

Documentation of Traditional Knowledge: People's Biodiversity Registers (PBRs)

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Abstract

Documenting traditional knowledge in a participatory fashion can lead to protection of (Intellectual property Rights) IPRs of knowledge contributors and benefits sharing thereof can promote sustainable utilization of biodiversity. This is demonstrated by People's Biodiversity Registers (PBRs) in India, which are documents of people's knowledge of biodiversity and their perceptions about its usage, trade, besides efforts for its conservation and sustainable utilization. The PBRs are developed by the local school/ college teachers and students and/or NGO researchers along with the villagers, at the level of villages. Biodiversity registers from villages can be compiled at the level of talukas, districts, states and nation, in the form of computerized databases, to provide the relevant information to the people, government and industry. PBRs have been recognized by the Indian Biological Diversity Bill so as to ensure equitable access and benefit sharing, by recognizing such registration as prior art to scrutinize related IPR applications as well as the basis for sharing resultant benefits equitably. Similar provisions for recognizing these registers through their consolidated Indian digital database at the global level would help in reconciling the equity and conservation concerns with globalization. These global processes include Clearing House Mechanism of the international Convention on Biological Diversity (CBD), screening by the World Intellectual Property Rights (WIPO) and also the Trade Related intellectual property Rights (TRIPS). The important lessons learnt during the registration process include that its sustenance requires quick social recognition to local knowledge and practices of innovative and/ or sustainable use and conservation using local human resources. For, value addition to this knowledge and/or its IPR protection requires more time and resources at higher spatial scales, than grassroots stakeholders can imagine. The registers can be protected not by keeping in local custody but by publicizing their claims. Unique knowledge may be best used for rewarding innovative traditions and practices of sustainable use and conservation, beginning with local social functions, besides incorporating in the national innovations register. The royalty earned from commercialization of biodiversity and related public knowledge may be best distributed across villages in relation to their conservation efforts as promotional incentives.

Introduction

Ongoing globalization and its attendant impacts such as commercialization, mechanization, monopolization, economic inequity etc. raise the concern that the traditional, public resources, including knowledge are fast being grabbed, transformed and marketed by commercial concerns, without any benefits being shared with the original contributors (Posey and Dutfield, 1996). This has been fostered by General Agreement on Trade and Tariff (GATT), an international treaty & its implementing agency World Trade Organisation (WTO) effective since 1995 have enforced globally the adherence to high standards of Trade Related Intellectual Property Rights (TRIPS). Such biopiracy is evident from infamous patents relating to Neem, Turmeric and Basmati, which raises important concern as to how to provide physical access to biodiversity and related traditional knowledge while retaining intellectual property rights (IPR) into equitable benefits (Utkarsh et al, 1999). Another challenge is that the benefit sharing ensures sustainability of bioresources and related livelihoods, as biodiversity currently forms an indirect and shrinking economic axis of rural livelihoods.

Prior Informed Consent (PIC)

International Convention on Biological Diversity (CBD) making access to biodiversity resources and knowledge contingent upon prior informed consent (PIC) and mutually agreed terms of benefit sharing (Glowka, 1998). However, in reality, there is little scope for such agreements to precede access due to ready availability of much of the public domain material and knowledge, including through digital databases. Further, modern technology can extract genetic information from international museums that store much of the biodiversity specimens that are easily available to commercial interests. Thus, corporate interests can easily access the material and information without the consent or even knowledge of its country or community of origin, forfeiting any chances of benefit sharing, as it happened with Neem, Turmeric or Basmati. Benefit sharing through PIC thus appears limited to yet untapped traditional knowledge or folk innovations or crop varieties that are confined to remote villages.

Access And Benefit Sharing (ABS)

For covering much of the public domain resources, the benefit sharing a system must de-link PIC from physical access and impose it prior to commercialization (Utkarsh, 2001). Thus, benefit-sharing agreement must precede approval of IPR applications, even if such PIC was not sought prior to physical access to material or knowledge. Secondly, benefits must be interpreted in more ways than mere cash compensation. While intellectual benefits relating to knowledge could be as royalty or awards, or in kind as felicitation; benefits relating to physical access to material include resource usage or regulation rights. The monetary benefits could include: (a) up-front or initial payments, for collecting samples; (b) milestone payments, when the product development and marketing starts appearing feasible; (c) long-term share or royalty; public fund, directly contributed by the industry for sharing with other communities who do not participate in the contract.

