Biopiracy and Related Legal Issues

What is Biopiracy?

Who owns nature? This is one of the most important questions when dealing with biopiracy. Is it the humankind who shares the same land with the biological resources, a single individual or a group of people? More importantly, can your own nature?[1]

Biopiracy simply is the medium in which the rights of indigenous cultures to the natural reserves and traditional knowledge are ignored and replaced by individuals’, institutions’ or companies’ monopoly rights. In other words, it is the transfer of biological wealth of the developing countries by the developed countries without even praying for it. Following these definitions, now we can discuss the second most important question: Is biopiracy simply considered as theft or can we assume that it is a protection of novel processes utilizing common goods?

Within the biopiracy debate, as will be discussed further throughout the essay, neither the developing nor the developed countries strike a consistent posture regarding intellectual property as a legal instrument.[2] Developing countries are seeking a mechanism that will weaken the sovereignty of the proprietary in the name of increased access. On the contrary, developed countries are asking for stronger protection on their patent rights and easier access to the raw material. Essentially, both attitudes toward intellectual property are in strong relation with what is being protected, how it is protected and the degree of protection that delivers the greatest benefit. The equation is dependent on a very basic fact: one is poor, the other is rich. One thing is certain that developing countries will and shall not cease demanding for a compensatory mechanism for their contributions to biological knowledge.

- The Role of Intellectual Property and International Regulations

Biopiracy is one of the most fast spreading mafias in the world today and it is an important issue for all countries due to its broader international implications.[3] Yet, a regulatory mechanism regarding bioprospecting and preventing biopiracy are still not fully captured by an international treaty or agreement. Rather, there is an array of applicable laws from different governance structures like those reinforced by various UN programmes or under principles established by the World Trade Organisation.

Many scholars[4] advocate that strong protection of intellectual property rights encourages creation and innovation, but others[5] support that weak protection of intellectual property rights protects life itself by ensuring access to essential goods for medical treatment, sustenance, and development.[6] As for Indira Gandhi, "The idea of a better-ordered world is one in which medical discoveries will be free of patents and there will be no profiteering from life and death".[7]

With the agreement of a number of treaties and international laws the emphasis on ownership and control of resources, including intangible assets and biological resources, has shifted towards a regime that
protects exclusive individual property rights. The agreements discussed below have meant that exclusive rights of inventors, plant breeders and authors shall be recognized internationally. Even though the principle of sovereign control of biodiversity has been maintained, there are now debates centered on whether this principle (as enshrined in the rules of The Convention on Biological Diversity) is essentially undermined by (and in conflict with) the protection of intellectual property rights.

- **The Convention on Biological Diversity**

Until 1992, all the living species were considered as the “Common Heritage of Humankind”. This simply meant that companies or individual scientists were able to use these resources without any prior consent and/or any compensation. In 1993, an important step was taken with the implementation of the Convention on Biological Diversity (“CBD”) which gave sovereign national rights over biological resources. As of April 2018, there are 196 parties to CBD, yet it is worth noting that the one glaring absentee from this list is the United States of America.

The CBD is a vital milestone in international efforts to promote biodiversity. In particular, the CBD is a departure from the initial approach that nature belongs to the common heritage of humankind and is, therefore, free for taking. As the Report of the Fourth Global Biodiversity Forum states, “the Convention on Biological Diversity is a framework for general principles and obligations. There is little of the detailed structure that is necessary to implement its provisions”. However, the CBD contains several specific and ground-breaking normative initiatives and these warrant further examination as they relate to biopiracy.

