

Biodiversity and Bio-Piracy: With Special Reference to Sri Lanka

Padmaja Wijesooriya

General Sir John Kotelawala Defence University, P.O. Box 32, Ratmalana, 10390, Sri Lanka
padmaja.wijesooriya@kdu.ac.lk

Abstract— Sri Lanka is a small island, 65,610 km² in area situated close to southeast corner of the peninsula of India and rich with high level of biodiversity. The significant feature of the biodiversity of Sri Lanka is high portion of endemic species among fauna and flora. According to the Convention on Biological Diversity, biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and this includes diversity within species between species and of ecosystems. Hence bio-piracy means commercial development of naturally occurring biological material such as plant substances or genetic cell lines, by a technological advanced country or organization without fair compensation to the people or nations whose territory the materials were originally discovered.

Thus, Sri Lanka as a biodiversity hot spot as well as a developing country has faced challenges to protect its endemic fauna and flora from commercially developed countries and multinational companies.

Therefore this research be discussed the existing legal framework which is available and which is not adequate to address bio-piracy as *sui generis* concern and steps which can be taken to prevent this issue.

Further the whole question is that is Sri Lanka has adequate legal framework to prevent bio-piracy over the biological resources in the country itself. The circumstances such as less of technological infrastructures, lack of knowledge and a precise framework to protect traditional knowledge among indigenous people of Sri Lanka and basically greediness for money there is a trend among the people to sell endemic fauna and flora to developed countries or Multinational Companies for experiments led country for bio-piracy.

The objective of this study is to identify a *sui generis* legal framework to protect genetic resources in Sri Lanka and to determine in-situ and ex-situ conservation on biodiversity to prevent bio-piracy in Sri Lanka.

Methodology of this study will be mainly based on the literature review in area of law relating to Intellectual Property and Environmental Laws. Both procedural law and substantive law aspects will be addressed and the analysis will be based on academic and judicial expressions on Genetic Piracy in Sri Lanka.

Keywords— Bio-diversity, Bio-piracy, Traditional Knowledge

I. INTRODUCTION

On April 17, 1492, Queen Isabel and King Ferdinand granted Christopher Columbus the privilege of 'discovery and conquest'. In 1493, Christopher Columbus went back to Spain with some seeds. It was the beginning of exportation of endemic plants and animals widely in the world. Five hundred years after Columbus, a more secular version of the same project of colonization continues through patents and intellectual property rights. (IPR) (Shiva.V, 1997) Further, IPR protection in the General Agreement on Tariffs and Trade (GATT) agreement on Trade Related Aspects on Intellectual Property Rights (TRIPs) is the freedom that European colonizers have claimed since 1492. Nevertheless, John Locke's *terra nullius* argument, in the Second of his Two Treatises of Government argues that indigenous people who lack and established system of property and limit their activity to hunting and gathering are in pre-political stage of nature. Conversely, European society represents the most advanced and civilized stage because of its established legal system of property, political society and commercial market-oriented agriculture and industry. (Martin & Vermeylen,

2006) Therefore, Locke's Two Treatises of Government effectually legitimized the process of theft and robbery during the enclosure movement in Europe. These Eurocentric notions of property and piracy are the bases on which the IPR laws of GATT and World Trade Organization (WTO) have been framed. (Shiva.V, 1997)

What does this bio-piracy relate to? Bio-piracy is interrelated to the concept of Bio-diversity. The terms bio-diversity denote, "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." (Convention on Bio-Logical Diversity (CBD), 1992) The term biological resources expressed the meaning that, "genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity." Convention on Biological Diversity 1992 (CBD) also defines what biotechnology is. According to Article 2 of the CBD, it provides that, "Biotechnology" means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or process for specific use." Mgebeji defines 'bio-piracy' as the commercial use of plants and TK of the use of plants (TKUP) without i) compensation, ii) acknowledgement of prior intellectual input to the plants' improvement or the creation of TKUP or iii) the informed consent of the owner(s) of the plants or practitioners of TKUP. (Mgebeji.I,2006)

As a country recognized as a hot spot for biodiversity, Sri Lanka too is continuously facing this massive bio-piracy catastrophe for the endemic flora and fauna. Therefore this research based on to discuss the bio-piracy problem affecting Sri Lanka and to bring forward an effective mechanism that can be developed through Intellectual Property laws and Environmental laws in Sri Lanka with the standards of International Laws vis-à-vis.

