

TECHNICAL NOTES

Bridging the Time and Tide –Traditional Knowledge in the 21st Century

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Traditional knowledge systems have by and large been relegated to the realm of myths and folklore. However, with the advancement of science and commercial successes chalked up by the pharmaceutical, nutraceutical and cosmetic behemoths, there has been a resurgence of scientific interest in the traditional knowledge systems. India with its vast and ancient pool of traditional knowledge is an easy target for accessing valuable TK and genetic resources. Unregulated access to these may lead to endangering of genetic resources as well as traditional forms of livelihood practiced by traditional communities thus impacting the ecosystem and the socio-economic-cultural fabric of India. This technical note explores immediate need faced by India to enact a *sui generis* legislation that will ensure that there is a regulated access to traditional knowledge with the prior informed consent of the traditional communities in such a manner that is not only fair and equitable but also in consonance with the traditional values of the traditional communities. It also examines salient features of the proposed *sui generis* model for the protection of traditional knowledge and traditional cultural expressions tentatively titled 'The Traditional Knowledge (Protection and Regulation to Access) Bill 2009'.

Keywords: Traditional knowledge, traditional communities, Access and Benefit Sharing (ABS) mechanism, *sui generis* legislation, genetic resources, Convention of Biological Diversity, Biological Diversity Act

Prima facie– the idea of protecting age-old traditional knowledge in the hi-tech 21st century appears to be an alien concept. In the era of biotechnology (BT), information technology (IT) and nanotechnology (NT), there ought to have been little or no need to protect traditional knowledge (TK) which is mired in local folklore and traditional practices that often defy empirical studies. And yet in the last 50 years or so, TK as practiced by traditional communities (TCs) has generated great interest in the scientific communities across the world like never before.

The latter half of the 20th century is witness to the role of TK and the genetic resources traditionally used by TCs as a starting point of a variety of scientific research. While there appears to be little or no problem with regard to sharing of TK with the scientific community, the problems seem to arise at the research and commercialization stage.

TCs across the world have evidently shared a wealth of their knowledge with scientific communities. But the final product of the use of such knowledge, its commercialization and the wealth generated from it has often had the knowledge partners at logger-heads with each other. While the TCs feel that they have been exploited, the members of the scientific communities claim that the crystallization of that knowledge into a commercial venture was entirely their own contribution and therefore they are not required to share a percentage of the commercial benefits with the TC. Additionally, there have been instances of exploitation of natural resources and their subsequent depletion, thereby affecting the source of livelihood of TCs.

A case in point is that of the *Wapishana* tribes indigenous to the Amazon jungles divided between Brazil and Guyana. Of single ethnicity, the tribes are politically separated by the international boundaries of the two countries. And yet in February 2000, the chiefs of the two tribes reportedly joined hands to ban any 'researcher' from visiting their villages. The tribes were protesting the 'betrayal' by the British scientist, Prof Conrad Gorinsky who developed upon the traditional knowledge of the use of Cunani (*Clibadium sylvestre*) in the patented preparation of reversible heart blocking agent or neuromuscular active or for use as a mycobactericide (US Pat No. 5,786,385 titled 'Polyacetylenes'). Prof Gorinsky also acquired another patent (US Pat No. 6,048,867) for 'Biologically active Rupununines' based on the TK of the tribes on the Tipir, the nut of the Greenheart tree (*Chlorocardium rodiei*).

Traditionally, grated Tipir has been used by the *Wapishana* tribes to stop haemorrhages, prevent infection and as a contraceptive, and the macerated leaves of the Cunani plant thrown into river water to stun the fish allowing for a quick harvest of edible

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fish without adversely affecting the quality of water. This information was shared by the tribal members with Prof Gorinsky during a series of visits during 1994-1995 who went there as a researcher. The tribes were protesting Prof Gorinsky's betrayal who gave away this knowledge to pharmaceutical companies.

In the Indian context, the case of *Kani* tribes and their TK pertaining to *Arogyapacha* (*Trichopus zeylanicus*) has been well documented.¹ The discovery of the fatigue relieving properties of *Arogyapacha* lead to scientific study by the Tropical Botanical Garden and Research Institute (TBGRI), Thiruvananthapuram and thence filing of at least 2 patent applications and a commercially viable product 'Jeevani' marketed by the Coimbatore based Arya Vaidya Pharmacy Ltd.²

But unlike the *Wapishana-Gorinsky* case, in the *Kani* case, the TBGRI established a Trust to which a percentage of the proceeds from the sale of Jeevani was deposited and used for the welfare of the members of the *Kani* tribe. While the use/misuse of the Trust money is debatable in the socio-economic context, there is little doubt that the establishment of a benefit sharing (BS) mechanism was a step in the right direction especially in light of Article 8(j) of the Convention of Biological Diversity (CBD).

