

Cases of Access and Benefit Sharing Lessons for South Asian Governments



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It is important that ABS mechanisms complement a strong set of related national and local laws and policies that seek to protect and conserve genetic resources and traditional knowledge as well as promote and foster an active role for local, indigenous and farming communities.

■ Bharath Jairaj



Context

The threat to the rights of local, indigenous and farming communities in developing countries has been increasing due to their relative illiteracy about global trends that are exploiting and commercializing biological diversity and traditional knowledge. With the danger of biopiracy becoming a reality, such vulnerable populations can easily become victims of exploitation. For instance, it is widely known that seed and plant breeding companies in developed countries often "appropriate" the plant genetic resources and/or the knowledge of poor developing-country farmers to "develop" their seeds or plant varieties. These companies subsequently claim intellectual property rights (IPRs), including patents, over such seeds/varieties and sell the "invention" back in developing-country markets. The additional complications created by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO) allow these new varieties to be protected as "exclusive" private property of the "inventor" and further amplify the manifest unfairness of the system. Efforts to counter such threats aim at empowering communities through information on their rights and the value of their resources and associated knowledge, as well as through economic and supplementary means, including legislation. Room for such efforts to empower the communities across the developing world has been provided in the Convention on Biological Diversity (CBD). In this respect, it is important for developing countries to design, develop and implement mechanisms that help them restrict biopiracy and strengthen the rights of local, indigenous and farming communities to benefit from global trends that commercialize their resources and traditional knowledge.

CBD lays down a three-point agenda of conserving biodiversity, using resources sustainably, and fairly and equitably sharing benefits arising from the use of genetic resources.



RAMESH SHRESTHA

The evolution of ABS

One of the earliest efforts made to "protect and restrict access" to traditional folklore and seek a "share in the returns" was by the World Intellectual Property Organization (WIPO) in 1978.¹ WIPO prepared a first draft of *sui generis* model provisions for IPR-type protection of folklore against certain unauthorized uses and distortion.² Unfortunately, no country adopted the "model provisions", and though countries recognized the importance of protecting traditional knowledge (TK), they felt that an international treaty would be premature.³

Explaining ABS

ABS is implemented under Article 15 of CBD under which national governments are required to establish domestic laws and policies to allow access to genetic resources. Broadly, the framework requires parties accessing genetic resources to establish certain legal and administrative processes, on mutually agreed terms, with the party providing the access. This framework seeks to promote the sharing of technological and economic benefits that arise from research and commercial utilization of resources, respectively. It aims to eradicate the evils of biopiracy as well as protect the interests of TK holders. Scholars argue that at the minimum, biodiversity-rich countries need to consider the following issues in order to implement a comprehensive ABS policy: sovereignty over resources; community rights over resources and TK; access agreement based on mutually agreed terms and PIC; and an equitable benefit sharing arrangement.

Another early attempt made to recognize the need to compensate native people for their biological resources and TK was the Declaration of Belem in 1988.⁴ This was followed by a call for the development of a 'Global Action Plan' to stop the destruction of cultural and biological diversity in 1990.⁵ These efforts, among others, translated into a framework for the implementation of "access and benefit sharing (ABS)" in Article 15 of CBD.

The objective of CBD to protect biological resources and associated TK from unauthorized access and through benefit sharing mechanisms can be seen as a "restriction" on access to and use of such resources and/or knowledge. Recognizing the limited capacity of many countries in implementing such a "restriction", the Conference of Parties (COPs) constituted an 'Ad hoc Open-ended Working Group' to develop guidelines on and other approaches to ABS. The group drafted the guidelines in 2001, which were adopted as voluntary⁶ guidelines—known as 'Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising Out of Their Utilization'—in 2002.⁷