The Convention sets forth and obliges its members to a number of important principles regarding biodiversity and it is the most comprehensive and significant judicial text on the preservation, sustainable development and equitable benefit sharing of plant life forms and plant-based traditional knowledge. As mentioned above, it affirms the sovereign rights of states over natural resources. Hence, the states are entitled to determine access regulations to these resources. According to Ranee Panjabi “one of the most important achievements of this Convention lies in its clear endorsement of the fact that biodiversity is a national resource and not part of the common heritage of mankind”. By emphatically rejecting the categorization of plants as the common heritage of humankind, the CBD’s preference for the concept of “common concern of humankind” brings into focus the controversial nature and divisive political economics of plant life forms. While the concept of the common heritage of humankind imposes global juridical right over nature irrespective of the reach of national boundaries and state sovereignty, the concept of common concern of humankind seems to invoke no such legal obligations. Even though the CBD’s preference for a legal regime of the near-exclusive sovereign right of countries over natural resources within their own jurisdictions is understandable, it still does not provide answers to the question of the global significance of plants.

Article 15.5 of the CBD reads as “Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party”. In many of the conferences regarding CBD, importance has been given to extending prior informed consent to the indigenous people through domestic laws. Moreover, the article emphasizes the necessity for fair and equitable benefit sharing stemming from research, development, and commercialization of genetic resource innovations. As Jeffrey notes, the CBD text has been referred to as the *grand bargain* particularly because of the attempts to balance the access to the resources with subsequent benefit
One of the three major purposes of the CBD is to institutionalize equitable access and benefit sharing mechanism as an intrinsic part of the emergent regime on the conservation and use of plants. Without a doubt, the previous regime, as it were, involved more or less winner-takes-all situation, whereby the developed countries freely appropriated and profited from the developing countries’ conservation and improvement of plants. The CBD created a new regime devoted to sharing the benefits derived from such life forms. As already mentioned, this is a fundamental departure from the “former system whereby the South derived no benefit from its genetic resources while Northern companies … derived … enormous profits”. It is envisaged that these benefit-sharing agreements will be achieved under mutually agreed terms by both ‘supplier’ states and ‘user’ entities. Nevertheless, some authors point out the risk that the relations amongst researchers and the providers of genetic resources might be unequal.

Perhaps one of the most innovative contributions of the CBD to the jurisprudence on plants is the unprecedented appreciation of the contributions of local communities and indigenous people, particularly women, to the conservation and genetic improvement of plant resources. The preamble of the CBD underlines the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources … and the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy-making and implementation for biological diversity.

Last but not least, I would like to mention the ‘enforcement power’ of the CBD. Even though there is not a specific enforcement mechanism provided by the CBD, under the modern international law on plant life forms, the responsibility for the conservation of plants seeks a fair balance between states’ sovereignty, international co-existence, and cooperation. Therefore, what the common concern of humankind principle implies is that the primary state obligation is to ensure that domestic activities related to plants take into consideration the interests, or ‘concerns’, of other states in that resource. Given that it is a modern international obligation of states to conserve and engage in the sustainable use of plants, it could be argued that a violation of such clearly defined treaty obligations constitutes an internationally wrongful act. Under international law, three threshold tests are used in determining state responsibility: (i) was there a duty in international law? (ii) was the duty breached? and (iii) can responsibility be attributed to a state for the violation of international law? It should, however, be noted that “acts by non-state entities, such as a citizen or official for whose acts a state is not responsible, do not give rise to state responsibility”.

The Agreement on Trade-Related Aspects of Intellectual Property

The Agreement on Trade-Related Aspects of Intellectual Property (‘TRIPs’) is the heart of the international system of rules, institutions, and practices that govern intellectual property related issues. TRIPs have arisen from the Uruguay Round of the General Agreement on Tariffs and Trade (‘GATT”) negotiations and it is a huge success for those multinational corporations determined to higher international intellectual property standards and enhance intellectual property protection in developing countries. It is “a minimum rights agreement that leaves a fair amount of leeway to Member countries to implement its provisions within their own legal systems and practice and fine-tune the balance in the light of domestic public policy considerations”. Even though it is considered as a watershed in the history of intellectual property protection, with the conclusion of the negotiations, a battle began for developing countries. They laid stress especially on the fact that higher intellectual property standards would have a
negative impact on their development prospects and that they were ill-equipped to harness any purported benefits.[27] As developing countries were having difficulties to implement the reforms, they also faced mounting pressures from the developed countries to adapt even stronger intellectual property standards than the Agreement entails and to abstain from using flexibilities available. As for Vandana Shiva, developed countries use intellectual property law as an instrument to drain the wealth and resources from developing countries and the TRIPs is a corollary of hundred years of colonialism of these countries. [28] Likewise, according to Justice Bogawathi, WTO is a mutual gain in trade, whereas intellectual property protection through the TRIPs is a “tax on poor countries”. [29]

