BALANCING RIGHTS AND OBLIGATIONS IN SHARING BENEFITS FROM NATURAL GENETIC RESOURCES: PROBLEMS, DISCUSSIONS AND POSSIBLE SOLUTIONS*

Sergio PEÑA-NEIRA**

RESUMEN: La diversidad biológica ha ido ganando reconocimiento, ya que los beneficios económicos que aporta pueden contribuir con metas sociales (acabar con la pobreza) o metas individuales (ganancias pecuniarias). Los recursos genéticos contenidos en la diversidad biológica proveen información fundamental para la manufactura de bienes comerciales, como son los productos agrícolas (semillas). Debido a la coalición entre los intereses públicos y privados en los recursos genéticos naturales, es esencial saber cuál es el beneficio que obtienen de estos recursos, cada una de las partes.

ABSTRACT: Biological diversity is getting consideration, as economic benefits from biodiversity could support social goals (like purge of poverty) or individual goals (like pecuniary profits). Genetic resources contained in biological diversity provide fundamental information for the manufacture of commercial goods, like agricultural products (seed). Since public and private interests on natural genetic resources collide, it is essential to know what gets everyone as benefits from these resources.[1]

RÉSUMÉ: La diversité biologique a devenu plus reconnu car les privilèges économiques qui apporte peuvent contribue avec objectives soucieux (l'éradication de la pauvreté) ou objectives individuelles (profit monétaires). Les ressources génétiques contenues en la diversité biologique donnent d'informations fondamentales pour la manufacture des articles commerciales comme les produits agricoles (graines). Comme conséquence de la coalition entre les intérêts publiques et prives dans les Ressources Génétiques Naturels, il est essentiel de savoir quel est le profit obtenu de cet ressources pour chacun des parties.

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** Professor of Law en la Universidad Arturo Prat, Victoria, Chile; Universidad de Chile, Santiago de Chile, y Universidad del Mar, Viña del Mar-Valparaíso, Chile. L. L. L., L. R. I., M. A. (Amsterdam), Ph. D. (c) (Gand). Alumni Institute of Advanced Studies, United Nations University. E mail addresses: *sergiopena@unap.cl*, *spena@renare.uchile.cl* y *spena@udelmar.cl*.

1 Laswell, Harold, *Politics: Who gets what when and how*, Cleveland, Meridian Book, 1968.

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SUMMARY: I. *Conflicts and problems (a starting point)*. II. *Conflicts related to utilization (access and equitable sharing benefits)*. III. *Intellectual property rights under debate in equitable sharing benefits from natural genetic resources*. IV. *Conclusion*.

I. CONFLICTS AND PROBLEMS (A STARTING POINT)

Benefits from the commercialization of natural genetic resources evoke national and international conflicts of interests. natural genetic resources are genetic resources from the wildlife for nature: in an economic sense, renewable natural resources.

It is possible to talk about the commercialization of natural genetic resources when they are transferred from one owner to another and the second one can profit from the transference.[2]

Commercialization is problematic if parties to the deal or third parties question the form in which the benefits of the commercialization are shared.[3] Sharing resources and sharing benefits from resources is different and it differs on the object as well as the procedure for sharing them. The object, genetic resources, have a certain characteristics, these resources represent combinations of molecules of genes, chemical elements. The combination of chemical elements entails a certain degree of difficulty for those searching on sharing these resources. Benefits, however, is a different "object", the procedure to share them varies from the criteria to produce the division of gains from the trade of natural genetic resources. These difficulty has produced the idea that commercialization of a resource generating benefits and their division among those that considered entail o a right as against equity and justice which one classify as:

2 Sinclair, John *et al*., *Collins Cobuild English Dictionary for Advanced Learners*, 3th. ed., Harper Collins Publisher, 2001, pp. 1663 y 296; Sinclair, John *et al*., *Collins Cobuild English Dictionary for Advanced Learners*, Harper Collins Publisher, 1987, p. 277.

3 Genetic information is the knowledge obtained from genes by a biochemical process or more descriptively "The heritable biological information coded in the nucleotide sequences of DNA or RNA (certain viruses), such as in the chromosomes or in plasmids", *Medical Dictionary Search Engine*, in *http://www.books.md/G/dic/geneticinformation.php*.