II. INTELLECTUAL PROPERTY LAWS IN RELATION OF BIO-PIRACY

A. What is IP Law?

IP Law is a set of legally enforceable rights resulting from intellectual activities in the industrial, scientific, literary and artistic work. The

Agreement of Trade Related Aspects of Intellectual Property Rights (TRIPS), in its preamble mentioned the intention of having a IP law in a country. According to the preamble of TRIPS Agreement it is mentioned that,

'Desiring to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade'. (TRIPS, Preamble)

IP law has some unique features in its own. For example, IP is an asset and has a monetary value. It can, like any other property, be owned, transferred, sold or licensed. And also IP is a kind of intangible property as it may not be identified or defined by its own physical parameters. (Karunaratne.D.M,2010)

IP law can be divided into two main categories. That is Industrial Property and Copyrights. Under Industrial Property the areas such as inventions, industrial designs, marks, geographical indications and protection against unfair competition will be covered. Moreover the rights relating to literary, artistic and scientific work comes under Copyrights. Further, rights of performances of performing artists, phonograms and broadcast comes under the Related Rights which is another important part of the Copyrights.

When concerning the bio-piracy under IP law it can be discussed under the area of patent law.

B. What is Patent Law?

A word patent is associated with new inventions. A person who invented a new product would entitled to have a patent license over the invention and the inventor enjoys exclusive rights in relation to the new patented product for a limited period to exploit, to assign or transmit the patent and to conclude license contract. A same criterion practicing in many countries to registering patent and further they looked in to several features in the new product to grant patent license to the nationalities and non-nationalities in their country. The features are discussed as follows.

1. The feature of Novelty- 'An invention has to be new or at least a significant new

improvement to an existing invention. Since it is not possible to define what is new or novel, it is defined as part of 'prior art'. The term prior art defined differently in countries. But in general is meant to cover existing knowledge'. (Gunawardena.J., Unpublished)

2. The feature of Inventive Step- 'If a step in the making of a new invention is not obvious to a person skilled in the particular area of science or technology, it is deemed to be an inventive step. In some countries this is known as "non-obviousness". (Gunawardena.J., Unpublished)
3. The feature of Usefulness- 'The invention should have a use or an application. This is, in many countries has to be real use, but in some even a potential use is considered to be adequate'. (Gunawardena.J., Unpublished)

Moreover, there are two different criteria of granting patent in the world. One criterion is first-to-invent and the other criterion is first to file. First-to-invent criterion means that, the person who conceived the idea of invention of the product first, can be granted the patent over that particular product and the priority date will be the day of when the conception of the idea. US is the only country where practicing the criterion of first-to-invent. Further first to file criterion means that the person who files the patent application first of that particular invention will able to grant patent license and the priority date will be the date when the application was filed. All other countries excluding US are practicing the criterion of first to file.

III. PATENT UNDER SRI LANKAN LAW REGIME

Intellectual Property Act No 36 of 2003 (here after refers as The Act) is the present governing law over IP in the country and patent is a most valuable and debatable part of it. According to the national law an invention can be patentable subject matter and for the purpose of patent an invention means "an idea of an inventor which permits in practice the solution to a specific problem in the field of technology". (Intellectual Property Act No 36 of 2003) Further section 62(2) provides that, a patentable invention may be or may relate to product or process.

Furthermore, according to Section 63 of the Act an invention can be patentable if it is new, involves an inventive step and is industrially applicable. According to Section 64 of the Act, it provides provisions for 'novelty'. As per the Section 64(1) of the Act 'an invention is new if it is not anticipated by prior art.' The concept of prior art describes in Section 64(2) of the Act. According to Section 64(2) a prior art shall consist of 'everything disclosed to the public, anywhere in the world, by written publication, oral disclosure, use or in any other way, prior to the filing or, where appropriate, priority date of the patent application claiming the invention and/or the content of patent application made in Sri Lanka having and earlier filing or where appropriate, priority date than the patent application referred to by written publication, oral disclosure, use or in any other way, to extent that such contents are included in the patent granted on the basis of the said patent application made in Sri Lanka'.

Moreover, according to the Act, Section 65 provides provisions for the inventive step. According to Section 65, 'an invention shall be considered as involving an inventive step if, having regard to the prior art relevant to the patent application claiming the invention, such inventive step would not have been obvious to a person having ordinary skill in the art'. And also, Section 66 provides provisions for industrial applicability of an invention. According to Section 66, it provides that, 'an invention shall be considered industrially applicable if it can be made or used in any kind of industry'.

Furthermore, Section 62(3) provides provisions for non-patentable subject matters. According Section 62(3), it provides that, 'discoveries, scientific theories and mathematical methods and plants, animals and other microorganisms other than transgenic microorganism and an essentially biological process for the production of plant and animals other than non-biological and micro-biological process, and schemes, rules, or methods for doing business, performing purely mental acts or playing games and methods for the treatment of the human or animal body by surgery or therapy, and diagnostic methods practiced on the human or animal body and an invention which is useful in the utilization of special nuclear material or atomic energy in an atomic weapon and lastly an invention, the prevention within Sri Lanka of the commercial exploitation of which is necessary

to protect the public order, morality including the protection of human, animal or plant life or health or the avoidance of serious prejudice to the environment. (Intellectual Property Act No 36 of 2003, Section 62(3) a,b,c,d,e,f)

