

IMPACT OF INTELLECTUAL PROPERTY RIGHTS ON INDIGENOUS KNOWLEDGE: INDIAN CONTEXT

♣ Muragendra B. T.

ABSTRACT

It is estimated that there are more than 370 million indigenous people spread across 70 countries worldwide. Practicing unique traditions, they retain social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live. In recent years, globalization and advances in the creation of new information technology and biotechnology have resulted in new forms of Intellectual Property (IP) laws. Intellectual property created by the application of human mind.. Because of IP Laws Indigenous peoples have become victims of biopiracy when they are subjected to unauthorized use of their natural resources, of their traditional knowledge on these biological resources, of unequal share of benefits between them and a patent holder. Biopiracy may be defined as “the appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions seeking exclusive monopoly control (usually patents or plant breeders' rights) over these resources and knowledge.” Thus there is a need to protect traditional knowledge of indigenous people which can be done by Protecting TK as a trade Secret, Creating a worldwide extensive database of existing Traditional knowledge, evolving a *Sui Generis* System for traditional knowledge and nevertheless by an active role of Judiciary.

♣ Asst.Prof.of Law, Karnataka State Law University's Law School Navanagar, Hubli.

Introduction

As the global community looks for ways to meet the Millennium Development Goal (MDG) of halving the share of people in poverty by 2015 from its 1990 level, it cannot afford to ignore the plight of indigenous peoples. Although they make up roughly 4.5 percent of the global population, they account for about 10 percent of the poor with nearly 80 percent of them in Asia. Turning the situation around will require widespread and sustainable economic growth and poverty reduction, along with strategies to address multiple sources of disadvantage to reach those who need a special lift.

Indigenous peoples have inhabited all continents since time immemorial. They have lived on their sacred lands, nurtured their spiritual and cultural values, maintained and cultivated their environment, and kept their traditions alive over centuries.¹

There are an estimated 370 million indigenous peoples living in more than 70 countries worldwide. They represent a rich diversity of cultures, religions, traditions, languages and histories; yet continue to be among the world's most marginalized population groups. The health status of indigenous peoples varies significantly from that of non-indigenous population groups in countries all over the world.²

An official definition of "indigenous" has not been adopted by the UN system due to the diversity of the world's indigenous peoples. Instead, a modern and inclusive understanding of "indigenous" has been developed and includes peoples who:

- Identify themselves and are recognized and accepted by their community as indigenous.
- Demonstrate historical continuity with pre-colonial and/or pre-settler societies.
- Have strong links to territories and surrounding natural resources.
- Have distinct social, economic or political systems.
- Maintain distinct languages, cultures and beliefs.
- Form non-dominant groups of society.

¹Silke von Lewinsky , *Indigenous Heritage and Intellectual Property : genetic Resources, Traditional Knowledge and Folklore*, 2nd ed.(Netherland: Kulwer Law International, 2007) at p. 7

² Available at: http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf (Last visited on 10th February 2013.)

- Resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities.³

In some regions, there may be a preference to use other terms such as tribes, first peoples/nations, aboriginals, ethnic groups, *adivasi* and *janajati*. All such terms fall within this modern understanding of "indigenous".⁴

"Indigenous peoples remain on the margins of society: they are poorer, less educated, die at a younger age, are much more likely to commit suicide, and are generally in worse health than the rest of the population".

Essential Requirements

- self-identification as a distinct ethnic group
- historical experience of, or contingent vulnerability to, sever disruption, dislocation or exploitation
- long connection with the region
- the wish to retain a distinct identity⁵

Relevant Indicia

1. Strong Indicia

- no dominance in the national (or regional) society (ordinarily required)
- close cultural affinity with a particular area of land or territories (ordinarily required)
- historical continuity (especially by descent) with prior occupants of land in the region

2. Other Relevant Indicia

- socioeconomic and sociocultural differences from the ambient population
- distinct objective characteristics such as language, race, and material or spiritual culture
- regarded as indigenous by the ambient population or treated as such in legal and administrative arrangements.⁶

³ Available at: <http://www.indigenouspeoples.nl/indigenous-peoples/definition-indigenous> (Last visited on 10th February 2013.)

⁴ Available at: <http://www.escuelapnud.org/cgi-bin/files/libraryfile.pl?tbl=document,plc=1389;name=indigenous%20people%20Issues%20of%20definition.pdf>. (Last visited on 10th February 2013.)