The strongest overlap between intellectual property rights and bio diversity-related matters is in the fifth section of TRIPs concerning patents. As per article 27 of the Agreement,

“... 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.

... Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof”. [30]

It is clear that TRIPs allows extensive flexibility regarding the protection of natural resources. Even though it is stipulated in the Agreement that Members are entitled to provide protection either by patents or by a sui generis system, there is no specific parameter given for this sui generis system other than that it shall be effective. [31]

In the last paragraph of Article 27.3(b), it is stated that the Article “shall be reviewed four years after the date of entry into force of the Agreement”. In 1998, four years after the implementation of the WTO Agreement, the negotiations were commenced by the TRIPs Council which were later moved to the Seattle Ministerial Conference in December 1999. During the meetings, the amendment of the Agreement was demanded by the developing countries to harmonize all the conflicts that exist between the TRIPs and the CBD. [32] On the other hand, the developed countries denied any discrepancies that claimed by the developing countries and demanded to higher the standards of protection under the Agreement. [33] At the end of the negotiations, there was a clear deadlock between the parties therefore almost all the problems remained unsolved. [34]

The studies and the current status of the developing countries clearly show that a minimum standard of intellectual property protection that TRIPs impose, does not benefit the developing countries as it envisaged to. In my opinion, developing countries should be given the chance to have the same process of what developed countries gone through during the industrial development process. They need to build a system gradually and form their own sui generis protection type and when they are strong with their national system they should join the international system. This, however, is a process that this Agreement does not permit. Long in short, the opportunity that was given to the developed countries for experimentation to build their system many years ago, is now taken away from the developing countries by TRIPs.

• Conflict or Co-existence: TRIPs v CDB
There is still an ongoing debate regarding whether there is a conflict between the TRIPs and the CBD or there is a symbiosis between them. This debate, once again, is a debate of the poor and the rich.

The CBD is envisioned to provide the higher capacity to preserve and use biodiversity by reserving all rights over biological resources to the developing countries and to entitle them to benefit from their resources. Contrariwise, TRIPs aims to provide private property rights over products regardless of whether they are related to biodiversity or not. This intention is wholly aligned with the interest of many multinational companies – and through pressure by the multinational companies, TRIPs’ intended results have overwhelmingly been achieved.

In the case of an overlap between these two agreements, the rule that should be applied is *lex posterior derogate legi antrior* (the later law repeals the earlier), enshrined in Article 30.2 of the Vienna Convention on the Law of Treaties (“VCLT”). Under this rule, TRIPs shall be considered as the appropriate law as it came into force after the CBD. Yet, on a prima facie reading of the treaties and interpreting the treaties narrowly, the subject matter of TRIPs and the CBD diverge fundamentally; thus, states should take into consideration and implement both of them. Regarding this issue, the European Union’s opinion is that neither of the two agreements should prevail against one another’s principles, rather both should be fulfilled in a mutually supportive way.