The Mechanism of Access and Benefit Sharing (ABS)

Under CBD of which India is a member³, the Article 8(j) states that:

'Each contracting party shall, as far as possible and as appropriate:

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

But before establishing a system for ABS, it is crucial to understand what is meant by TK. While there have been many attempts to define TK, the one by the Director General of United Nations Educational, Scientific and Cultural Organization (Mayor, 1994) is apt:

The indigenous people of the world possess an immense knowledge of their environments, based on centuries of living close to nature.

Living in and from the richness and variety of complex ecosystems, they have an understanding of the properties of plants and animals, the functioning of ecosystems and the techniques for using and managing them that is particular and often detailed. In rural communities in developing countries, locally occurring species are relied on for many - sometimes all - foods, medicines, fuel, building materials and other products. Equally, people's knowledge and perceptions of the environment, and their relationships with it, are often important elements of cultural identity.⁴

It will be better to understand TK from the perspective of the TC. Essentially, TK is information based on common sense and experience passed on from generation to generation which is the result of intimate knowledge of the environment and its impact on the people, flora and fauna as well as their successful existence in a symbiotic relationship. It is the knowledge that helps the community (rather than an individual) to survive in a sustainable manner in a given environment.

It is significant that unlike modern systems of scientific study, which classifies and pigeon-holes everything into an order of things, the TK systems of the TC is never compartmentalized; all elements of a TK system including the genetic resources, cultural expressions and healthcare exist as a single holistic and spiritual entity ensuring the survival of the community in a given environment. Since change is the essence of life, TK too is an evolving system, constantly adapting to both natural as well as man-made changes to the environment.

In the recent 2000 years in the history of man-kind, the latest millennium has witnessed a dichotomization of people and their knowledge systems as being scientific or non-scientific. A scientific knowledge system demands an objective understanding of knowledge which can be analysed, classified, written and reduced to a model or a hypothesis. It is based on natural laws as known now and specifically rejects the supernatural.

The non-scientific (read 'traditional' and not 'unscientific' in this context) knowledge system on the other hand appears to follow an intuitive, subjective and holistic method of gathering knowledge which is an integrated whole, based primarily on heuristic methods⁴ of learning. It encompasses natural as well as the supernatural in the environment. The knowledge so gained is held sacred and usually imparted by oral traditions.

Interestingly, with the advancement of scientific system of study, the TK appear to have greater basis in science than was first acknowledged! It seems that our forefathers were not exactly ignorant and unscientific! They seem to have known the science behind wound healing properties of turmeric, insecticidal properties of neem, beneficial uses of tulsi, significance of crop rotation, impact of certain spices on the digestive system etc., and of course the use of Cunani, Arogyapacha and Tipir!

The Problems

Problem 1 – Access to TK

No longer held in disdain by the scientific community, the TK systems now appear to be a great wealth of knowledge base having immense potential for commercial exploitation. The problem however is in the manner the scientific community accesses this traditional knowledge system; it follows the scientific method of objective approach so dear to the scientific community. The lack of holistic approach to accessing TK can endanger the entire ecosystem in which the TK and the TC exist.

Problem 2 – Equitable Benefit Sharing with TC

The second problem is alien to TC which generally believes, with very few exceptions, that all knowledge is to be shared. When the focus is on survival, there is little or no thought given to commercial benefits. However, with scientific access usually supported by a robust intellectual property system, the focus is on the individual who thrives on commercial successes rather than the community.⁵ Principles of natural justice would require that some form of equitable sharing of benefits must flow back to the TC that helped preserve and develop the TK as well as the genetic resources through the ages.

Problem 3 – What should be the Procedure for ABS?

A number of countries and intergovernmental organizations have been mulling this profound question for a couple of decades. There have been attempts in many 'old world' countries which are rich in traditional knowledge such as Peru, China, Brazil and South Africa to legislate an ABS mechanism. Besides, there have been interactions between the 'new world' and the 'old world' for access of genetic resources and traditional knowledge residing therein by way of contracts such as in agreements between the US based pharma company Merck with Costa Rica's National Biodiversity Institute, INBios.

Establishing an effective ABS mechanism is a difficult task primarily because TK does not fit into classifications as understood by modern science. The Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore established by WIPO indicates this difficulty in the title itself which uses the terms 'Intellectual Property' which is a right vesting with individual(s) in the same phrase as 'Traditional Knowledge' and 'Folklore' both of which are community rights, and 'Genetic Resources' which under the CBD is the sovereign right!.