⁵ *Ibid.*

⁶ *Ibid.*

Article 33 of the United Nations Declaration on the Rights of Indigenous Peoples

1. Indigenous peoples have the right to determine their own identity or membership in accordance with their customs and traditions. This does not impair the right of indigenous individuals to obtain citizenship of the States in which they live.
2. Indigenous peoples have the right to determine the structures and to select the membership of their institutions in accordance with their own procedures.

Intellectual property rights, Indigenous peoples and Biopiracy

Intellectual Property Rights are a legal concept that confers rights to owners and creators of the work, for their intellectual creativity. Such rights can be granted for areas related to literature, music, invention etc., which are used in the business practices. In general, the intellectual property law offers exclusionary rights to the creator or inventor against any misappropriation or use of work without his/her prior knowledge. Intellectual property law establishes equilibrium by granting rights for limited duration of time.

The application of intellectual property rights to natural resources has been widely criticized. The derivation of the conflict over Intellectual Property lies in the dichotomy between the Western tenet of individual private property, and the non-Western ideology of combined property ownership. A coerced harmonization of property doctrines results in a strong clash of cultures. Plants, especially medicinal and healing plants are considered sacred in a number of indigenous societies. In such societies it is believed that knowledge, ideas and creativity are meant to be shared, exchanged and cultivated in order for society to progress. To ascribe a label of property to all invention is to essentially reduce abstract themes and artistic endeavors to a marketable form. IPRs represent property rights to the products of mind, thereby resulting in knowledge and creativity being so narrowly defined that the creativity of nature and non-western knowledge systems have been ignored.⁷ The thrust of the western IPR regimes in the area of biodiversity is diametrically opposed to indigenous knowledge systems. IPRs encourage lack of communication and secrecy; they stifle free flow of information and skew research to commercial interests only.⁸

⁷ Available at: www.indiaserver.com/betas/vshiva/iprs.htm, Research Foundation for Science, Technology and Ecology, (Last visited on 10th February 2013.)

⁸Swaireeta dutta The Turmeric Patent is just the first step in stopping Biopiracy, Available at: <http://www.nabard.org/nrmc/pdf/nabard%20turmeric%20survey.pdf> (Last visited on 10th February 2013.)

Intellectual Property Rights were developed as instruments to protect against piracy. What is ironic is that they are now being used to harbor a new form of piracy, biological piracy. If indigenous peoples and communities had the ability to utilize these forms of protection, they could possess patents for their innovative practices. Under those circumstances, any attempts at using their information without payment or permission would constitute an act of legal piracy. The absence of these tools at their disposal does not however, in any way mitigate the severity of the crime of appropriation by outsiders. By using traditional knowledge and resources, and obtaining IPRs over specific products and processes, corporations and institutions gain exclusive ownership rights. Traditional society's use of those very resources is then termed illegal and considered an infringement of the patent holder's rights. It is paradoxical how the tools of western law develop this circuitous route whereby "rights" (IPRs), in effect become "anti-rights" (anti the rights of indigenous peoples).⁹

Why is biopiracy important?

"Imagine that a medicinal plant your family and community have cultivated and used for as long as anyone can remember has been taken and patented by a multinational corporation. Imagine that you are a medical researcher trying to find a cure for breast cancer, but you are blocked from using the genetic materials you need for your research because they have been patented. Imagine that during a medical procedure blood samples and scrapings are taken from your cheek without your consent and from these, a research institute patents your cell lines. Imagine that you are a farmer who can no longer save your seed to re-sow in the next harvest, but must purchase it anew from the company each year because they have patented those resources."¹⁰

The above quotation, although it overstated of the seriousness of the problem, best describes the suspicion of a pro-South non-government organization, Genetic Resource Action International

⁹ *Ibid.*

¹⁰ Genetic Resources Action International (GRAIN), *Patents and Pirates*. 3rd ed. Barcelona: GRAIN, 2000. p. 2.

(GRAIN), which vehemently opposes the patenting of biological resources and biopiracy. This suspicion is also shared by many other pro-South individuals and academics, such as Pat Mooney, Dr. Vandana Shiva, and NGOs in developing countries.