The Bonn Guidelines provide for the development of an 'Action Plan for Capacity Building for Access to Genetic Resources and Benefit Sharing' and deal with the 'Role of IPRs in Implementation of Access and Benefit Sharing Arrangements'.⁸ The Guidelines further seek to provide an overall ABS strategy, including specific processes to consult stakeholders through a "prior informed consent (PIC)" regime. The Guidelines also stress the need for transparency at every step in the entire system and its arrangements. This framework was further improved on and adopted by COP 7 in 2004.⁹ The World Summit on Sustainable Development also recognized this work and, in its Plan of Implementation, calls on countries to "...negotiate within the framework of CBD, bearing in mind the Bonn Guidelines, an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources."¹⁰

At the Working Group meeting in 2005 in Thailand, the Like-Minded Megadiverse Countries¹¹, the African Group and other developing countries sought a legally binding international agreement that would prevent the misappropriation and misuse of genetic resources and their derivatives, ensure fair and equitable sharing of benefits arising from their use, and protect TK. These countries stressed that the new agreement should complement, rather than substitute, national ABS legislation. Additional norms at the international level were needed to support compliance with national legislation due to the absence of judicial remedies for cases of violations of ABS arrangements. The countries also called for the inclusion of both genetic resources and their derivatives in the scope of the regime—a proposal rejected by a number of developed countries.¹²

Developed countries that are primarily the users of genetic resources such as Canada, the United States (US) and the European Union maintained that further analysis of experiences with existing national and international ABS instruments and processes was needed. Many developing countries, however, noted that the gaps were already known, namely to prevent unauthorized access to and use of genetic resources and TK, and that in any case, the gap analysis could be carried out in parallel to and thereby inform the negotiations.¹³

It is also significant to note that on 29 June 2004, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) came into force.¹⁴ The Treaty aims to guarantee food security through the conservation, exchange and sustainable use of the world's plant genetic resources. It is based on the principles of fair use and equitable benefit sharing, and is in harmony with CBD. Central to ITPGRFA is the 'Multilateral System for Access and Benefit Sharing' that allows plant breeders, farmers and research institutions to access 64 important crops and forages from around the world more freely. The Treaty also requires that a portion of profits from the commercialization of plants bred with materials from the protected crops be paid to a trust fund to support developing countries' efforts in this area. Farmers' rights also play a central role in the Treaty—they are specifically recognized and protected.

Benefit sharing and IPRs

The 1980s saw the growth of IPR discussions in international trade negotiations as well as discussions in international environmental protection negotiations about alternate forms of IPRs. Thus, CBD, apart from seeking to protect genetic diversity and TK, also seeks to promote its "wider application", and "encourage the equitable sharing of the benefits arising from the utilization of such knowledge."¹⁵

The perceived conflict between protecting biodiversity and promoting IPRs appears to have reduced with the introduction of benefit sharing mechanisms in CBD. Indeed, once access to a resource or TK is provided, the focus of a national authority is to merely seek a share in the profits or benefits. That such share must be "equitable" has probably more to do with the contribution of the resource or knowledge in the final product than with the socio-economic or other conditions of the community from which such resource or knowledge was accessed. However, there is little information on how this sharing of benefits will *per se* help in conserving genetic diversity unless there is a rigorous action plan.

Further, while there may be merit in the argument that commercialization may provide communities with an incentive to retain TK, there is also "an automatic assumption that traditional knowledge material is available for appropriation and modification, and redistribution."¹⁶ Extreme care

Explaining PIC

In international law, PIC has been defined to broadly mean "the consent of a party to an activity that is given after receiving full disclosure regarding the reasons for the activity, specific procedures the activity would entail, potential risks involved and the full implications that can be foreseen." It is a necessity during every stage of the ABS agreement process as it ensures that the parties to the agreement are aware of the possible gains as well as likely consequences of the agreement being made. On PIC, CBD categorically requires countries to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices."

needs to be taken to ensure that exploitation does not lead to permanent destruction of the natural resource base.¹⁷ There is also a risk in categorizing TK in pre-existing terms as fixed, static and non-evolving, which, in most cases, is not true. However, in the IPR regime, TK and genetic resources are useful only in the context of their commercial purposes.¹⁸

In South Asia, so far only India has introduced legislative measures concerning ABS. An analysis of the case studies of a few ABS models (see case studies on pages 4 and 5) and India's legislation (see country study on page 6) provides some lessons that South Asian countries can consider while developing their ABS systems.