Problem 4 – Resolution of Conflict

The conflict between individual rights and community rights has little or no chance of an acceptable solution within the mechanism of IPR. Solutions, if any, lie in the approach perfected by traditional communities, i.e. a holistic approach that seeks to balance survival in a sustainable manner. To formulate a law that ensures ABS mechanism, it would require an understanding and defining of:

- (a) traditional knowledge, traditional communities, their cultural expressions
- (b) the accessor and his various roles namely that of researcher, scientist, commercial enterprise
- (c) the national mechanism that will regulate the ABS regardless of whether the TK is identifiable with the relevant TC or not
- (d) the rights and duties of each of the stakeholders
- (e) misuse, abuse and misappropriation (as also whether they are all one or different),
- (f) offence, penalties and enforcement
- (g) the use and disbursement of the funds collected through access fee as well as due to sharing of benefits
- (h) appellate authority.

ABS in the Indian Context

As an ancient nation with over 5000 years of recorded history, culture and traditions, India has a vested interest in ensuring that its very sophisticated TK systems are preserved, TCs are respected and access to TK and genetic resources are regulated to prevent exploitation. There are and have been a number of attempts to regulate access to TK and ensure equitable sharing of benefits with the TCs.

In Bangalore, in January 2009, a group of like minded people from diverse backgrounds including farmers, academicians, scientists, administrators,

folklore artists, traditional healers and intellectual property lawyers converged at the aptly named School of Ancient Wisdom, to deliberate on the most practical ways to conserve traditional knowledge in what was formally called 'The First National Consultation on TK and IPR'. The main forces behind the gathering were the Delhi based Forum for Biotechnology and Food Security, Kerala based NGO, Thanal and the National Law School of India University (NLSIU), Bangalore.

A policy paper was issued on the basis of two day deliberations titled 'Draft Policy Framework for Traditional Knowledge Systems in India' also referred to as the Bangalore Policy Paper. The vision captured at the end of the meeting was 'The Conservation of Traditional Knowledge, Wisdom and Practices in their bio-diverse contexts'. The objectives were five-fold namely:

- 1 Recognizing and respecting the intrinsic value and diversity of knowledge, wisdom and practices
- 2 Ensuring the conservation and continuum of knowledge and its practice where it is rooted
- 3 Sustaining the lives and livelihoods of traditional practitioners and resource-dependent communities
- 4 Nurturing biodiversity and respecting the sanctity of all life forms
- 5 Ensuring a non-centralized system, with community decision making/autonomy.

Over the next few months a core team was formed which met in Delhi to deliberate on the basic structure of a *sui generis* legislation to protect the TK of Indian people and to establish a transparent and viable PIC and ABS mechanism. Of its own volition, the drafting process came to be demarcated into three parts,

- defining crucial terms including 'traditional knowledge', 'traditional community', 'misuse' and 'abuse'
- The PIC/IC and ABS mechanism and the administration of the mechanism
- Enforcement of the rights and duties of the accessor, the traditional communities and the Government

The first draft of the proposed *sui generis* legislation to protect traditional knowledge and regulate its access was readied after a series of meetings by the core group. It was first unveiled to a select group of lawyers, administrators, members of the civil rights groups, the WHO and law professors at the 2nd National

Consultation which was convened on 3rd July 2009. The group including the Chairperson, Protection of Plant Varieties and the Farmers' Rights Authority and the Chairperson, National Biodiversity Authority (NBA) discussed and deliberated on each provision of the proposed law for two days.

During the deliberations, the Minister of State of Environment and Forests, Mr Jairam Ramesh, pointed out that the definition of traditional knowledge encompassed a vast area including folklore and cultural expressions, agricultural practices, traditional healing and food processes. He further suggested a more specific legislation relevant to the Ministry of Environment. His mandate to the members of the core group was to prepare rules under Section 36(5) of the Biological Diversity Act 2002. The Section 36(5) mandates the Central Government to 'respect and protect the knowledge of local people relating to biological diversity, which may include registration of such knowledge at the local, state or national levels, and other measures for protection, including *sui generis* system.' Not only was the mandate narrower than the *sui generis* system envisaged earlier, but it was also very specific with clear recognizable target. The core group with two additional members were given two months time to prepare the rules for the regulation of access to traditional knowledge relating to genetic resources for submission to the Chairperson, NBA. After a series of meeting and drafting sessions, the draft rules were submitted to the Chairperson NBA. The said draft rules titled 'The Protection, Conservation and Effective Management of Traditional Knowledge Relating to Biological Diversity Rules, 2009' are on the website of NBA for public comments (www.nbaindia.org).