Recently, the word biopiracy has become a cliché in numerous forums and literatures referring to the patenting of genetics resources from the least-developed countries (LDCs) and developing countries by multinational corporations (MNCs) and other agents from developed countries. Furthermore, it has become a rhetoric representing the North-South debate on the benefit sharing of biological resources and biological and cultural diversity conservation. The players are usually large biotechnological corporations and/or governments from a developed country which benefits from the biological materials they patented and, vis-à-vis the people of a less developed states who received a minimal royalty for their precious biological resources. Resentment arises when the developing countries have to face paying higher prices for seeds, plants, and medicines for which they themselves have created the basis¹¹

Biopiracy not only damages community knowledge and national heritage of developing countries, it also becomes a potential threat to the economic interest of many Asian and other developing countries especially when more than half of their citizens work in the agricultural sector. Moreover, biopiracy has also caused the problem of the intrusion to national sovereignty when an individual, corporation or a government from other countries utilize and benefit from the patenting of genetic resource which derive from native species and indigenous knowledge of another sovereign state. That means not only the violation of the concept of common heritage of mankind, but also the violation of a state's sovereign rights to its own resource.¹²

What is biopiracy?

The word "biopiracy" was originated in the 1980s. During that period of time, developing countries had faced tough condemnation from industrialized countries for intellectual piracy. Developed countries, especially the United States (US), blamed developing countries of violating their intellectual property, causing a huge amount of economic loss to their entrepreneurs especially in the field of drug, product design, trademark, and computer software. As a result,

¹¹ Available at: <http://hub.hku.hk/bitstream/10722/30867/1/FullText.pdf?accept=1>(Last visited on 10th February 2013.)

¹² *Ibid.*

countries such as, India, Argentina, Brazil Vietnam and Thailand, had all been threatened under the special 301 provision of US trade law.¹³

To counter the above accusation on the behalf of developing countries, Pat Mooney, the ex-director of the Rural Advancement Fund International (RAFI)¹⁴ invented the term "biopiracy". Bio-pirate refers to persons and countries that use the intellectual property rights to monopolize and own the right to access utilize benefit and control biological resources and related indigenous knowledge without proper appropriation of benefit derived and addressing the original innovator.¹⁵ The real pirates are those developed countries, especially the US, who benefited and prospered from the plundering of natural resources from the developing and less developed countries without paying any royalty to the source countries at all.

According to Mooney, the seriousness of intellectual piracy by developing countries is comparable to biopiracy by developed countries. Mooney was not alone in the study about the problem of biopiracy. Dr. Vandana Shiva,¹⁶ a biologist from India, has also been studying and is particularly vocal about the matter of biopiracy.

¹³ "Special 301" clause of the Omnibus Trade And Competitiveness Act Of 1988 requires U.S. trade representative to identify, investigate, and take retaliatory action against countries whose policies deny adequate protection of intellectual property rights (e.g., patents, trademarks, and copyrights). During the 1970s and 1980s, protectionist sentiment was on the rise in the US Congress and, as a result, many developing countries were condemned by the US as unreliable trade counterparts. United Nations Conference on Trade and Development (UNCTAD). Automated System for Customs Data. Available at: <http://www.asycuda.org/cuglossa.asp?term=Competitive> (Last visited on 10th February 2013.)

¹⁴ Now Action Group on Erosion, Technology and Concentration. (ETC Group) is an international NGO that promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge, with a special emphasis on developing countries.

¹⁵ Genetic Resources Action International (GRAIN). Biopiracy, TRIPs and the Asian Rice Bowl. May 1998. Available at: www.grain.org/publications/rice-en-p.htm (Last visited on 10th February 2013.)

¹⁶ Vandana Shiva is a philosopher, environmental activist, and eco feminist. Shiva, currently based in Delhi, has authored more than 20 books and over 500 papers in leading scientific and technical journals. She was trained as a physicist and received her Ph.D. in philosophy from the University of Western Ontario, Canada, in 1978 with the doctoral dissertation "Hidden variables and locality in quantum theory." She is one of the leaders and board members of the International Forum on Globalization, (along with Jerry Mander, Edward Goldsmith, Ralph Nader, Jeremy Rifkin, et al.), and a figure of the global solidarity movement known as the alter-globalization movement.