TRIPS provides for the protection of IPRs such as patents and plant variety protections without recognizing the triple objectives of CBD, including ABS.

CASE STUDY 1

Kani-TBGRI in India

Argued to be the "first benefit sharing model that implemented Article 8(j) of CBD, in letter and spirit"¹, the Agreement between the Kani tribe in Kerala and the Tropical Botanic Garden Research Institute (TBGRI) in India was formulated in 1994.² Scientists from TBGRI learnt from the Kani tribe that one could live without eating regular food and still perform rigorous physical work by eating a few fruits from the plant "Aarogyapaccha" (*Trichopus zeylanicus*). TBGRI conducted detailed investigations into the same and eventually a drug called "Jeevani" was created. Thereafter, a licence to manufacture "Jeevani" was given to a private firm for a fee and payment of royalties on future sales of the drug. TBGRI decided that the Kani tribe would receive 50 percent of the licence fee, as well as 50 percent of the royalty obtained by TBGRI on the sale of the drug. This money was channelled through a trust fund created to promote welfare and development activities for the Kanis. On paper, this effort is commendable although all the Kanis of the district are yet to become members of the trust. However, the manufacture of "Jeevani", along with the flow of royalties, has run into problems for a number of reasons.³ Since the plant is found largely inside "reserved forest" areas, accessing and harvesting the plant requires the approval of the Forest Department, which has not been forthcoming because of fears that commercial harvesting would threaten conservation of the plant. There is also no uniform view among the Kanis, some of whom have objected to the manner in which the "arrangement" with TBGRI evolved. Activists have also raised the issue of whether indigenous knowledge is being adequately protected and rewarded in this arrangement.⁴



FLICKR

Case study

ABS model

CASE STUDY 2

INBio-Merck in Costa Rica

The INBio-Merck Agreement in Costa Rica is probably the most well-known example of an ABS-PIC agreement. Under the contract between National Biodiversity Institute of Costa Rica (INBio) and Merck, a pharmaceutical giant,⁵ the latter paid INBio an initial amount of US\$1 million and US\$135,000 in laboratory equipment, and also agreed to give undisclosed royalties from successful drugs to INBio.⁶ Merck also established research facilities and trained scientists in Costa Rica, furthering the goal of long-term self-sufficiency in Costa Rica. In return for this, Merck retained all IPRs, including patents, on any product developed.⁷ Further, Costa Rica's National Commission for Biodiversity Management (CONABEGIO), which has the duty of evaluating and granting access permits, was required to "validate" the PIC previously granted.⁸ There have been several criticisms of the constitution of CONABEGIO and the Agreement for being largely one-sided and not allowing Costa Rica's indigenous population to benefit.⁹ Indeed, INBio is reported to have gone out of its way to pick samples from lands that were not home to indigenous peoples in order to avoid any confrontation. Overall, though, the INBio-Merck Agreement, while hotly debated,¹⁰ is seen as one model of ABS.¹¹

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CASE STUDY 3

Syngenta-IGAU in India

The commercial use of rice varieties for developing new rice hybrids is not a new phenomenon. The Swiss-based biotechnology company Syngenta and the Indira Gandhi Agricultural University (IGAU), India were in talks to establish a joint research venture on rice strains. They were looking to collaborate to develop new rice hybrids. As per the Memorandum of Understanding, the company would have gained commercial rights to the university's collection of more than 19,000 local rice strains, gathered in the 1970s.¹² This collection is considered the country's largest and the world's second largest collection of rice germ plasm.¹³ In exchange, IGAU would have received an undisclosed amount of money and royalties from Syngenta. Environmentalists and scientists opposed the deal stating that the IGAU collection is a national wealth and not a private property of the university and that opening the database to a multinational company is a "sellout".¹⁴ The only beneficiaries from this deal would have been the parties involved. Due to strong opposition, the deal did not go through and on 10 December 2002 the company and the institute announced their failure to reach a mutual agreement.¹⁵ This is an example of an ABS framework that ignored the need for sharing benefits with the actual knowledge holders.