Rationale for registration

Global efforts for ABS have focussed on aforementioned monetary means (Glowka, 1998). These efforts are concentrated in tropical, developing countries. Unlike India, these countries often have strong and discrete territorial community resource rights over forests and water, their economy depend greatly on forest products. Limited history of civilization coupled with low levels of education and infrastructure imply that substantial biota and related knowledge yet remains to be discovered. Thus, legislations in these countries have encouraged contractual arrangement for monetary benefit sharing. In Peru, Aguarana tribals share their knowledge through know-how licenses with Searle, a subsidiary of Monsanto; bringing Aguarana all the above benefits. In Ecuador, a project of Inter-American Bank issues trade secrets to local people for information outside public domain such as NAPRALERT database, Chicago.

Indian situation differs drastically due to (a) lack of any community rights over forests and waters, (b) substantial territorial overlap between ethnic communities, (c) substantial traditional knowledge being available publicly and (d) forest produce hardly significant for the economy. Thus, a review of the existing

Indian legal and policy framework (Table 1) reveals the lack of any benefit sharing system even within the nation for public lands, except joint forest management areas or on private lands such as for agrobiodiversity conservation. There also exists no system of registering stocks and transactions of material and knowledge at sub-national levels, in any legislation. Such a system is needed to ensure that equitable benefit sharing complements access to resources and knowledge, by recognizing and rewarding efforts of sustainable use and conservation of biodiversity and related traditional knowledge and practices (Utkarsh, 2001).

TABLE 1- Existing and proposed legal framework for ABS

Act	Case	Subject	Spatial Scale	Access control		Benefit Sharing
				Material	Knowledge	
Forest Act	JFM*	Joint	Village	VFC	-	Revenue
	Others	State		Guards	-	-
Water Act	Coastal	Center	Nation	Fishery	-	-
	Inland	State	Nation	Fishery	-	-
Pancha-yat Act	Tribal #	State	Village	-	-	-
	Others			-	-	-
Patent Act		Center	Nation	-	Authority	-
PVPFR Act		Joint	Nation	-	Authority	CGF

*- through notification #- through 1996 amendment for scheduled areas

\$- proposed amendment

CGF- Community Gene fund

JFM- Joint Forest management VFC- Village Forest Committee

To address the needs of registration of resources, knowledge and their transaction, a countrywide effort at the village level has sprung up recently, in the form of People's Biodiversity Register (PBR) to promote sustainable use and equitable benefit sharing. PBRs are periodically updated documents of people's knowledge of biodiversity and their perceptions, efforts of its conservation and sustainable utilisation (Website: <http://ces.iisc.ernet.in/hpg/cesmg>). Local school/ college teachers and students and/or NGO researchers along with the villagers periodically compile the PBRs at the level of villages. PBRs from villages can be compiled as computerized databases at the level of talukas, districts, states and nation, to provide the relevant information to the people, government and industry. The acronym PBR here should not be confused with that referring to a diametrically opposing concept- Plant Breeder's Rights, a patent like protection accorded to the breeders of new varieties of plants, at the cost of farmers and other researchers. The biodiversity registration involves:

- Documentation of people's *knowledge and practices of use and conservation* of bioresources, both wild and domesticated.
- Participatory *planning* for its sustainable and equitable use, besides conservation.
- Local government (panchayat i.e. village *council*) *resolution* to approve this document as a village resource planner
- *Felicitations* of folk healers, traditional farmers or fishermen etc. to earn a social dignity for them, their practices and enthuse the next generation
- *Wide publicity* to this process and its products in popular as well as scientific media, to trigger debate, improvements and replication.
- Building electronic databases of information within the registers as a proof of prior art and as a basis for sharing benefits resulting from its commercialization.

Applications of public, not just private information is the key distinguishing feature of PBR from ABS experiments elsewhere in the world, which hinge on bartering exclusive, undisclosed information through contracts (Glowka, 1998). These include protection of traditional knowledge as *trade secrets* as in the Inter-American Development Bank project in Ecuador or the *know-how licenses* are negotiated between Aguaruna people from Peru and Searle and Co. However, due to the focus on innovations and use of the model does not embrace the broader range of practices of managing bio-resources specific to each village and community, as being attempted in the PBRs.