There are four main areas where the conflicts between the CBD and TRIPs can be seen clearly. First of all, as per the CBD, states have the right to prohibit private intellectual property rights on natural resources to maintain sovereign control whereas TRIPs’ approach on this matter is the exact opposite. As per TRIPs, natural resources should be subjected to private intellectual property rights and compulsory licensing, in the national interest, should be restricted. Secondly, the CBD states that the use or exploitation of traditional knowledge and natural resources must give rise to equitably shared benefits. However, in the context of TRIPs, there is no legal mechanism provided for benefit sharing deriving from the patent between a patent holder who enjoys the economic benefits of the patent and the donor of material. Furthermore, the CBD gives states the legal authority to diminish the rate of biopiracy by demanding prior informed consent however there is no provision that requires prior informed consent in TRIPs. Lastly, unlike TRIPs, the CBD is a legal instrument promoting the conservation and sustainable use of biodiversity as a *common concern of humankind*.

Taking an approach to resolution that heavily favours rights conferred by either agreement might resolve the provisional conflicts easily by amendments. Yet, this will not be the solution to meeting the needs of all parties. Even though many developing countries, especially Costa Rica, tried to take an action regarding the issue by establishing legislation concerning access and benefit sharing, those legislations failed to meet with the broad level of patentability provided for under TRIPs. Needless to say, a permanent solution will be achieved when the yawning gap between the developing and the developed countries is closed.

- **US Patent Laws**

In order to fully capture the big picture, I would like to touch briefly on the prior art principle. There is a countless number of biopiracy cases, that will be studied below, emanate from the United States of America (“US”) and there is a very rational reason behind it. Section 102 of the US Patent Act of 1952, defining prior art, reads as
“A person shall be entitled to a patent unless-

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States …”.[45]

In plain English, the prior art is any proof that the invention was already publicly known or available, in whole or in part, prior to the filing date of the patent application. Under the Act, the know-hows and techniques in use in different countries are not considered as prior art as long as the knowledge is novel for the US even if it is an ancient tradition of other cultures. This principle awards the patent to the (so-called) first inventor by disregarding the non-American inventors.

Nowadays, thanks to the internet, it only takes a click to obtain an information even from the other side of the world which, in my opinion, is enough to demonstrate how out-of-date the Section 102 of the US Patent Act is.

Biopiracy Cases in Developing Countries

It is easily predictable that biopiracy will cause the exhaustion of the rich biological wealth of the developing countries.[46] As discussed above, neither the CBD nor TRIPs are doing a good job at preventing biopiracy in the developing countries for now. In this part of the essay, I would like to demonstrate how big the problem is by giving examples regarding the criterion for obtaining a patent under TRIPs, the implementation of the CBD and of course, prior art.

• **Camu Camu - Peru**

On 7 November 2005, the Peruvian Government has submitted a document titled “Analysis of Potential Cases of Biopiracy” to the WTO TRIPs Council.[47] The main focus of the analysis was the plant known as Camu Camu which is native to Amazonia which contains a high level of vitamin C (ascorbic acid) compared with the other sources like oranges or lemons.[48]

The report of the Peruvian Government was focused on a series of patents, most of which was obtained by the Japanese Patent Office for cosmetic extracts and food additives that utilize Camu Camu (at this point it should be noted that Japan removed their prior art principle in 1999).[49] Since the existing prior art in Peru refers to the use of the fruit as a beverage but not as a cosmetics material, the patents can be considered as novel. Nonetheless, because of the known antioxidant and anti-aging benefits of vitamin C, it is indicated by the Peruvian researchers that “there is evidence of lack of an inventive step”.

• **Hoodia Cactus – South Africa**

In 1995, Council for Scientific and Industrial Research (“CSIR”) filed a patent application in South
Africa to obtain a patent for hoodia cactus for use of the active components of the plant which were capable of suppressing appetite. In 1998, CSIR signed an exclusive licensing agreement with the UK company Phytopharm which was followed by Pfizer’s acquirement of the rights from Phytopharm for $32 million to develop and market it as a potential cure for obesity and as a slimming drug. [50]