CASE STUDY 4

NCI-State Government of Sarawak in Malaysia



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Two types of trees present in the Kerangas forests of Sarawak, Malaysia have been found to be used for medicinal purposes. The National Cancer Institute (NCI) of the US in contract with the University of Illinois, Chicago identified Calanolide A, an anti-HIV drug, which is derived from *Calophyllum lanigerum* var. *austrororiaceum*, an exceedingly rare member of the Guttiferae or Mangosteen family, samples of which were first collected in 1987 on an NCI-sponsored expedition.¹⁶ However, later, experts were unable to find large enough quantities of the same plant to make it commercially viable and hence other varieties were tested for similar characteristics. It was found that a related species, *Calophyllum teysmannii* var. *inophylloide*, produces a compound (Calanolides) that also exhibits activity against HIV. In 1995, the compound Calanolides was licensed to Medichem Research Inc., a US-based pharmaceutical company that works with the State Government of Sarawak through an Illinois-based joint-venture company, Sarawak Medichem Pharmaceuticals, formed in 1996.¹⁷ As a result of this joint venture, 50 percent of any future profits will return to Sarawak. The drug is still years away from being sold commercially, but estimates suggest it could earn as much as US\$360 million a year.¹⁸ In return, the NCI programme aims to provide support for expanded research activities by Malaysian scientists, and the expansion of Malaysian holdings of their flora through the deposition of a voucher specimen of each species collected in the national herbarium. NCI has committed itself to policies of collaboration with Malaysia in the drug discovery and development process, and fair and equitable compensation in the event of commercialization of a drug developed from a plant collected within their borders. However, the flaw in this ABS model is that it completely ignores the Dyaks, the community that possessed the knowledge of the tree's healing powers.¹⁹

COUNTRY STUDY

Situation in India

India's Biological Diversity Act, 2002 (BDA) seeks to do several tasks, including²⁰ to regulate access to biological resources with the purpose of securing equitable share in benefits arising out of the use of biological resources and associated TK; to conserve and sustainably use biological diversity; to respect and protect TK of local communities; and to secure sharing of benefits with local people as conservers of biological resources and holders of TK.

BDA has a three-tiered structure consisting of the National Biodiversity Authority (NBA), the State Biodiversity Boards (SBBs) and the Biodiversity Management Committees (BMCs). NBA handles matters relating to access to biological resources by foreign researchers, companies or institutions. SBBs handle matters relating to access to biological resources by Indians for commercial purposes. BMCs are set up in local areas with the aim of promoting conservation and sustainability, and to aid in the documentation of biodiversity.

BDA requires prior approval of NBA to obtain any biological resources or associated TK for research or commercial utilization.²¹ What is missing, however, is the direct approval and involvement of local communities although there is a clear provision to this effect in CBD.²² BDA also draws a distinction between India (and Indians) and other countries (and their citizens) in several aspects of access to and use of resources and TK.