1. *Inequitable sharing of benefits*

This is illustrated by the Enola bean case. In 1999, the United States (US) agricultural company Pod-Ners LLC obtained a patent granted by the USPO for an "invented" yellow bean called "enola". The company admitted to purchasing the original beans in Mexico. The conflict started when Pod-Ners LLC sued peasants in Mexico for using this bean that had belonged to them for generations and sued peasants in the US for growing it without the company's consent. In 2001, the Center of International Tropical Agriculture (CIAT) initiated an action to challenge the patent. The main argument was that for centuries this bean had been part of the diet of indigenous people in central and north America. Non governmental organizations are waiting for the USPO's final judgment.[4] Inequitableness arises when the payment for biological resources does not reflect the benefits obtained by the company. Pod Ners LLC purchased the beans at an extremely low price and obtained a patent for it. The company gained enormous benefits by monopolizing the production of these beans.

In 1972, Kenya reported the loss of natural genetic resources due to over-harvesting. The mature plants of *Maytenus buchannani,* used for the treatment of ulcers, were destroyed by the US Department of Agriculture working for the National Cancer Institute.[5] Such a situation prevents both an equitable sharing of benefits and research on natural genetic resources.[6]

2. *Transference of natural genetic resources without payment*

This could be called "something for nothing". The *Ayahuasca* plant may exemplify this situation. In 1984, a company, Miller and Co., obtai-

4 New Agriculturist On-Line, *Biopiracy threat to traditional crops*, in http*://www.new-agri.co.uk/02-5/develop/dev03.html*. Pratt, T., "Small yellow bean sets off international patent dispute", *The New York Times*, 20 March 2001; ETC Group, *Yellow bean patent owner sues 16 farmers and processor in the US*, in *http://www.nerage.org/print.php?story=01/12/19/7027285*. Electronic mail from Shand, Hope (*Communication director of ETC Group*); United States Patent Office, *Field bean cultivar named Enola*, April 13 1999, in *http://patft.uspto.gov*.

5 Dhillon, S. *et al*., "Effects on environment and development", *AMBIO*, núm. 6, vol. 31, September 2002, p. 1.

6 Probably a solution is sustainable harvesting, Pretty, J., "Agroecology in developing countries", *Environment*, vol. 45, Issue 9, November 2003, p. 2.

ned a sample of this sacred plant of ecuadorian indigenous people and in 1986, it applied for a patent at the United States Patent Office (USPO) using a variety of *Ayahuasca*. In 2001, the USPO finally granted the patent. The patent on the plant, violating legal rules at the national and international level, created a conflict in which indigenous people claimed their rights to the plant and the protection of law.[7]

3. *Fraude*

In April 2001, the English pharmaceutical company "Phytopharm" discovered a potential cure for obesity derived from a South African cactus called "Hoodia". The company had patented P-57, the appetite-suppressing ingredient of the cactus. "Phytopharm" did not pay benefits to the owners of the traditional knowledge, the bushmen of South Africa, because the company claimed that these indigenous people had become extinct.

According to *phytopharm*, the South African Council for Scientific and Industrial Research (SACSIR) had approached the company to make a deal with them because SACSIR had been investigating the properties of the cactus. The SACSIR argued that after knowing the real possibilities of this plant, they would approach the Bushmen to discuss an equitable sharing of benefits.[8]

Fraude exist when, in the context of commercialization, an institution or person obtains access to natural genetic resources and avoiding an equitable sharing of benefits.

Persons or institutions invent any method to avoid payments to those entitled for the benefits. In this case, the public research institution of South Africa makes the English company believe that indigenous were extinguished to obtain exclusive gains from the transfer of natural genetic resources.

7 Ministry of Environment and Natural Resources (Sermanat) of Mexico, "Access to genetic resources and Fair Equitable Sharing of Benefits; Building a Common Agenda", *First Meeting of Mega-diverse Countries*, Cancun, 18 February 2002, p. 7.

8 Barnett, A., "In Africa the Hoodia cactus keeps men alive. Now its secret is 'stolen' to make us thin", *The Observer Sunday*, June 17, 2001.

4. *Essence of natural genetic resources*

In some cases, since communities consider natural genetic resources and knowledge associated to them part of their traditions, natural genetic resources are not for sale.

The brazilian tribe named "Kraho" is not willing to transfer natural genetic resources, because these resources represent part of their customs. This tribe works on agriculture and knowledge associated to natural genetic resources that permit to teach new generations on their cultural traditions associated to agriculture, like preparation of traditional food.

Since this indigenous people want to continue with their social and agricultural traditions, they allow only governmental institutions to preserve their natural genetic resources (seed).