Preventing biopiracy and ensuring benefit sharing

To protect the information contained in the PBRs, it must be publicized through computerized databases, such as those described in Table 2. At one extreme are efforts of Science and Technology department, Govt. of India (GoI) to build Traditional Knowledge Digital Library (TKDL) of published information. These are complemented by efforts in the informal i.e. folk sector to register the undocumented oral traditions and local innovations outside formal efforts. National Innovations Foundation (Website: www.nifindia.org) also hosted by GoI and led by NGO SRISTI is scouting grassroots innovations and outstanding traditional knowledge for recognizing and rewarding folk healers, farmers, artisans. National Biodiversity Strategy and Action Plan (NBSAP, Website: sdnp.delhi.nic.in/nbsap) led by Kalpavriksh NGO and hosted by GoI has developed participatory plans from national to district level for sustainable use & equitable sharing of public domain biodiversity resources.

Table 2

Traditional Knowledge Registration Efforts in India

EFFORT	C/PBR	D/RALHT	NRGIUTK	TKDL
FOCUS	Biodiversity knowledge & practices (oral)	Health Practices (oral)	Grassroots (oral & applied) innovations, unique knowledge	Published traditional knowledge
SPATIAL UNIT	Panchayat	Panchayat	Person	-
CONSENT	Resolution	Oral	Undertaking	-
COST/LOSS				
Immediate	Nil	Nil	Nil	-
Long-term	Nil, unless modified, less tested TKP	Nil, unless modified, locally tested TKP	Nil, unless modified, of locally tested TKP	Nil, unless modified, of widely tested TKP
BENEFITs (to):				
Donor-Upfront	External seeker's & Local recognition	External seeker's & Local recognition	External seeker's recognition	-
Donor-Milestone	-	State award	State/ National Award	-
Donor-Royalty (if modified)	If unique	(if unique, 50%)-	If unique	-
Recorder	Salary/ Expenses	Salary/ Expenses	Salary/ Expenses	Salary/ Expenses
User (Industry, in theory, even if not in practice today)	Raw tips, if different from TKDL	Value added tips, if different from TKDL	Value added tips, if only different from TKDL	Value added tips, from wider use
End-Use	Conservation, Continued use	Local health care	Day-to-day life utilities	Pills/ Syrups/ Lotions
OWNERSHIP	Govt./donors	Govt./donors	Govt./donors	Govt.?
HOST current	IISc/NGOs	FRLHT/ NGOs	Govt. (NIF)	Govt. (CSIR)
HOST long-term	Govt. (NBA)	Govt. (NBA)	Govt. (CSIR)	Govt. (CSIR)
REACH current	S. India	S. India	India	-
CONTACT	ces.iisc.ernet.in/hpg/cesmg	www.frlht-india.org	www.nifindia.org	www.csir.org

C/PBR- Community/ Peoples Biodiversity Register at community level for social legitimacy; D/RALHT- Documentation/ Rapid Assessment of Local health Traditions at community level for social legitimacy;

NRGIUTK- National Register of Grassroots Innovations & Unique Traditional Knowledge for soft IPR; TKDL- Traditional Knowledge Digital Library for preventing biopiracy

These grassroots efforts can prevent biopiracy and facilitate equitable benefit sharing in the wake of pioneering legislations piloted recently by the government of India. These were arrived at through atypically wide consultations with the state governments, scientists, NGOs, industries etc. particularly in drafting the Biological Diversity Bill (BDB). Though there remains scope for improvements, the bill has clearly moved much beyond other existing and emerging provisions; despite unfavourable socio-political backdrop. Significant promises made by the BDB include-

- Preventing biopiracy by mandating the government i.e. National Biodiversity Authority (NBA) to *oppose any infringement* of Indian biodiversity and knowledge
- Empowering the *NBA to grant PIC* based on application by foreign agencies and issue guidelines for benefit sharing
- *Registration* of the bioresources and related knowledge from each village level biodiversity management committee (BMC), in the form of local biodiversity chronicles (LBC) for creating evidence of priority for preventing biopiracy
- Empowering BMC to *regulate and even tax the biodiversity harvests* from their areas, except by local people
- *Rewarding people for conservation and knowledge contribution* through local biodiversity funds entrusted with BMC, which may be raised from taxing the biodiversity based commercial products
- Industries must submit their harvest details to State Biodiversity Board. The rules that may be drafted to implement the bill must stipulate regulation of the trade after cross-checking this information with the biodiversity registers, to ensure sustainability.

Other legislations with notable ABS implications include the Patent Act amendment bill (Anon 1999) that is awaiting parliamentary approval and the Plant Variety protection and Farmer's Rights (PVPFR) Act (Anon 2001). The Patent act amendments mandate applications to disclose prior traditional knowledge, even if oral and patenting of any innovation resembling traditional knowledge is prohibited. Biodiversity registers or chronicles recognized by local governments through properly resolutions can serve as evidence of such prior knowledge. PVPFR proposes to levy tax on breeder's (protected) varieties to generate a community gene fund, which could in turn be shared with farmers for agrobiodiversity conservation. PVPFR also facilitates farmers to oppose grant of PVP rights to varieties derived from their germplasm. In either case, biodiversity registers can prove vital source of evidence of prior art.