Both of the patent process and the agreements between these companies were heavily criticized by various NGOs and international indigenous organizations and drew a great public backlash. The main topic of these criticisms was that during the patent process there was neither an intention of seeking a prior informed consent nor a benefit share agreement between CSIR and indigenous people who are known as San people. In 2003, CSIR established a “San Hoodia Benefit-Sharing Trust” in accordance with the CBD.[51] As defined in the press release from the South African San Council and CSIR, “the trust is set up to use income received from the CSIR for general upliftment, development, and training of the San Community as approved by the Board of Trustees”. [52]

- **Neem – India**

In 1985, Robert Larson obtained a patent on the extraction process of his preparation of neem seed extract called as Margosan-O and later sold it to a US company W. R. Grace & Co. In 1995 United States Department of Agriculture (“USDA”) and the US chemical major W. R. Grace gained patent rights for an extraction technique of neem oil for its fungicidal properties. W. R. Grace possessed patents for neem-based biostimulants, including Neemix for use in agriculture.[53] After gathering the patents and clearance from the Environmental Protection Agency (EPA), W. R. Grace started commercializing its product by setting up a manufacturing plant in collaboration with P.J. Margo Pvt. Ltd in India.

In 1993, various NGOs and individuals initiated a campaign, namely ‘The Neem Campaign’, to raise awareness and promote the protection of indigenous knowledge and resources of the developing countries. From biopiracy by the developing countries.[54]

On the 30 September 1997, the European Patent Office (“EPO”) handed its interim judgment on the challenge of a European patent on the fungicidal effects of neem oil owned by W. R. Grace. The EPO accepted the arguments offered by Indian scientists and rejected the order of the US patents office to award the patent to W. R. Grace at the last hearing. Finally, in May 2000, the EPO agreed to withdraw and revoked the patent since there was no involvement of an inventive step.[55]

- **Kwao Krua – Thailand**

The herb Kwao Krua has been used for its cosmetic and revitalizing qualities for over hundred years in Thailand. It has been assumed by the scientists that the extracts from the plant might have the ability to enlarge breasts and help with male sexual performance and erection. Consequently, various patents have been filed in the US to use this herb in the pharmaceutical industry.[56]

Even though there is a patent granted for this plant in Thailand, there is also another patent granted in the US to Cheil Jedang Corporation, a company based in Seoul. The claims in both the Thai and US patent applications include an extract of Kwao Krua, a method for extraction and a method for manufacture. Beyond the technical issues, like in any other biopiracy case, government officials have raised concerns regarding the ongoing conservation and sustainable use of the plant. Increasingly in recent years, the
plant has been extracted by poachers from remaining forest areas to be sold to herbalists, despite its very slow growth rate. As a result, the government has listed it as a restricted herb to limit the forest collection of the plant and to encourage commercial producers to cultivate it in a controlled and sustainable way.

- **Ashwagandha - India**

In May 2001, American and Japanese firms filed applications for the issue of patents in their favor regarding formulations and extracts of Ashwagandha, also known as Indian Ginseng. The patent application by the Japanese firm Pola Chem Tech was regarding topical skin ointment for cosmetic purposes and to promote fertility whereas the US-based the New England Deaconess Hospital was successful in getting a patent relating to its use to alleviate the symptoms regarding arthritis. On 27 July 2006, Natreon Inc, a US-based multinational company filed a patent application in the EPO on Ashwagandha’s age-long use in the treatment of anxiety induced stress, depression, insomnia, gastric ulcers and convulsions.

Out of several patents granted in favor of Ashwagandha, India was successful in revoking only one. In order to crush their attempt, Indian authorities replied back on 6 July 2009 by submitting evidences from Traditional Knowledge Digital Library (TKDL) and some documents dating back to the 12th century. As a result of the breathless efforts, on 25 March 2010, EPO decided to dismiss the US’s firm claims over the Ashwagandha.

**Conclusion**

The main purpose of the essay is to analyze the current status of biopiracy by way of examining related regulations such as the CBD and TRIPs, pointing the conflicts between them and analyzing biopiracy cases from all around the world.