However, they do not accept commercial negotiations on their natural genetic resources associated with their traditions.[9] This example shows that indigenous people are not willing to negotiate their natural genetic resources, because in some cases these resources are related to traditions.

II. CONFLICTS RELATED TO UTILIZATION (ACCESS AND EQUITABLE SHARING BENEFITS)

Firstly, it is possible to recognize a North-South conflict. Companies from the North enter the South. To seek legal protection in the North for the knowledge and natural genetic resources they get from the South. Governments in the South often lack the means to prevent this.

Secondly, it is possible to observe that the extraction and transformation of natural genetic resources into a manufactured product by countries in the South can create a conflict of interest in the communities, which are concerned with this problem. Indigenous populations often depend on these resources. Therefore, they claim protection of their rights, which are often undefended and many times violated by the State.

Thirdly, public/private tensions are another common element in the above examples: permanent competition between public interest (protec-

9 Guedes, A. and Sampaio, M., *Genetic Resources and Traditional Knowledge in Brazil*, Geneva, Embrapa, 2000, pp. 3 y 4.

tion of the rights of third parties as well as the State) with private interest (rights of direct parties). Tension between public interest to protect rights of human beings, to protect natural genetic resources and to protect third parties and to protect property rights from individuals.

Fourthly, unregulated commercialization of natural genetic resources may threaten the natural resource base. A classical example is over-harvesting because this clearly shows the destruction of the sources of biodiversity by a non-rational activity.

Since public and private interests on natural genetic resources collide, it is fundamental to know who gets what, when and how in sharing benefits arising from these natural genetic resources .

III. Intellectual property rights under debate in equitable sharing benefits from natural genetic resources

Intellectual property rights enable subjects of such rights to claim a protection for their intellectual property (colloquially, they prevent others from commercially exploiting their intellectual products or services).[10] These rights are usually granted for a certain period.

Patents, one intellectual property rights protecting inventions (new creations of the mind), is under controversy at the international and national level because the scope of protection of a patent could include or exclude other intellectual creations, for example, knowledge from communities.

On the other hand, the definition of intellectual property rights is a matter of debate. In this debate, certain questions have been put forth. Answers to these questions and debates related to the questions are as follow:

1. *Subject protected by intellectual property rights*

Traditionally, only individuals are protected by Intellectual Property Rights, because individuals only are subjects of law.

10 Legally speaking intellectual property rights refers to "a bundle of legally enforceable interests that a person may hold with respect to intellectual property" and "[i]ntellectual property is a set of intangible products of human activity". Abbot, F. *et al*., "The international intellectual property system", *Kluwer Law International*, The Hague, 1999, p. 21.

Since the scope of the concept of intellectual property rights might to be broadened including communities rights to traditional knowledge, tension between individual intellectual property rights and other rights need to be solved.

G. Dutfield argues for a broad scope of patents using arguments related to protection of indigenous beliefs. As indigenous people create knowledge using a process of observation and research and sharing this knowledge with scientists, it is necessary to recognize this knowledge and protect it by law.[11] Therefore, Dutfield argues in favor of legal protection of indigenous people communities' information considering the importance of this contribution to science.

On the other hand, J. Axt denies recognition of traditional knowledge that belongs to communities because intellectual property rights are granted to defined inventors or inventor. On the contrary, community knowledge has no clear identifiable inventor because it is handed down from generation to generation. Moreover, intellectual property rights are created to protect knowledge originated from individuals and do not recognize collective rights.[12]

2. *Scope of protection of intellectual property rights*

An intellectual product is the result from a creative, scientific or other process and it has the mind as basic source for this creation.[13] The problem lies on the scope of an intellectual creation, if new form of an intellectual creation might be included in the concept or it is a concept related to traditional intellectual property rights.

F. Abbot considers that intellectual product is only produce in industrial societies because they follow certain methodology based on science. In addition, one of the requirements to be granted a patent is industrial application; so intellectual products need to be applicable in the industry.[14]

11 Dutfield, G., *Intellectual Property Rights, Trade and Biodiversity*, London, Earthscan, 2000, pp. 20, 33 y 35.

12 Axt, J. *et al*., *Biotechnology, Indigenous Peoples, and Intellectual Property Rights*, Washington D.C, Library of Congress, 1993, p. 58.