According to Shiva, biopiracy refers to "...the use of intellectual property systems to legitimize the exclusive ownership and control over biological resources and biological products and processes that have been used over centuries in non-industrialized cultures."¹⁷

Hence, it is clear, according to Shiva, that a patent claim over the biodiversity and indigenous knowledge is the act of biopiracy. Like Mooney, Shiva argues that a biopiracy patent denies the innovation incorporated in indigenous knowledge.¹⁸ She claims that the use of traditional knowledge reportedly increases the efficiency of pinpointing plants' medicinal uses by more than 400 per cent.¹⁹ For example, in 120 active compounds currently isolated from higher plants and widely used in modern medicine, per cent have uses that were known in traditional systems, while only less than a dozen are synthesized by simple chemical modification.²⁰ The rest are extracted from plants and then purified. Because the benefit at stake is so enticing, the industrialized world would rather choose to ignore the century's long cumulative innovation of generations of rural communities in the developing countries.

The effects of biopiracy

It is evident from the prior section that many of these cases involved what could be called biopiracy. It is feared that these phenomena may cause damage to developing countries. There is no significant factual support in saying that biopiracy causes serious damage to the economy of any countries. However, it does have several potential effects to the societies of the developing countries as a whole.²¹

Firstly, the stealing of biological resources and indigenous knowledge, as accused by Shiva, would affect food security, livelihood of indigenous people, and consumers' choice.²² Since seventy percent of our food supply is based upon a small number of crops, primarily wheat, maize, rice, and potato, which are fundamental to food security, patenting of these plants

¹⁷ Vandana Shiva, "Biopiracy," *Protect or Plunder? : Understanding Intellectual Property Rights*. London: Zed Books, 2001. pp. 49-68.

¹⁸ *Ibid.*

¹⁹ *Ibid.*

²⁰ *Ibid.*

²¹ *Ibid.* pp. 7-18.

²² Vandana Shiva, *Biopiracy : the plunder of nature and knowledge* Boston, Mass. : South End Press, 1997. pp. 7-18.

varieties will definitely pose threat to consumers.²³ Many countries fear that this will happen, so most of them limit or prohibit the patenting of biological materials. For example, the European Patent Convention of 1883 stated that no one could patent whole plant varieties.

Secondly, the patenting of biological technology will encourage monopoly control of plant material by Western transnational corporations.²⁴ Farmers will become dependent on corporations for their input in agriculture, i.e. seeds, fertilizers, pesticides and herbicides. This will destroy an old practice of local seed saving the forms the basis of food security.²⁵ The new technologies and system mean no seed and no food unless you buy more seed. Monopoly control on seed linked with corporate control over agriculture will lead to large scale vanishing of farmers' varieties, therefore threatening biodiversity conservation as well as farmers' survival.²⁶ Moreover, intellectual property rights (IPRs) of seeds and plants will increase the national debt and the nations dependency on institutions like the IMF and the World Bank.²⁷ Conversely, this argument has been rebutted by the success of hybrid maize in poverty alleviation. There are only two concerns left for this matter; first is the lack of access to such seeds and second, the threat of over supply costing the devaluation of such products.

Thirdly, Shiva argues that the patenting of biological resources will also encourage the enclosure of biodiversity and knowledge.²⁸ Water resources are being enclosed through dams, groundwater mining and privatization schemes and now it is the turn of biodiversity and knowledge to be enclosed through IPRs.²⁹

In politics, biopiracy has triggered the problem of the intrusion of national sovereignty when a corporation or a government from another country utilizes and benefits from the patenting of genetic resource which derived from genetic resources and/or indigenous knowledge from another sovereign state. This has violated the international merit of a state's sovereign rights on its own resource. However, this concept of national sovereignty over the biological

²³GRAIN, Patents and Pirates, 2000. p. 1.

²⁴ Supra note. 21

²⁵ Supra note. 21 at pp. 43-64

²⁶ Supra note. 21 at pp. 65-86

²⁷ Vandana Shiva, Biopiracy : the plunder of nature and knowledge Boston, Mass. : South End Press, 1997. pp. 49-68.