Meanwhile, a round table conference was organized in January 2010 by Prof Ramakrishna of NLSIU, Bangalore to deliberate on the original *sui generis* model for the protection of TK and regulation of access to TK. The two day conference was attended by delegates representing various aspects of TK including folk dancers, musicians, traditional healers and practitioners of traditional medicines, farmers and scientists. The *sui generis* model for the protection of TK and traditional cultural expressions is titled 'The Traditional Knowledge (Protection and Regulation to Access) Bill 2009'.

The Bill is divided into 9 chapters structured in such a manner that it defines commonly used terms, identifies right and duties of traditional community,

accessor, Traditional Knowledge Authority and provides procedure for enforcement of a law.

The salient features of the draft bill are:

- Definition of TK, abuse, access, accessor, benefit, informed consent, misappropriation, prior informed consent, traditional community etc
- Creation and maintenance of traditional knowledge register
- Identification of the sources from where the informed consent has to be gained to use the TK
- Indicative list of accessors who are required to obtain the prior consent for accessing the TK
- Duties and obligations of the Central government, State government and TK Authority to ensure prevention of misuse of TK
- Preparation of national policy, strategy and action plan by the Traditional Knowledge Authority every five year which ensures the protection, continuum of use and practice of TK and ensures sustainability of the resources including human resource on which the TK is dependent.
- Duty of the TK Authority to prevent biopiracy and other misuse of TK and to take preventive/punitive actions to safeguard the same.
- TK Authority to be assigned with additional responsibility to ensure that the due environmental and social impact assessment be done before granting access to any traditional knowledge.
- The TK Authority to ensure that the use of traditional knowledge is not against public order or morality.
- The TK Authority to educate and increase awareness in the communities to ensure just and fair negotiations.
- The TK Authority to be assigned with power to notify certain traditional knowledge as endangered or on verge of extinction or likely to become extinct, and also the power to restrict access to such traditional knowledge.
- Appellate mechanism for appeal against the decisions of the TK Authority. The orders issued by the Appellate mechanism shall be appealable at the Supreme Court of India.

Conclusion

Given the nature of TK, it is difficult to ascertain whether the TK Bill in its present form will see the

light of the legislative day! There have been suggestions to break it up into multiple disciplines or at least three disciplines, namely, genetic resources (GR), TK and traditional cultural expressions (TCE). In the era of BT, IT and NT, the chances of seeking answers holistically appear to be dim, very dim.

However, as the cradle of one of the more mega biodiverse regions of the world⁶ that supports ancient as well as relatively recent forms of traditional knowledge, India has a duty towards her traditional communities to ensure their right to live in their natural environment and to earn their livelihood by way of practicing their traditional knowledge. It is imperative for India to establish a viable mechanism to regulate access to traditional knowledge as well as to ensure that there is reasonable and equitable sharing of benefits based on the three pillars of prior informed consent (or informed consent), regulated access to traditional knowledge resources and establishment of an equitable benefit sharing mechanism.

References

- 1 Anuradha R V, Sharing with Kanis : A case study from Kerala, India, New Delhi, 1998, Kalpavriksha Mimeo.
- 2 Knowledge was divulged by three Kani tribal members to the scientists of TBGRI who isolated 12 active compounds from Arogyapacha (*Trichopus zeylanicus*), and developed the drug 'Jeevani'. The technology was then licensed to the Arya Vaidya Pharmacy Ltd., an Indian pharmaceutical manufacturer pursuing the commercialization of Ayurvedic herbal formulations. A Trust Fund was established to share the benefits arising from the commercialization of the TK-based drug 'Jeevani'. The operations of the Fund with the involvement of all relevant stakeholders, as well as the sustainable harvesting of the Arogyapacha plant, have posed certain problems which offer lessons on benefit sharing over genetic resources and associated traditional knowledge.
- 3 India became a signatory to the Convention on Biological Diversity (CBD) in June 1992. The Convention came into force on 29 December 1993.
- 4 Learning by doing and experiencing, learning from successes and failures, correcting failures, consolidating successes.
- 5 The exception being the intellectual property in geographical indications which is an intellectual property owned by a community and which cannot be assigned or licensed.
- 6 India has been declared one of the 17 megadiverse countries in the world by The World Conservation Monitoring Centre, an agency of the United Nations Environment Programme, along with Brazil, Indonesia, South Africa, Mexico, Peru and Colombia (<http://www.environment.gov.au/soe/2001/publications/themes-reports/biodiversity/biodiversity01-3.html>).