

BIO PIRACY AND ITS IMPACT ON BIO DIVERSITY: A CRITICAL ANALYSIS WITH SPECIAL REFERENCE TO SRI LANKA

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ABSTRACT

Bio Piracy means the gaining of exclusive monopoly rights over the biological material of one country by individuals, institutions or companies of other countries that ultimately leads to the denial of the rights, of the country of origin. This has become the most fast spreading mafia in the world today. Biodiversity is the variation of life forms including genes and species within a given ecosystem, biome, or an entire planet. Approximately 90% of the world's remaining biodiversity is concentrated in tropical and sub-tropical regions within developing countries, especially in key centers of mega-diversity. Though Sri Lanka has been identified as a biodiversity hotspot in the world currently, its biodiversity is under threat due to bio piracy. Further, Sri Lanka being a member of WTO is bound to implement TRIPS agreement in its legal framework. In addition, Sri Lanka is a member state to a number of International instruments relating to environmental protection. This has created a conflict of interest between environmental interests and economical interest of the country. At present there is a lack of sufficient laws against bio piracy and this inadequate protection for genetic resources of the country has encouraged bio piracy in Sri Lanka. As a result, developed countries have obtained a number of Patents for products derived from plants such as Neem, Binara, KothalaHimbutu, Aloe vera, Compounds Pile/Katuru Pile (Tephrosiaspp), Karawila (Momrodicecharantia), WalRukattana (Cryptolepisbuchananii), Snake Gourd (Trichosantheskirilowi), Bitter melon (Marmodicacharantia) grown in natural habitats of Sri Lanka. On this basis this research, which is based on secondary sources, attempts to critically analyze the International and Sri Lankan legal regime related to this problem. Further it makes recommendations to protect bio diversity against bio piracy in Sri Lanka.

Keywords: Bio diversity, Bio piracy, Environmental Protection, legal regime

INTRODUCTION

Sri Lanka is an island, 65,610 km² in an area situated close to the Southeast corner of the peninsula of India. Despite its small size, Sri Lanka has rich bio diversity because of its topographic and climatic heterogeneity as well as its coastal influence. A noteworthy feature of Sri Lanka's biodiversity is the remarkable high proportion of endemic species among its flora and fauna: 23% of the flowering plants and 16% of the mammals in the island are endemic. Sri Lanka has a wide range of topographic and climatic variation and this contributes to the special features of its biodiversity.¹ According to the 4th country report from Sri Lanka to United Nations Convention on Bio Diversity (CBD) Sri Lanka is home to a remarkable array of species and it is considered to be the richest per unit area in the Asian region with regard to mammals, reptiles, amphibians, fish and flowering plants. Further, In terms of species, genes and ecosystems, Sri Lanka is one of the 18 hot spots in the world.² The wet zone rainforests have nearly all of the country's woody endemic plants and about 75 per cent of the endemic animals. The genetic diversity of agricultural crops is quite remarkable, with 3,000 accessions of rice being recorded. The biodiversity of coastal and marine ecosystems provide over 65 per cent of the animal protein requirement of the country. Bio diversity of Sri Lanka has a huge potential to be transformed as a source of funding. Number of Multi National Companies realize that genes of living organisms are the basic 'raw materials' of the new biotechnologies. The 'Gene Rush' has thus become a new version of the old 'Gold Rush', in the rush for future profits. Thus, it can be argued that the 'Gene rush' has replaced the old 'gold rush'. This quest for genetic resources among bio pirates has created an eminent danger to Sri Lankan bio diversity. Recent developments relating to bio piracy have been entered on a high alarming scale. In this post war era, Sri Lanka is looking towards the sustainable development. In that process protection of environment is a major component in which conservation of bio diversity plays a major role.

WHAT IS BIO DIVERSITY?

