietor, EITCO
Mobile: 98474 04128
Ph: 0466 225051
abduljalil@rediffmail.com

Mr. Budhram Munda
Bharat Jan Andolan
11A, Nanglirajapur, Nizamiddin East
New Delhi
Ph: 011 2435 3997

Dr. Bhaskar Sinha
Fellow, ATREE
B-80, Shivalik, Malviya Nagar,
New Delhi 110 017
Ph: 011 2669 3299, 2669 3190; Fx: 2669 3299
bsinha@atree.org

Mr. B. Koteswara Rao Naik
Research Scholar
Department of Management Studies
Indian Institute of Technology Delhi
Hauz Khas, New Delhi 110 016
Ph: 011 2659 1171/ 6267/ 6403, 98189 84960
Fx: 011 2686 2620
bkrnaik@rediffmail.com

Mr. B. Khan
Managing Trustee, Human Resource
Development Foundation
115, Pocket B, SFS, Sukhdev Vihar,
New Delhi 110 025
Ph: 011 2631 2545
bkhan_2002@yahoo.com

Mr. B. K. Keayla
Convenor, National Working Group on Patent Law
A388 Sarita Vihar, New Delhi 110044
Ph: 011 2681 3311, 2694 7403

Mr. Chaitanya Kaushal
Trade Officer, European Commission
European Union, Delegation of the European
Union in India, 65 Golf Links, New Delhi-110003
Ph: 011 2462 9237; Fx: 011 2462 9206
chaitanya.kaushal@cec.eu.int

Ms. Kasturi Mukhopadhyay
V-23, Green Park (Main)
New Delhi 110 016
Ph: 011 2652 1484
mkasturi@hotmail.com

Dr. K. V. Sundaram
Chairman, Bhoovigyan Vikas Foundation
641, Sector A, Plot C, Vasant Kunj,
New Delhi 110 070
Ph: 011 2689 8125; Fx: 011 2619 3985
bhoovigyan2000@yahoo.co.uk

Dr. Kalyan Raipuria
Ex. Senior Economic Advisor
Ministry of Consumer Affairs, Food & Public
Distribution
223, Sector A, Pocket C, Vasant Kunj
New Delhi 110 067
Ph: 011 2689 0205
kalyan_raipuria@hotmail.com

Dr. K. K. Chakravarty
Member Secretary & Trustee
Indira Gandhi National Centre for the Arts
and Director, National Museum
C.V. Mess, Janpath, New Delhi 110 001
Ph: 011 2338 3895; Fx: 011 2338 8280
msignca@yahoo.com; ms@ignca.org

Ms. Manidipa Baul
PEACE
F-93, Katwaria Sarai
New Delhi 110 017

Dr. Monica Banerjee
Sr. Programme Officer
National Foundation For India
India Habitat Centre, Zone 4-A, UG Floor, Lodi
Road, New Delhi 110 003
Ph: 011 2464 1864-65, 2464 8490-92
Fx: 011 2464 1867
monica@nfi.org.in

Mr. Manjeet Singh Saluja

Dr. M. M. Jha



Environment Scientist
Development Alternatives
B-32, Tara Crescent, Qutub Institutional Area
New Delhi
Ph: 011 2685 1158, 2696 7938; Fx: 011 2686 6031
manjeetsaluja@sify.com

Dr. M. Moni
Deputy Director General
National Informatics Centre
A-Block, CGO Complex
New Delhi 110 003
Ph: 011 2436 2790
moni@hub.nic.in

Mr. N. Srinivasan
Coordinator, BINASIA
UN-AGCTT, Qutub Institutional area, P.O. Box
4575, New Delhi 110 016
Ph: 011 2685 6276; Fx: 011 2685 6174
srini@agctt.org

Dr. Nakhat Ara Naqvi
Asst. Editor, Agriculture Today
C-17, Third Floor, Lajpat Nagar-I
New Delhi 110 024
Ph: 011 5159 1457
nakhat1@rediffmail.com

Mr. Pratyush K. Jena
Programme Coordinator
Church of North India - Synodical Board of Social
Services
16, Pandit Pant Marg, New Delhi 110 001
Ph: 011 2371 8168/ 3126 2335 1727
cnisbss@nda.vsnl.met.in;
pratyush30@rediffmail.com

Dr. Rajendra Gupta
Retd. Programme Coordinator, ICAR
B-I/46, Paschim Vihar, New Delhi
Ph: 011 2528 2909

Mr. Raman Mittal
Asst. Professor, Indian Law Institute
Bhagwandas Road, New Delhi 110 001
Ph: 011 2307 3295, 2272 4986 (R)
mittlaraman@yahoo.com
raman@ilidelhi.org

Mr. R. N. Nandwani
Retd. C.G. Officer
II C- 101, Lajpat Nagar, New Delhi 110 024
Ph: 011 2981 9948

Sr. Research Officer
Bhoovigyan Vikas Foundation
641, Sector A, Plot C, Vasant Kunj
New Delhi 110 070
Ph: 011 2612 1672; Fx: 011 2619 3985
jhageo@rediffmail.com