²⁸ *Ibid*

²⁹ *Ibid*.

resources also runs against the concept of the common heritage of mankind which was also been recognized as a norm in this field.³⁰

Economically, biopiracy has triggered the problem of economic monopoly, intellectual property, and economic equity. This patenting of a certain processes and genetic material will block other parties from utilizing that material or process. This has resulted in the monopolization of trade, which is ultimately against the principle of free trade fostered by the World Trade Organization (WTO). Moreover, there is also fear that it would create a barrier in further research in the biotechnological field, the loss of which might outweigh the gain. In addition, it is exceptionally difficult for developing countries to challenge a patent because of the high cost and the rapid increase of biopiracy cases. And the most important is that some challenges might not be successful.

Legally, it has triggered the problem of proprietary rights in biological materials such as the difficulty in distinguishing invention and discovery, while socially; it has triggered the problem of the abuse of collective rights of community and indigenous knowledge. In summary, biopiracy refers to the situation in which industrialized/developed countries gain patents of the biological and genetic material, i.e. plants and animal DNA, and indigenous knowledge from communities in the gene-rich developing countries without the proper appropriation of benefit for the source owner. Biopiracy has become one of the concerns faced by developing countries because it poses threats to the economy of many people in those countries. It also raises the Anthony J. Stenson. "Introducing the Politics of Genetic Resource Control," question of equality between the developed and the developing countries and the dependency of the developing countries to the developed countries in the international level.

Indian Context

Turmeric

Turmeric is a plant that grows widely throughout India and Pakistan.³¹ It is found in the roots of the *Curcuma longa* plant and has a tough brown skin and a deep orange flesh. It has long

³⁰ Anthony J. Stenson. "Introducing the Politics of Genetic Resource Control," in Anthony J. Stenson and Tim S. Gray eds. *The Politics of Genetic Resource Control*. Basingstoke: Macmillan Press, 1999. pp. 1-7.

³¹ See generally Shubha Ghosh, *Globalization, Patents and Traditional Knowledge*, 17 *Colum. J. Asian L.* 73, 90, (2003-2004)

been used as a powerful anti-inflammatory in both the Chinese and Indian systems of medicine.³² The United States Patent and Trademarks Office (USPTO) granted a patent to Drs, Suman Cohly and Hari Har, two American Indian scientists at the University of Mississippi for “the use of turmeric in wound healing.³³ The Council of Scientific and Industrial Research in India (CSIR) challenged the patent on grounds that the patent was not novel, citing the prior art in the traditional knowledge. Though the traditional wisdom argument did not prevail, the CSIR had to produce written documentation and it resorted to ancient Sanskrit texts and a paper published in 1953 in the Journal of the Indian Medical Association.³⁴ In 1998, the USPTO cancelled the claims in the patent. The USPTO ruled that using the popular spice for medicinal purposes was not a new "invention" but a millennial old Indian practice.³⁵ Despite such a cancellation, the UK's Guardian Newspapers reported that 5000 patents had been issued at a cost of at least US\$ 150 million for medicinal plants and traditional systems.³⁶

Basmati Rice:

The name Basmati is derived from Hindi and is a unique species of rice grown in India.³⁷ The rice has its own special fragrance and comprises of 7.5% of India's total agricultural products export earnings in the year 1998-99.⁷⁶ In 1997, Rice Tec, a Texas company, acquired a patent in a novel method of breeding a long grain rice of aromatic rice, in novel method of preparing and cooking the rice, and in the grains themselves. Rice Tec had made 20 far-reaching claims related to Basmati in Patent No. 5663484. As a result of a Supreme Court case filed by the Research Foundation for Science, Technology and Ecology, the Government of India

³² It is traditionally called 'Indian saffron' because of its deep yellow-orange color and has been used throughout history as a condiment, healing remedy and textile dye. Available at <http://www.whfoods.com/genpage.php?tname=foodspice&dbid=78>(Last visited on 10th February 2013.)

³³ See generally Shubha Ghosh, Globalization, Patents and Traditional Knowledge, 17 Colum. J. Asian L. 73, 90, (2003-2004)

³⁴ Danielle Knight, India Thai Farmers fight US 'biopiracy' Available at <http://www.atimes.com/indpak/BE02Df02.html> (Last visited on 10th February 2013.)

³⁵ *Ibid.*

³⁶ Available at: <http://www.guardian.co.uk/world/2009/feb/22/india-protect-traditional-medicines>(Last visited on 18th February 2012.)