Bio diversity is the foundation of life on the earth. It is extremely complex, varied and dynamic. Biological diversity or biodiversity is a term we use to describe the variety of life on Earth. It refers to the wide variety of ecosystems and living organisms: animals, plants, their habitats and their genes. Legally accepted definition of this term is '*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 a part; this includes diversity within species, between species and of ecosystems*'.³ Bio diversity can be divided in to three categories, namely; Ecosystem diversity, Species diversity and Genetic diversity. Further, Ecosystem diversity refers to the variety of ecosystems in a given place which includes climate, soil, water, fire, rocks, wind, landscapes etc that functions together as one unit. The variation among species refers to the diversity that exists among species. Genetic

¹<http://ybiol.tripod.com/biodiv.htm>

²<http://www.cbd.int/countries/profile/?country=lk#status>

³ Article 2 of CBD

diversity means the genetic variation among individuals of a population and that among all the different populations of the same species comprises the total genetic variation of that species.

IMPORTANCE OF BIO DIVERSITY

Bio diversity is crucial for the functioning of ecosystems which provide products and services without which human cannot live. Oxygen, food, fresh water, fertile soil, medicines, shelter, protection from storms and floods, stable climate and recreation - all have their source in nature and healthy ecosystems. Further, biodiversity provides security and health and it strongly affects social relations of people and gives freedom and choice. Each and every species has a particular function in an ecosystem. Some species can capture energy in various forms: for example they can produce organic material, contribute to the nutritive system of the ecosystem, control soil erosion, act as a protection from pollution of the atmosphere and regulate the climate. Ecosystems contribute to improving the production of resources, as for example, soil fertility, pollination of plants and decomposition of vegetables and animals. They also carry out real services such as: purifying the air and water, moderating the climate and controlling the rain or drought, and other environmental disasters. All these important functions are fundamental for human survival. The more varied the ecosystem is, i.e. the greater the biodiversity, the greater its resistance to environmental stress will be. Ultimately, this whole process contributes to the sustainability of environment. The loss of even only one species often can provoke a decrease in the capacity of the system to remain preserved in case of degradation. Biodiversity is like a large tank, from which humans can draw food, pharmaceutical products and even cosmetics.

WHAT IS BIO PIRACY?

Bio Piracy means the gaining of exclusive monopoly rights over the biological material of one country by individuals, institutions or companies of other countries that ultimately leads to the denial of the rights, of the country of origin. Few purposes of the bio piracy are as follows;

- Introduction of new plant varieties
- Introduction of new living organisms
- production of pharmaceuticals
- Privatization of traditional knowledge

Further, bio piracy can be defined as the stealing of knowledge from traditional and indigenous communities or individuals. The term also can also be used to suggest a breach of a contractual agreement on the access and use of traditional knowledge to the detriment of the provider and bio prospecting without the consent of the local communities.⁴ Accordingly, it can be argued that the bio piracy is a twofold phenomenon which includes traditional knowledge bio piracy and genetic resources bio piracy. As such 'bio piracy' has emerged as a term to describe the ways that corporations from the developed world claim ownership of, free ride on, or otherwise take unfair advantage of, the genetic resources and traditional knowledge and technologies of developing countries.⁵

As a result of bio piracy there are many negative effects on bio diversity such as extinction of endemic living organisms, depletion of bio diversity, and privatization of bio treasures of the country. Further, this practice affects the economy of the country as well. Bio piracy is an extremely lucrative business. Due to the profitable nature of this process most racketeers tend to exploit bio resources of developing countries and obtain Patent for those. The emergence of monopoly over seeds and medicines through patents is becoming a major threat to farmers, livelihoods and public health. Not only the economical disadvantages⁶ but cultural⁷ and social aspects of human life have been threatened by bio piracy. Bio piracy directly attacks the upper hand that Sri Lanka enjoys on the top of the list of countries with biodiversity. Furthermore, it affects the cultural identity and the traditional knowledge of the indigenous people in the country. Privatization of traditional knowledge through Patenting has created severe consequences on living patterns of people. As such, bio piracy does irreparable damage to bio diversity which ultimately leads to destruction of the entire environment.

LEGAL REGIME PERTAINING TO BIO DIVERSITY AND BIO PIRACY

International Law

Before 1994, the legalities of obtaining samples of plant, microbes and animals were straightforward. Anyone including researches, scientists, tourists, could simply arrive at a field site, collect samples and take them home because living species were regarded as the common heritage of mankind. On that basis, as common resources, private companies and individuals could take and use the resources without stating justifications or giving compensation. But, after the implementation of Convention on Bio Diversity (CBD), principles have been set in order to strengthen the national protection against bio piracy.