Moreover, when considering the duration of a patent within the country, the Act mentioned that 'a patent shall expire twenty years after the filing date of application for its registration' and further the Act mentioned that 'where a patentee intends at the expiration of the second year from the date of grant of the patent to keep the same in force, he shall, twelve months prior to the expiration of the second and each succeeding year during the term of the patent, pay the prescribe annual fee.' (Intellectual Property Act No 36 of 2003, Section 83(1))

Furthermore, Section 84 of the Act provides provisions for rights of owners of patent. According to the Section, it is mentioned that, 'the owner of the patent shall have exclusive rights in relation to a patented invention to exploit the patented invention, to assign or transmit the patent, and to conclude license contracts'. (Intellectual Property Act No 36 of 2003, Section 84 (1) a, b, c)

Therefore according to the law of the country it is crystal clear that the person who possess a patent for an invention can enjoys exclusive rights over that product for twenty years and if the patent owner wishes to renew the patent license for another time period, that facility also provided in the Act. Any way this is the position which is adopted by many countries in issuing patent, and many countries including Sri Lanka do not allow patenting living organisms and their parts as well as the substance made by or taken from living organisms. (Intellectual Property Act No 36 of 2003, Section 62(3) b)

IV. PATENT UNDER INTERNATIONAL LAW REGIME

International governing legal framework for IP is TRIPS Agreement and the purpose of enforcing such an Agreement to recognizing, to this end, the need for new rules and disciplines concerning, 'the applicability of the basic principles of GATT 1994 and of relevant international intellectual property agreements or conventions; the provision of adequate standards and principles concerning the availability, scope and use of trade-related

intellectual property rights; the provision of effective and appropriate means for the enforcement of trade-related intellectual property rights, taking into account differences in national legal systems; the provision of effective and expeditious procedures for the multilateral prevention and settlement of disputes between governments; and transitional arrangements aiming at the fullest participation in the results of the negotiations'. (TRIPs, Preamble)

Section 5 of the TRIPS Agreement provides provisions for Patents. According to the Article 27 mentioned the patentable subject matter. Article 27 (1) provided that 'patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application'. Moreover, it is elaborated that 'patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced'.

Moreover, Article 27 (2) and (3) provide provisions for non-patentable subject matters. In Article 27 (2) provides that, 'members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *public order* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law'. In Sri Lanka Article 27(2) of the TRIPS Agreement is adopted as it is by Section 62(3) (f). Furthermore Article 27(3) continued to explain non-patentability subject matters. According to Article 27(3), it provides that, 'members may also exclude from patentability from diagnostic, therapeutic and surgical methods for the treatment of humans or animals, plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes'. However, Article 27(3) (b) further mentioned that 'members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof'. Therefore, according to the National IP Law, plants, animals or other micro-organisms cannot be patented. But in TRIPS Agreement, it

encourages the member parties to enforce a *sui generis* law for their own countries to protect plant varieties. And in following this provision, Sri Lanka as a member country to TRIPS Agreement, can introduced a *sui generis* law to protect plants, animals and other micro-organism varieties and it would be helped to prevent bio-piracy in the country.

Moreover, Article 28 of the TRIPS Agreement provides provisions for the rights of the patent owners. According to the Article, it is mentioned that, 'a patent shall confer on its owner the mentioned exclusive rights as where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product (TRIPS; Article 28 (1) a) and where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process'. (TRIPS; Article 28 (1) b) Further, Article 28(2) provides that, 'patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts'. (TRIPS; Article 28 (2))

Moreover, Article 33 of the TRIPS Agreement provides provision to explain the time duration of a patent. It provides that, 'The term of protection available shall not end before the expiration of a period of twenty years counted from the filing date'.

Therefore, Sri Lanka as a member country to the TRIPS Agreement, has adopted the same provisions to the national law to implement patent law in the country.

VI. PATENT AND BIO-PIRACY

According to the national legal frame work, Section 62(3)(b) provided that 'plants, animals and other micro-organisms other than transgenic micro-organisms and an essential biological process for the production of plants and animals other than non-biological and micro-biological process' cannot be patentable. But, further in the proviso of the said section, mentioned that 'which a patent granted in respect of micro-organisms

shall be subject to the provisions of the Act'.(Intellectual Property Act No.36 of 2003; Proviso of Section 62 (3) b) Therefore, according to the provisions provided in the Act, it is crystal clear that animals, plants and micro-organisms are not the subject matter of the patent and this provision is lead the country to the bio-piracy and it is encouraging bio-piracy in the country.