Mr. Narendra
Vasudhaiv Kutumbakam
14 E Munirka DDA Flats, Munirka
New Delhi
Mobile: 98109 28859
snaren@rediffmail.com

Ms. Nidhi Agarwal
Programme Officer
Wildlife Trust of India
C-644, New Friends Colony, New Delhi
nidhi@wti.org

Prof. N. A. Azad
Professor & Dean
F/O Social Sciences, Jamia Milia Islamia
New Delhi 110 025
Ph: 011 2698 5178, 2698 5243, 98111 04255
azad_jmi@yahoo.com

Mr. Pratap Singh Negi
General Secretary
Groupious Social Welfare Society
Village P.O. Bisrahet, Block Syaldey, Dist.
Almora, Uttaranchal 263 661
Ph: 5613 7422
groupscharityngo@yahoo.com

Mr. Rajesh R.
Sr. Consultant, TARU
A-1/276, Safdurjung Enclave
New Delhi 110 029
Ph: 011 2619 7526
rajeshr@taru.org

Ms. Ruchi Pant
Policy Analyst, ECOSERVE
16-Deshbandhu Apts., Kalkaji
New Delhi 110 019
Ph: 011 2647 0539
ajayruchi@vsnl.net

Mr. Ravi S. K.
Action Aid India
C-58, South Extension Part II
New Delhi 110 049
ravisk@actionaidindia.org



Ms. Ritu Sharma
Confederation of Indian Industry
The Mantosh Sondhi Centre, 23, Institutional Area,
Lodi Road, New Delhi 110 003
Ph: 011 2464 1074 (D), 2462 9994 -7

Mr. Rohit Jain
SRUTI, Q-1, Hauz Khas Enclave
New Delhi 110 016

Mr. Sandeep Jomraj
PCED
15, Institutional Area, Lodhi Road
New Delhi 110 004

Dr. Ravi Chellam
UNDP, 55, Lodhi Estate
New Delhi 110 003
Ph: 011 2462 0919
ravi.chellam@undp.org

Ms. Sara Camblin Breault
First Secretary (Development)
Canadian High Commission
7/8, Shantipath, Chankyapuri, New Delhi 110 021
Ph: 011 5178 2000 Extn. 3454
Fx: 011 5178 2045 (Fax)
sara.camblin-breault@dfait-maeci.gc.ca

Mr. Sunil T. Mammen
CARITAS-India
CBCI Centre, 1 Ashok Place
New Delhi 110 008

Mr. Sanjeev Singh
PEACE
F-93, Katwaria Sarai, New Delhi 110 017

Dr. Shagufta Jamal
Reader, Jamia Milia Islamia
New Delhi 110 025
Ph: 011 2632 2096

Mr. Saurabh Sharma
Programme Coordinator
PAIRAVI
E-21/224-225, II Floor, Sector 3, Rohini
New Delhi-110 085
Ph: 011 2751 1385, 98911 17057
info@pairavi.org; saurabhinvincible@yahoo.co.in

Mr. Sanjeev Kumar
Lawyer
Mobile: 98103 11344
sanjeevkumarjnu@yahoo.co.in

Ms. Sarah Webster
Consultant,
International Labour Organisation
India Habitat Centre, Core 4 B, 3rd Floor, Lodi
Road, New Delhi 110 003
Ph: 011 2460 2101-3
webster@ilodel.org.in

Dr. Samar Verma
Policy Adviser- South Asia
OXFAM
C-28-29, Qutub Institutional Area
New Delhi
Ph: 011 5239 6000 (30 Lines)
Fx: 011 5239 6099 (Fax)
sverma@oxfam.org.uk

Mr. Sansar Chandra
Campaigner, People First
C/O Development Alternatives
B-32, Tara Crescent, Qutub Institutional Area
New Delhi
Ph: 011 2685 1158, 2696 7938
Fx: 011 2686 6031
people@sdalt.ernet.in

Dr. Suresh Sharma
Director
Centre for the Study of Developing Societies
29, Rajpur Road, New Delhi 110 054
Ph: 011 2394 2199; Fx: 011 2394 3450
suresh_sharma@csdsdelhi.org

Mr. Sanjay Upadhyay
Managing Partner, Enviro-Legal Defence Firm
278, Sector 15 A, Noida 201301
Ph: 0120 251 7248; Fx: 0120 251 7469
su@vsnl.com

Ms. Sandhya Tewari
Director, Confederation of Indian Industry
The Mantosh Sondhi Centre, 23, Institutional
Area, Lodi Road, New Delhi 110 003
Ph: 011 2464 1074 (D), 2462 9994-7
Fx: 011 2462 6149
sandhya.tewari@ciionline.org



Ms. Samhita Barooah
Programme Coordinator
North East Network, J.N. Barooah Lane
1, Jurpukhuri, Guwahati, Assam 781 001
Ph: 0361 260 3833, 263 1582; Fx: 263 1582
assammen@yahoo.co.in;
samhitabarooah@hotmail.com