⁴www.grain.org > [Archive](#) > [Publications](#) > [Reports](#)

⁵http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/L3.pdf

⁶NeemCase ; This an example of how bio piracy can affect the National wealth. W R Grace realized the commercial potential of neem-based pesticides, it started importing neem seed. Due to this trend, the neem price rose from INR 300to INR 3000-6000 per a ton. The high price made the neem seeds unaffordable for the local farmers.

⁷ Basmati is the best example of loss of cultural value.

Convention On Biological Diversity (1994)

Under Article 03⁸ of the CBD, sovereign has national rights over biological resources. This principle enables developing countries to get better benefits from their biological resources and traditional knowledge pertaining to them. Further, according to Article 01 of the CBD the main objectives of the convention are, conservation of bio diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.⁹ Under Article 8(j), CBD requires each state party 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. Thus it can be argued that, the two most important articles in the CBD, concerning bio piracy are Article 03 and Article 8(j)¹⁰. CBD commits member countries to conserve and develop biological resources for sustainability. Sustainable use of biological resources means finding new drugs, crops and industrial products, while conserving the resources for future generation. Since CBD recognizes the sovereign rights over biological resources it establishes the concept of bio prospecting under article 15(5) which can be read with 15(7) and 19 of the CBD. According to article 15(5), access to genetic resources shall be subject to prior informed consent of the contracting party providing such resources, unless otherwise determined by that party. Further, article 15(7) provides that each contracting party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way, the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms. Further, under CBD, it is expected that developing countries should receive a share in the benefits from biotechnology. Hence, state parties must take all practicable measures to promote and advance priority access on a fair and equitable basis to the results and benefits arising from biotechnologies based upon genetic resources. It can be argued that under the CBD prior informed consent is the standard for ensuring a fair and equitable access and benefit sharing agreement.

Cartagena Protocol (2003)

The *Cartagena Protocol on Bio safety to the Convention on Biological Diversity* is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.¹¹ The Protocol contains reference to a precautionary approach and reaffirms the precaution language in Principle 15 of the Rio Declaration on Environment and Development.

Nagoya Protocol (2010)

The *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity* is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.¹²

Cites 1972

The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Sri Lankan Legal Regime

Under Article 27(14) of the Constitution¹³ of Sri Lanka provides that the state shall protect, preserve and improve the environment for the benefit of the community. Further, under article 28(f) it states that it is the duty of every person in Sri Lanka to protect nature and conserve its riches. Hence it can be argued that, any action committed against the protection of nature would amount to a violation of fundamental law of Sri Lanka. In addition there is a series of Statutes relating to the protection of environment in Sri Lanka. National Environmental Act¹⁴ is the major Statute relating to environmental protection and management in Sri Lanka. It establishes the Central Environmental Authority.¹⁵ This institution has the authority to undertake surveys and investigations for protection of environment.

⁸States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

⁹ Article 01: The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

¹⁰ 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:

¹¹ <http://bch.cbd.int/protocol/>

¹² <http://www.cbd.int/abs/>

¹³ 2nd Republic Constitution-1978

¹⁴ No.47 of 1980 amended in 1988 and 2000

¹⁵ Section 2(1)

FAUNA AND FLORA PROTECTION ORDINANCE¹⁶

Fauna and Flora Protection Ordinance is another important statute relating to this matter. The purpose of the Ordinance is protection of fauna and flora in national reserves and sanctuaries, but in certain cases it extends to private lands as well. Section 3(1) (a) of the Ordinance prohibits to disturb fauna and flora inside the strict natural reserves, national parks. Further, it imposes prohibitions on hunting, wounding, harming any animal or collecting, removing, destroying any kind of plant inside national reserves.¹⁷ Under this ordinance no person shall be entitled to enter in to a National Park except for the purpose of observing the fauna and flora.¹⁸ Under section 42(1) (a) of the same, no person shall destroy, remove or uproot any plant growing in public places. Further, Ordinance provides protection for specified plants such as *Fox Tail orchids*, *Vesak Orchids*, *Primrose Orchids* by prohibiting the exportation of those.¹⁹ Although there is a strong protection towards fauna and flora under this Ordinance, it can be argued that there are few negative features in it which can affect the main purpose of the statute. Particularly, section 3(3) of the Ordinance allows the exercise of any right acquired by any person by law or by usage, in or over any land situated within the limits of any Nature reserves which was acquired by such person prior to the date of the establishment of such Reserve. *Patanangala* fisheries village which is situated in Ruhunu National Reserve is the case in point for the adverse effects of this section.