³⁷ Is there a difference between Basmati Rice and Regular Rice, Available at: <http://www.whfoods.com/genpage.php?tname=george&dbid=190#answer> (Last visited on 10th February 2013.)

challenged 3 claims related to rice grain (No's 15-17) in April 2000.³⁸ After much deliberation, India finally, won the battle against Rice Tec. The majority of Rice Tec's claims have been struck down.

Neem:

Neem is one of the traditional Indian trees that have numerous medicinal properties. The tree has number of potent compounds especially a chemical compound named azadirachtin and it is this astringency that makes it useful in so many fields.³⁹ The tree extracts are used to treat wide range of diseases such as, leprosy, diabetes, ulcers, skin disorders, and the oil extracted from the tree is used as a contraceptive.⁴⁰ The tree is also used as a tooth brush in many Indian households and there are even tooth pastes available in the market named neem. W.R. Grace was granted the patent by the USPTO on products and processes that involve neem extracts. The Research Foundation for Science, Technology and Environment filed opposition to the patents which argued that the patent lacked novelty and that it belonged to India's traditional knowledge. After a long battle the patents on Neem have been withdrawn in US and in Europe.

Though India has won the legal battles, its traditional knowledge is still being exploited. For example as Vandana Shiva, states, "WTO has so far blocked India's attempts to have Basmati and Darjeeling tea included in Geographical Indicators (GI). While protection is granted for Wines and Spirits, there is no protection for our crops and Ayurvedic Medicines. Domestic laws on GIs are toothless without appropriate Amendments in TRIPs. GIs could work for protecting a few export commodities like, Alphonso mangoes, Darjeeling Tea and Basmati Rice."⁴¹ Violation of traditional knowledge is also a violation of the rights of the indigenous peoples vested by international declarations, treaties, and conventions.

³⁸ Basmati Patent, Research Foundation for Science, Technology and Ecology, India, and International Center for Technology Assessment, Washington D.C. USA Available at http://basmaticompany.com/index2.php?option=com_content&do_pdf=1&id=21 (Last visited on 10th February 2013.)

³⁹ Vandana Shiva, The Neem Tree- A case history of Bio Piracy, available at <http://www.twinside.org.sg/title/pirch.htm> (Last visited on 10th February 2013.)

⁴⁰ *Ibid.*

⁴¹ *Supra* note 31.

Conclusion

It is clear at this stage that biopiracy is an issue concerning the India. Another concern is that a global protectionist regime of intellectual property poses threat to the economy of developing countries. A strong regime of IPRs is not suitable for non-developed states that are still seeking to increase their base of human capital. For developing countries, biopiracy can cause economic damage. Firstly, more than 50 per cent of the people in most developing countries still rely very much on agriculture. For example, 59.2 per cent of the economically active population in India was still in the agricultural field in 2001.⁴² Governments of developing countries are afraid that the changes brought by the introduction of IPRs in biotechnological inventions would contribute to the loss of employment to their farmers. Biopiracy is also condemned for causing loss of cultural heritage in developing countries. It is necessary for developing countries to adopt protective strategies to protect themselves from the damages that might cause by the global IPRs system.

Suggestions

- Protecting TK as a trade Secret: Trade Secret could be one form for the protection of traditional knowledge amongst the prevailing regimes of intellectual property. A trade secret can consist of any pattern, device, compilation, method, technique, or process that gives a competitive advantage.
- Creating a worldwide extensive database of existing Traditional knowledge is one sound option. Such a database will be very useful to patent authorities while conducting prior search before granting a patent. This could help to easy the process, lessen the litigation costs that arise after the granting of patent. India has recently unveiled its long awaited traditional knowledge database.

⁴² FAO, 2001. p. 26.

- Evolving a *Sui Generis System*⁴³: Though there have been scholars who have argued on both sides, a sui generis system may provide a reasonable protection. Scholars such as Vandana Shiva and others have proposed that, “the establishment of a sui generis regime outside the IPR framework which would, effectively, create community IPR which distributes rights to communities without bringing their resources into the pressures of a market economy.
- Judicial Activism: The Supreme Court of India should play a significant role in biodiversity conservation related issues.
- Disclosure of Information: It is possible for developed countries to regulate the use of traditional knowledge by making it mandatory of companies for a complete disclosure of information. Most of the times the companies do not divulge the information. Such a regulation could prevent a possible misuse of traditional knowledge.

⁴³ The Latin term *sui generis* means ‘of its own kind’