On the sharing of benefits from biological resources, research or utilization, NBA seeks to share benefits with those individuals or groups of people identified as TK holders or involved in the conservation of the resources in question.²³ If such groups or individuals are not identified or identifiable, then the money or other benefits shall go to the National Biodiversity Fund, set up to fund biodiversity conservation.²⁴ The Biological Diversity Rules of 2004 further identifies benefit sharing methods such as joint ventures, technology transfer, product development, education, awareness raising, institutional capacity building, and venture capital funds²⁵, and states that applications will be determined on a case-by-case basis.²⁶

Lessons for South Asian governments

Process must be bottom-up

In the Indian law, BDA requires that the "informed consent" of NBA shall be obtained prior to accessing any biological resource or TK for any research, commercial utilization, bio-survey or bio-utilization.¹⁹ NBA in turn is required to seek the "informed consent" of BMC and not the local communities despite CBD recognizing the importance of involving local communities whose lives and livelihoods can be potentially disturbed, if not destroyed, by future bio-prospecting and related activities. This is unfortunate and needs to be addressed immediately so as to ensure that TK holders and communities are included as key participants in the PIC process. Additionally, there is currently no requirement for prospective researchers or companies to meet or communicate with the local communities where they may be working. Their one and only point of contact for access to biological resources is NBA. The benefit of this approach is that the vulnerability of these communities is not directly exposed to researchers or companies, and NBA, in this context, shelters them. However, the absence of any connection between seekers and providers does violate the purpose and spirit of CBD that specifically calls for the "involvement of the holders of such knowledge, innovations and practices."²⁰ Furthermore, NBA is to grant or deny approval for access to biological resources or related knowledge within six months²¹, making the time for consultation with the local communities grossly inadequate.

A transparent PIC process is necessary

The case studies show that the PIC process is instrumental in ensuring that the weaker parties in the ABS agreement are not exploited. If this process is not transparent and inclusive, there may be conflict within societies and communities will not merely be more vulnerable but may also lose an opportunity to benefit from the commercialization of their resources and TK. In addition, when one is dealing with international trade, there is a need for stronger checks, on a reciprocal basis between countries, to ensure that genetic resources and TK are not misappropriated.²² There is, therefore, a strong case in favour of an international agreement to deal with such situations.

All risks must be disclosed

Currently, the Indian law as being implemented by NBA only requires potential researchers to disclose "whether any collection of the resource endangers any component of biological diversity and the risks which may arise from the access". Many biological resources are not seen as merely biological resources outside of the scientific communities and

are generally seen to have social and cultural meanings as well. It is, therefore, necessary that future work be carried out to ensure that the researcher also discusses the social and cultural risks to the community.

ABS must be related to "impact"

The "impact" of allowing access on the community must be factored in the grant of access. The current "equitable sharing of benefits" is generally limited to the contribution of the TK or resource to the final product. It is recommended that the yardstick be the impact on the community and not the contribution of the resource or TK in the final product. Specifically, NBA must be legally obliged to take account of the welfare of communities when it is considering the potential impacts of research on an area.

ABS-TRIPS relationship needs to be understood

Benefit sharing *per se* cannot and will not help in conserving genetic diversity. Therefore, countries in the South Asian region should realize that while implementing ABS frameworks, they also have a responsibility to consider the core aspects of biodiversity conservation. In this regard, South Asian governments will do well by working collectively to develop an overarching framework within which the ABS-TRIPS relationship is better understood, so that biodiversity in the region is not irreversibly lost.

Conclusion

CBD has set the ABS framework the world over. Since CBD requires equitable sharing of benefits, the onus is on individual countries to devise national strategies to be followed when negotiating with private, non-state researchers. Under BDA, India has made an attempt to do this by stipulating different ways in which benefits can be shared. But despite current efforts, there is an urgent need to orient the country's ABS and PIC strategies in a particular direction where they are both equitable and provide strategic and sustainable growth. A diverse nation's benefit-sharing arrangements must be regulated through a rigorous access and PIC process, aimed at providing a more transparent, community-involved approach that in the end will benefit the nation and its communities. Protection of owners and holders of resources and knowledge must be placed at the fore when drawing up legislation in this regard. The interests of the whole nation must be kept in mind at every stage of the process and policies should ensure that the parties to such agreements receive adequate and equal benefits. An effective ABS framework will not only reward a country monetarily but will also protect its citizens and their biological resources and TK from being unduly exploited. ■