Moreover, according to the TRIPS Agreement, it is also mentioned that, 'plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and micro-biological process' (TRIPS; Article 27 (3) b) would not patentable subject matters. But further it is mentioned that the member states shall provide for the protection of plant varieties either by patent or by an effective *sui generis* system or by any combination thereof. (TRIPS; Article 27 (3) b) This provision can be considered as kind of protection granted to against bio-piracy in the world; therefore some developed countries vehemently opposed to this provision provided by TRIPS Agreement. Since, this Article made mandatory patent protection for micro-organisms and non-biological and micro-biological process (Ragnar.J; 2004) and this protection might be created threaten to the bio-pirated countries such as USA, Japan, Germany etc.

Nevertheless the patenting of living beings and their parts originated in USA. The first ever patent, covering a living organism was issued to Louis Pasteur in 1873 for a new apparatus that can be used in making beer and 'pure culture' of the yeast that is used in the fermentation process. (Gunawardena.J; Unpublished)

Moreover, the patenting of chemical compounds which made by living beings has been provided by considering a discovery as an invention. Thus, it is only an identification of that such chemical compound; some countries are granting patent disregarding that such particular identification is only a discovery. The first country that accepted this was USA, with the decision of the Park Davis Case (S.D.N.Y.1911) in 1911, when it was decided by courts that the adrenalin hormone, isolated from the adrenal gland of a human being and purified, was patentable.

Besides that U.S Supreme Court in the decision of Diamond v Chakrabarty (447 US 33, 1980) stated that a living being if it fulfill the three criterion of granting patent, that is novelty, inventive step and usefulness is patentable. After this case granting of utility or industrial patent for living beings and parts was accepted. (Gunawardena.J; Unpublished)

Any way as a rich bio-diversity country, Sri Lanka introduced a *sui generis* legal framework by introducing a Draft Bill for Protection of New Plant Varieties (Breeder's Rights), 2001 and Draft Bill for Access to Traditional Knowledge Relating to Use of Medicinal Plants, 2000 to protect the bio-diversity from pirating it.

In order to obtain the IP rights under the Draft Bill for Protection of New Plant Varieties (Breeder's Rights), 2001, the breeder should present the features of novelty, distinctness, uniformity and stability of the new plant variety. (Draft Bill for Protection of New Plant Varieties, Breeder's Rights; Section 2)

Moreover, according to the Section 8 of Draft Bill for Protection of New Plant Varieties (Breeder's Rights), 2001, it is provides provisions for entitlement to protection. As per the Section 8 it is provided that the breeder of the variety or his successor in title is entitled to apply for the protection under this Act.

Furthermore National Intellectual Property Office in Sri Lanka (NIPO) was also drafted a bill in relation to Access to Traditional Knowledge Relating to the Use of Medicinal Plants Act, 2000 in the purpose of preservation of TK associated with medicinal plants by preventing bio-piracy and safeguarding the interest of the holders of such traditional knowledge. (Gunawardena.J; Unpublished) Nevertheless, according to the IP Law an invention can protect through patent or undisclosed information or trade secrets but TK cannot be protected through either of these ways. Because to protect TK, under the framework of patent, it should be proved the features of novelty, an inventive step and industrially applicability. But in some countries such as USA, Japan, Australia, China and some EU Countries such as France and Germany have defined the terms of novelty, inventive step and industrially applicability to make it possible to grant patent to

TK which has led to modification of a product. (Gunawardena.J; Unpublished)

VI. CONCLUSION

Nevertheless, either in Sri Lankan national law or in TRIPS Agreement do not identified or provide provisions to protect TK but in national legal regime, it is provide provisions for protect expression of folklore. (Intellectual Property Act No.36 of 2003; Section 24) Therefore this is great loophole in the IP legal framework in both national and international level and it facilitates bio-pirates to do their piracy in openly.

Another loophole, which facilitates bio-piracy in the world, is that, the provided provisions of US Patent Act 1952. According to the Article 102 of the US patent Law which defines prior art does not recognize technologies and methods in use in other countries as prior art. (Ragnar.J;2004) Therefore if knowledge is new for USA, it is novel. Article 102 of the US Patent Law provides that,

'A person shall be entitled to a patent unless, the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention; or the claimed invention was described in a patent issued or in an application for patent published or deemed published in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention'.

Therefore, America as a country which engages with lots of bio-piracy is facilitated by Article 102 of the US Patent Act because this Article does not recognized the novelty of a certain product which available elsewhere and therefore US granting patent for any product which is new for the country. Hence, in order to stop bio-piracy, the USA must change their national law in relation to granting patent so that use in a foreign country is prior art.

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BIOGRAPHY OF AUTHORS

Author is a lecturer of Law (Probationary), Faculty of Law, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka. Her research interests include Environmental Law and Intellectual Property Law. She obtained her LL.B and LL.M from Faculty of Law, University of Colombo. Currently she is reading for her MPhil/PhD Programme at Faculty of Graduate Studies, University of Colombo.