IPR Implications

Developing countries, beginning with South Asian Association for Regional Cooperation (SAARC) to collectively exert pressure for IPR legislations worldwide, including relevant international consortiums. A beginning has been made by recognition of such grassroots registration efforts by the group on indigenous people established by the World Intellectual Property Organization (WIPO) in promoting grassroots knowledge (<http://www.wipo.org/eng/meetings/1998/indip.rt>). Such databases must also be recognized by WIPO during scrutiny of its IPR applications. United Nations Conference on Trade and Development (UNCTAD) may also facilitate such processes. Limited opportunities provided by recent international treaty on Plant Genetic Resources (www.etcgroup.org/documents/trans_treaty_dec2001.pdf) need to be enhanced and complemented by similar opportunities opened by CBD, particularly the Clearing House Mechanism. Such changes may be triggered by the initiatives of International Union for Conservation of Nature and Natural Resources (IUCN), in particular its trade and environment group. Ultimately, these have to be internalized by the TRIPS through negotiations at the WTO. This may be possible, as evident from the recent Doha declaration that sacrificed IPR interests in the wake of national emergencies such as epidemics.

PBR Scope and development

Preparation of biodiversity registers involves following activities:

- clarifying project rationale and obtaining *people's approval* for the documentation,
- identification of different biodiversity *user groups*,

- identification of *knowledgeable individuals* in distribution and uses of biodiversity,
- *interviews* with different user groups and knowledgeable individuals,
- *field visits* to various land and water elements along with some user groups and knowledgeable individuals to document their biodiversity, its uses and history,
- *mapping* of the landscape of the study site,
- discussions with the entire village assembly for *management planning*,
- discussions with *outsiders* related to resource use such as nomadic shepherds or artisans, traders and government officials.

The PBRs at this stage comprise of the following *modules*:

- *Peoplescape*: Different occupational segments of society such as farmers, fishermen, labourers, forest produce collectors, medicinemen etc, with gender equity.
- *Landscape*: Noting and mapping of mosaic of land and water habitats from over which the concerned people bring in most of living resources, to understand the biomass resource flow and also serves as a benchmark for monitoring future changes.
- *Lifescape*: Levels of abundance, harvests & uses of different elements of biodiversity known to people, and their distribution in different land and water elements.
- *Ecological Changes*: Ongoing changes in the local landscape, waterscape and lifescape and the forces driving these changes are studied e.g. the impact of land reforms legislations in triggering deforestation during 1960s.
- *Conservation Practices*: Local practices of sustainable use, conservation and restoration of biodiversity resources such as sacred groves or ponds or sacred plants and animals are recorded besides people's perceptions of ongoing conservation and development efforts.
- *Developmental aspirations*: People's choices about personal and social life such as better housing, roads, water, electricity, healthcare, education and other amenities and how these may be reconciled with conservation, to minimize damage.
- *Conflicts and Consensus*: Conflicts arise out of differences in choices of various segments of the society, the inequities. Ways to minimize such friction and enhance cooperation are also explored.
- *Management Options*: Local people's options for development and management of the natural resource base in a biodiversity friendly fashion are articulated, for instance regulation of trade by local people's committees by charging taxes or sustainable use through small-scale enterprise and competitive marketing.

Growth phases of the PBR movement during the past decade are described in Table 3. The programme originated with the concept of Community Register (CR) launched by the Foundation for Revitalisation of Local Health Traditions (FRLHT) in a meeting of southern Indian NGOs during 1994. It systematically documented the traditional knowledge and skills (TKS) of the villagers and recognize them as 'prior art' to contest the related, fraudulent IPR claims. CR differed from SRISTI or Honeybee i.e. predecessors of NIF, in focussing on community rather than individuals and traditional than emerging knowledge or practices. Community Biodiversity Register (CBR) was the next logical step during 1995, linking it to the CBD that for the first time provided spaces for the rights to communities about their biological and cultural heritage. Spearheaded by the Indian Institute of Sciences (IISc), this phase documented of not just species but even their habitats ranging from forests to cultivation, thus embracing the landscape. But the costs and efforts multiplied, due to external researchers involved.