Dr. S.K. Jain
Professor, Department of Management Studies, I.I.T,
Delhi, Hauz Khas, New Delhi 110 016
Ph: 011 2659 1168, 2686 2620
skjain@dms.iitd.ernet.in

Ms. Trisha Agarwala
Freelancer, North East Network
760, Asian Games Village
New Delhi 110 049
Ph: 011 2649 2744
tirsha_a14@yahoo.co.in

Dr. V. S. Chauhan
Director, ICGEB
Aruna Asaf Ali Marg, New Delhi 110 069
Ph: 011 2618 9358/ 60161, 2617 7357
Mobile: 98112 92508

Dr. Anil Gupta
Professor
IIM, Vastrapur, Ahmedabad 380 015
Ph: 079 2630 7241, 2630 7242, 2630 8357
Fx: 079 26306896
anilg@iimahd.ernet.in

Dr. B. D. Sharma
Bharat Jan Andolan
11A, Nanglirajapur, Nizamiddin East
New Delhi
Ph: 011 2435 3997

Mr. Darshan Shankar
Director, FRLHT
74/2, Jarakbande, Yelahanka
Bangalore 560 064
Ph: 080 2856 5708; Fx: 080 2856 5873
darshan.shankar@frlht.org.in
darshan@frlht.ernet.in

Dr. Neera Burra
Assistant Resident Representative
UNDP, 55, Lodhi Estate, New Delhi 110 003
Ph: 011 2462 0919; Fx: 011 2465 4604

Ms. Arpita Subhash
Centre for Studies in Science Policy
Jawaharlal Nehru University
New Delhi 110 067
aarpita@rediffmail.com

Mr. T.C. Sharma
Principal Specialist Cum Coordinator
Action for Food Production AFPRO
25/1A, Institutional Area, D- Block
Janakpuri, New Delhi 110 058
Ph: 011 2555 5412/ 3652

Ms. Vibha Varshney
Reporter, Down To Earth
41, Tuglakabad Institutional Area
New Delhi 110 062
Ph: 011 2995 5124
vibha@cseindia.org

Dr. Zeenat
Chairperson
Society for Promotion of Youth and Masses
B-4/ 3054 Vasant Kunj, New Delhi 110 070
Ph: 011 2689 3872; Fx: 011 2689 6229
spym@vsnl.com

Dr. Amrit Srinivasan
Associate Professor
Department of Humanities and Social Sciences
Indian Institute of Technology, Hauz Khas
New Delhi 110 016
Ph: 011 2659 1373
amritsn@hss.iitd.ernet.in
amritsrinivasan@hotmail.com

Dr. G. G. Gangadharan
Joint Director, FRLHT
74/2, Jarakbande, Yelahanka
Bangalore 560 014
Ph: 080 2846 0549; Fx: 080 2856 5895
vaidya.ganga@frlht.org.in

Dr. Madhav Karki
Regional Program Coordinator, IDRC
208, Jor Bagh, New Delhi 110 003
Ph: 011 2461 9411 ext. 104
Fx: 011 2462 2707
mkarki@idrc.org.in

Dr. P. Pushpangadan
Director
National Botanical Research Institute, Lucknow
Ph: 0522 220 5848; Fx: 0522 220 5819



neera.burra@undp.org

Mrs. L. Balasubramaniam
Head, IPR Division, Corporate Law Group
1106-1107, Kailash Building, 26, Kasturba Gandhi
Marg, New Delhi 110001
Ph: 011 3357713, 3357718, 3357726 Extn. 23
Fx: 011 335 7721
lbala@clgindia.com

Mr. Raghav Saha
Director, Technical Information, Forecasting and
Assessment Council (TIFAC)
Technology Bhavan, New Mehrauli Road, New
Delhi 110 016
011 26859581, 26863877, 26967458, 26567373,
26863866 (Fax)
tifac@nda.vsnl.net.in

pushpangadan@sataym.net.in

Dr. Veena Jha
Programme Coordinator
UNCTAD India
The Ambassador Hotel, Room No. 421, 2 Sujan
Singh Park, Cornwallis Road, New Delhi 110013
Ph: 011 24635036, 24645054, 24645055
Fx: 011 24635000
veenajha@unctadindia.org

Dr. Suman Sahai
Mr. Ujjwal Kumar
Mr. Raghunandan Velankar
Ms. Indrani Barpujari
Mr. Santanu Sabhapandit
Mr. Piyush Mohapatra
Mr. Ramit Basu
Mr. Shakeel Ur Rehman
Mr. Vivek Shahi
Ms. Nidhi Srivastava
Mr. Ranjan Mishra
Mr. Vinod Chandel

Gene Campaign
J 235/A, Lane W 15 C, Sainik Farms
New Delhi 110062
Ph: 011 2657248, 26856841
Fx: 011 26965961
genecamp@vsnl.com