Text notes

- ¹ Posey, D. 1991. Effecting International Change. *Cultural Survival Quarterly*, Issue 15.3. 31 July.
- ² Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions, WIPO, 1985. www.wipo.int.
- ³ See note 1.
- ⁴ Proceedings of First International Congress on Ethnobiology, Belem, Brazil, 1988. <http://guallart.anthro.uga.edu/ISE/socbel.html>.
- ⁵ Proceedings of Second International Congress on Ethnobiology, Kunming, China, 1990. <http://guallart.anthro.uga.edu/ISE/socbel.html>.
- ⁶ Bonn Guidelines, Guideline No. 7.
- ⁷ Decision VI/24 adopted at the sixth meeting at the Hague, 7–9 April 2002. www.biodiv.org/decisions/.
- ⁸ Bonn Guidelines. www.biodiv.org.
- ⁹ COP 7 meeting at Kuala Lumpur, 9–20 February 2004.
- ¹⁰ http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm.
- ¹¹ Seventeen countries have formed the Like-Minded Megadiverse Countries: Bolivia, Brazil, China, Colombia, Costa Rica, Democratic Republic of Congo, Ecuador, India, Indonesia, Kenya, Madagascar, Malaysia, Mexico, Peru, The Philippines, South Africa and Venezuela. The group, which accounts for more than 70 percent of all biodiversity and 45 percent of the world's population, is now well recognized as an important negotiating bloc in the United Nations and other international forums. www.lmmc.nic.in.
- ¹² <http://www.ictsd.org/biores/05-03-04/story3.htm>.
- ¹³ <http://www.ictsd.org/biores/05-03-04/story3.htm>.
- ¹⁴ <http://www.fao.org/AG/cgrfa/itpgr.htm>.
- ¹⁵ CBD Article 8(j): "Subject to its 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."



GOOGLE IMAGE

South Asian countries should bring effective policies and laws to facilitate ABS arrangements, aimed at protecting the rights of local, indigenous and farming communities.

- ¹⁶ Gangjee, D. 2003. Speaking at a workshop on 'New Technologies, Social Knowledge and Intellectual Property Law' organized by Sarai/CSDS (Delhi), Hivos (Bangalore) and Alternative Law Forum (Bangalore), 20–21 November, Delhi.
- ¹⁷ For example, interest in the Himalayan Yew (*Taxus baccata*) as a source of anti-cancer drug Taxol is alleged to have caused devastation of the Yew forests in Himachal Pradesh and other hill regions in North India. See Sahai, S. (nd). Commercialization of Indigenous Knowledge and Benefit Sharing. <http://www.genecampaign.org/Publication/IK/commerce-protection.pdf>.
- ¹⁸ See note 16.
- ¹⁹ Section 3, Biological Diversity Act, 2002, requires "previous approval of the National Biodiversity Authority, to obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio-survey and bio-utilization".
- ²⁰ See note 15.
- ²¹ Rule 14 (3), Biological Diversity Rules, 2004 states that NBA "shall after consultation with the concerned local bodies and collecting such additional information from the applicant and other sources, as it may deem necessary, dispose of the application, as far as possible, within a period of six months from the date of its receipt".
- ²² Gopalakrishnan, N.S. 2003. Speaking at a workshop on 'New Technologies, Social Knowledge and Intellectual Property Law' organized by Sarai/CSDS (Delhi), Hivos (Bangalore) and Alternative Law Forum (Bangalore), 20–21 November, Delhi.
- ²³ Laird, S. A. 2002. *Biodiversity and Traditional Knowledge: Equitable Partnerships in Practice*. London: WWF EarthScan Publications Ltd.
- ²⁴ Sharma, D. 2004. Biotechnology and Rice: The Challenges Ahead. *Asian Biotechnology and Development Review* 7 (1): 39–48. New Delhi: RIS.
- ²⁵ Krishnakumar, A. 2003. A Deal Blocked. *Frontline* 20 (2), 18–31 January. <http://www.hinduonnet.com/fline/fl2002/stories/20030131081108600.htm>.
- ²⁶ *ibid.*
- ²⁷ Press Trust of India. 2002. Syngenta pulls out of research deal with IGAU. News carried on 11 December.
- ²⁸ Butler, R. A. (nd). Anti-HIV drug from rainforest almost lost before its discovery. www.mongabay.com.
- ²⁹ Cragg, G. 2005. Anti-Cancer and Anti-HIV Drugs Derived from African and Other Plants. Paper presented at a Panel Discussion organized by Indigenous Knowledge for Development Programme and the Africa Region Human Development, 11 July. www.siteresources.worldbank.org/EXTINDKNOWLEDGE/Resources/worldbank3_2005.ppt.
- ³⁰ *ibid.*
- ³¹ *ibid.*
- ³² Statement of Objects and Reasons, Biological Diversity Act, 2002.
- ³³ Section 3, Biological Diversity Act, 2002.
- ³⁴ See text note 15.
- ³⁵ Section 21(3), Biological Diversity Act, 2002.
- ³⁶ *ibid.*
- ³⁷ Rule 20(2), Biological Diversity Rules, 2004.
- ³⁸ Rule 20(3), Biological Diversity Rules, 2004.