NATIONAL HERITAGE AND WILDERNESS AREAS ACT²⁰

This Act provides special protection to the forest areas that harbor unique ecosystems, genetic resources, or outstanding natural features. Ex: *Sinharaja* Forest. Under article 4(1) of the Act, acts such as cutting, sawing, converting, collecting or removing any plant, tree or any part thereof or any other forest produce are prohibited.²¹ Further it prohibits selling, exposing or offering for sale, any plant; or any bird, beast or reptile²² and removing any forest produce in any form.²³

OTHER IMPORTANT STATUTES

Purposes of the Forest Ordinance are conservation, protection and management of forest and forest resources for the control of felling and transporting timber. Section 7 A (1) imposes prohibitions on conducting any form of scientific experiment, observation of any forest resources without a special permit in any conservation forest. Further, under section 7(c) the willful stripping off the bark or damaging or interfering with, any trees or selling, offering to sell or exposing any bird, beast or reptile are prohibited. Custom Ordinance is another important statute relating to protection against bio piracy in Sri Lanka. Section 12(1) of the Ordinance provides that the goods enumerated in the table of prohibition and restrictions in schedule B shall not be import or brought into or export or taken out of Sri Lanka.

LEGAL AND PRACTICAL ISSUES RELATING TO BIO PIRACY IN SRI LANKA

In Sri Lanka, different laws exist in force relating to environmental protection. Many of them are directly or indirectly related to the conservation of bio diversity particularly conservation of species and eco system. Despite the large number of Statutes, it could be argued that there are many activities taking place which have serious effects on bio diversity in the country. Bio piracy is a main and most sophisticated activity among them. One clear reason for this is poor law enforcement. Another reason is that the provisions available in the existing laws for protecting the bio diversity are defective on one hand and inadequate for fulfilling their purpose on the other hand. For example the 'fresh water crab' the most fascinating creatures found in country is endemic to the island. But there is no piece of legislation which provides legal protection for this creature. Further, Amphibians are another group where Sri Lanka records one of the highest endemism in the whole world.²⁴ There are around 200 amphibians which have been discovered in Sri Lanka due to its rich bio diversity. Despite that, only 19 groups of amphibians get legal protection under Fauna and Flora Protection Ordinance. In addition there are many practical issues relating to protection against bio piracy in Sri Lanka. Even though Sri Lanka has come up with an action plan for the conservation of bio diversity in Sri Lanka, recommendations are yet to be implemented. Sri Lanka Customs is working hard to protect Sri Lanka against bio pirates. Even though they arrest bio pirates and confiscate samples and materials of plants and species, they do not possess expert knowledge as to what form of future actions ought to be taken in relation to the protection of those species or plants. Only thing that they could do is to hand over those species to a relevant authority. But, they hesitate to accept those materials and samples, due to the lack of resources. In addition, the lack of awareness among public has become a push factor to bio piracy in the country.

CONCLUSION

First and foremost, legislations relating to this area should be reviewed and amended to remove anomalies and strengthen so as to provide adequate protection to indigenous bio diversity. Further, implementation of the recommendations in Framework for

¹⁶ No 2 of 1937

¹⁷ Sections: 6(1)a,b,c,d

¹⁸ Section 3(1)b

¹⁹ Section 45(a)

²⁰ No 3 of 1988

²¹ Section 4(1)a

²² Section 4(1)f

²³ Section 4(1)o

²⁴ <http://biodiversity2010.blogspot.com/2010/01/sri-lanka-hotspot-of-biodiversity.html>

Action is much needed. Integration of Environmental Protection Concepts in to legislations and national development projects are essential. Raising public awareness relating to bio piracy and its impacts would help to arrest bio pirates. It is necessary to establish a state funded research and study groups on bio theft and bio piracy while encouraging local scientists to engage in genetic researches.

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International Conventions

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Cartagena Protocol-2003

<http://bch.cbd.int/protocol/>

Nagoya Protocol

<http://www.cbd.int/abs/text/>