The answer to the question of whether there is a conflict between the above-discussed agreements can be both yes and no depending on your attitude regarding the issue. If you look at it from a pure juridical perspective, then certainly there is no conflict between the articles of the two agreements. As mentioned throughout the essay, the rules of law can be understood easily when reading merely with a verbal interpretation. Yet, legal principles and implementations tend to be more abstract. Therefore, the theory behind the laws and the implementation of them should be harmonized and, in compliance with the EU’s approach, both of the agreements should be implemented in a mutually supportive way.

In conclusion, it is crystal clear that biopiracy is a reality and many indigenous people are being severely affected by it. In order to effectively solve the problem of biopiracy, a balance between the local communities’ rights in their traditional knowledge and others’ right to use this knowledge should be found. The very first step that should be taken with this regard is either to make sure that both the agreements are being implemented mutually or launch a new regulation which includes the human rights perspective and environmental concerns that the CBD has and the strong intellectual property protection that TRIPs provide. Secondly, considering the number of biopiracy cases emanated from the US, an amendment of the US’ patent regulation plays a crucial role. If a change is not possible in the US Patent Act, indigenous people should be educated and forced to document their traditional knowledge so that those documents can be regarded as prior act since documentation in a country inside or outside of the US
prevents patenting in the US of such invention. Last but most important, it should not be forgotten that either aforementioned solutions or any other possible solutions can only work if people respect each other and the mother nature.

“Be joyful, you plants that bear flowers and those that bear fruit. Like mares that win the race together, the growing plants will carry us across.” (The Rig Veda)


[7] The quote is taken from a speech given to the 1982 World Health Assembly.

[8] For an in-depth research of this concept, see Kemal Ba?lar, The Concept of the Common Heritage of Mankind in International Law

[9] Convention on Biological Diversity, article 3


[12] Ikechi Mgbeoji, Global Biopiracy (Cornell University Press, 2006) 75-86


[14] Paragraph 3 of the CBD preamble provides that the conservation of biological diversity is a common concern of mankind.
Daniel F. Robinson, *Confronting Biopiracy* (Earthscan, 2010)


The World Health Organisation has estimated the demand for medicinal plants is approximately $14 billion per annum (2006) and the demand is growing at the rate of 15–25% annually. The WHO estimates that by 2050 the trade will be up to US$ 5 trillion.

Robinson (n 14)

Panjabi (n 13) 220


Convention on Biodiversity, Preamble


Ian Brownlie, *Principles of Public International Law* (Oxford University Press, 2008)


Secretariat of the WTO to Committee on Economic, Social and Cultural Rights, “Protection of Intellectual Property under the TRIPs” UN Doc. E/C.12/2000/18, 5


Shiva (n 1) 9-15


TRIPs, article 27


[34] Pratyush Jhunjhunwala, “Analysis of Article 27(3) (b) of TRIPs-the Content and Implications of the IP Protection on Plant Varieties” (2009) 1 American Journal of Economic and Business Administration 316

[35] Article 30 of the VCLT states: “When a treaty specifies that it is subject to, or that it is not to be considered as incompatible with, an earlier or later treaty, the provisions of that other treaty prevail”.


[37] WTO Committee on Trade and Environment, Review of article 27.3(b) of the TRIPS agreement, and the Relationship Between the TRIPs Agreement and the Convention on Biological Diversity and the Protection of Traditional Knowledge and Folklore (2003) WT/CTE/W/223

[38] CBD, article 15.1

[39] TRIPs, article 27

[40] TRIPs, article 21

[41] CBD, article 8(j), 18.4

[42] TRIPs, article 27.1

[43] CBD, article 15.5


[49] ibid


[56] Robinson (n 14) 55

[57] ibid 59

[58] Verma, Chauhan, Kumari, Sharma (n 51)

[59] ibid


[61] Verma, Chauhan, Kumari, Sharma (n 51)

[62] ibid