Case and country study notes

- ¹ Pushpangadan, P. 2005. Access and Benefit Sharing: An Overview. Presentation made at a meeting organized by the M.S. Swaminathan Research Foundation, Chennai, 6 December.
- ² Pushpangadan, P. 2002. *P. Pushpangadan Model of Benefit Sharing*. Lucknow: National Botanical Research Institute (NBRI).
- ³ Anuradha, R.V. 2001. Biopiracy and Traditional Knowledge. *The Hindu Folio on Earthscapes*, 20 May. <http://www.hinduonnet.com/folio/fo0105/fo010500.htm>.
- ⁴ Anuradha, R.V. 2000. Sharing the Benefits of Community-Based Conservation: The Kani-TBGRI Deal in Kerala, India. *Community-Based Conservation in South Asia: Case Study No.1*. London: International Institute for Environment and Development (IIED).
- ⁵ This contract was signed in September 1991 (before CBD, 1992).
- ⁶ Tilford, D. S. 1998. Saving the Blueprints: The International Legal Regime for Plant Resources. 30 Case W. Res. J. Int'l L, 373, 437. In McClelland, Lynne. 2004. Bioprospecting: Market-based Solutions to Biopiracy. UCLA J.L. & Tech. Notes 8. http://www.lawtechjournal.com/notes/2004/08_040809_mccelland.php.
- ⁷ Gulati, C. 2001. The "Tragedy of the Commons" in Plant Genetic Resources: The Need for a New International Regime Centered Around an International Biotechnology Patent Office. 4 Yale H.R. & Dev. L.J. 63, 66-70. In McClelland, Lynne. 2004. Bioprospecting: Market-based Solutions to Biopiracy. UCLA J.L. & Tech. Notes 8. http://www.lawtechjournal.com/notes/2004/08_040809_mccelland.php.
- ⁸ *ibid.*
- ⁹ Heald, P. J. 2003. The Rhetoric of Biopiracy. 11 Cardozo J. Int'l & Comp. L. 519, 542; note 6.
- ¹⁰ Artuso, A. 2002. Bioprospecting, Benefit Sharing, and Biotechnological Capacity Building. *World Development* 30 (8): 1355–1368.



South Asia Watch on Trade, Economics & Environment (SAWTEE) is a regional network that operates through its secretariat in Kathmandu and 11 member institutions from five South Asian countries, namely Bangladesh, India, Nepal, Pakistan and Sri Lanka. The overall objective of SAWTEE is to build the capacity of concerned stakeholders in South Asia in the context of liberalization and globalization.

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