TABLE 3 Characteristics of each phase of biodiversity registration

PHASE	YE-ARS	LEAD BY	LOCAL	COST Rs./BR	SITES	COVER AGE	FOCUS	IMPACT
CR	1995-6	FRLHT	NGOs	2000/-	10	Region	TKS	NGOs
CBR	1996-7	IISc	Colleges	25,000/-	5	Region	Landscape	Methods
BCPP	1997-8	WWF	NGOs	50,000/-	50	Nation	TP	Policy
PBR	1998-	NGOs	Villagers	5,000/-	100	District	Planning	Law
LBC	2003?-	GoI	BMC	?	?	Nation	Trade?	ABS?

BCPP- Biodiversity Conservation Prioritisation Project; CR- Community Register, CBR- Community Biodiversity Register, GoI- Government of India, IISc- Indian Institute of Sciences, LBC- Local Biodiversity Chronicle, BMC- Local Management Committee, PBR- People's Biodiversity Register, TKS – Traditional Knowledge and Skills, TP- Traditional Practices

The next phase married traditional conservation practices such as sacred groves with the modern ones especially the protected areas (PA) like wildlife sanctuaries, national parks and biosphere reserves. Facilitated by the Worldwide Fund for Nature- India (WWF-) and coordinated by IISc, this phase formed a part of the nationwide exercise, the Biodiversity Conservation Prioritisation Project (BCPP). Costs and efforts needed per register skyrocketed due to external researchers and their wide travel. This phase facilitated compromise between conservation and development at the village level, also by involvement of external users besides local communities. Numerous publications had re-christened the effort by now as People's Biodiversity Register (PBR), doing away with the academic debate over the community and individual domain of knowledge.

Innovative approaches in the next phase include focus on private lands, in documenting local cultivation practices, as hundreds of village registers scattered all over Andhra Pradesh state, promoted by NGOs Deccan Development Society (DDS) or Western Karnataka by Nagarika Seva Trust (NST). The costs were saved enormously now by hinging documentation efforts on educated village youth and rarely, technical translation by urban experts. Kerala Shastra Sahitya Parishad (KSSP), an NGO inspired 80 such registers in Ernakulam district of Kerala state, using the government funds under the 'People's planning' campaign for decentralized governance. This popularization phase influenced local media greatly, ultimately influencing law and policy making.

Lessons

The development of the concept of Peoples Biodiversity Registers holds following important lessons for South Asian countries, besides other developing countries:

- Much of the traditional knowledge can be better protected, both from erosion and biopiracy through publicity and not secrecy.
- Unique knowledge may best be registered in full through refereed databases, while PBR may just make claims to such knowledge, alongside public domain knowledge and resources.
- PBRs help in promoting sustainable local use and trade, as much as stake claim on prior art protect IPRs vis a vis related modern inventions.
- Local school/ college teachers and students can help, besides NGOs in most efficient fashion in compiling the PBRs along with the villagers and also help in its follow up and up-scaling.
- It is important to publicly recognize the PBR both in its target villages and at higher spatial scales as an official instrument of biodiversity planning and revitalization of traditions.
- Publication of the summary if not the details about register could become a better evidence of prior public knowledge than the register itself. Such publicity also helps in restoring social faith in the traditions and promotes sustainable use and conservation of biodiversity.
- PBRs are most fruitfully followed up soon also by simple social incentives such as felicitation of knowledgeable individuals or conserves and their publicity.
- PBRs need to be computerized at higher spatial scales both as a record of prior art while scrutinizing related IPR claims.
- The computerized database also help in recognizing and rewarding grassroots innovations and unique traditional knowledge, for further value addition
- Such computerized databases also help in equitable benefit sharing to decide on allocating a fair share of biodiversity funds relating to public knowledge, to various village councils on the basis of their conservation efforts.

Acknowledgements

Numerous villagers, including forest produce collectors, farmers, fisherfolk, medicinemen have shaped this article. Various departments of the Indian Government such as the Ministry of Environment and Forests

and Department of Biotechnology, have variously supported the initiative. Evolution of these ideas was greatly helped by discussions with R. V. Anuradha, Kamal Bawa, Ashwini Chhatre, Sachin Chaturvedi, Suprio Dasgupta, Biswajit Dhar, Preston Devasia, Graham Dutfield, Madhav Gadgil, K. N. Ganeshaiah, Yogesh Gokhale, N. S. Gopalakrishnan, Anil Gupta, Ashish Kothari, G. Natarajan, P. R. Seshagiri Rao, R. S. Rana, Dwijen Ranganekar, P. V. Satheesh and Darshan Shankar. I am indebted to them all.

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