13 Sinclair, John *et al*., *op. cit*., note 2, p. 1145.

14 Abbot, F. *et al.*, *op. cit*., note 10, p. 23.

However, G. Singh argues that community knowledge needs to be protected by new Intellectual Property Rights, because it is an intellectual product.[15] D. Downes claims for traditional intellectual property rights system to protect community knowledge because intellectual property rights could expand their scope considering other kind of knowledge under their protection and not only industrial knowledge.[16]

Intellectual property rights protect knowledge; this means intellectual products of human brain. However, the type of knowledge to be protected is not clear. In this case, the discussion is centered on natural genetic resources. W. Lesser argues for protection of natural genetic resources by Intellectual Property Rights. He puts forth that natural genetic resources are products of using very "*up to date*" technology, the only capable to do research on genes. Therefore, natural genetic resources are an invention.[17] Arguments against patentization of natural genetic resources are:

> Any living substance in any form should be considered as a 'product of nature'.
>
> Patents are protection of technology.
>
> Natural genetic resources do not fulfill requirements for intellectual property rights protection of inventions, like, industrial applicability, novelty, non-obviousness, non-reproducibility.

A. *Knowledge, base of an invention, protected by intellectual property rights*

Granting protection of intellectual property rights to third parties creates another discussion. F. Abbot argues that intellectual property rights are only for those that make inventions, this means creations, new object in the world. Therefore, those that are not part of this invention are not entitled to claim any right.[18]

15 Singh Nijar, G., *In defence of local community knowledge and biodiversity*, Kuala Lumpur, Third world network, 1996, pp. 24 y 25.

16 Downes, D., *Using intellectual property rights as a tool to protect traditional knowledge*, discussion paper, Madrid, CIEL, 1997, p. 1.

17 Lesser, W., *Sustainable Use of Genetic Resources Under the Convention on Biological Diversity: Exploring Access and Benefit Sharing Issues*, New York, CAB International, 1998, p. 58.

18 Abbot, F. *et al.*, *op. cit.,* note 10, p. 23.

However, G. Dutfield proposes that communities are entitled to the protection of knowledge based on their work (research on the field or testing members of the group). Therefore these communities should have the protection from Intellectual Property Rights, since the work of communities is included in the development of knowledge associated with natural genetic resources entitle them to claim for the protection of their rights.[19]

The foundations of the recognition of third parties is still under developed, as legal rules recognize third parties rights to all involved in commercialization of natural genetic resources.

B. *Intellectual property rights as an instrument for policy development*

intellectual property rights seems to be an instrument for development policy, because intellectual property rights might motivates the creativity of people. The Commission on intellectual property rights of the United Kingdom points out that intellectual property rights encourage people to create inventions because law will protect inventions. Moreover, certain industries can exist only because of the existence of Intellectual Property Rights.[20] The publication of the main elements of the objects protected of the rights, for example patent, will help for the knowledge of new sources for invention, in short, "every invention helps the creation of new inventions".

Disclosure of information is very important for society, because certain intellectual property rights (patents) make solutions for societal problems possible, e. g. medicaments.

However, Abbot points out that it is not possible to find enough scientific evidence regarding benefits of intellectual property rights for development. Surveys on this issue do not bring definitive conclusions concerning profits and in certain cases results put forth that most of the intellectual property rights granted in a developing country relates to inventions in developed countries.[21]

Therefore, it is not possible to talk about a clear link between intellectual property rights and economic and social development when conclusive evidence is not at hand. Probably in certain sectors of the economy intellec-

19 Dutfield, G., *op. cit.,* note 11, p. 33.

20 Commission on Intellectual Property Rights, *Final Report*, London, Commission on Intellectual Property Rights, 2002, p. 11.

21 Abbot, F. *et al.*, *op. cit.,* note 10, pp. 2503 y 2504.

tual property rights are useful for economic development but not to the economy of a country as a whole.

C. *The conflict between intellectual property rights and other rights*

The main question is how to interpret international legal rules related to individual intellectual property rights and other rights, like community intellectual property rights and public rights taking into account one objective: to solve possible conflicts.[22]

Since intellectual property rights might exclude the protection of creations that do not comply with the requirements established by law. Tension is created by the exclusion of rights and benefits protected by these rights.

Several ways of resolving the tension have been suggested.

Firstly, by safeguarding intellectual property rights since these rights can shield any invention including traditional knowledge.

Secondly, by recognizing Intellectual Property Rights, because communities generate knowledge by researching natural genetic resources.

Thirdly by sharing the benefits arising from collective or intellectual property rights over natural genetic resources since the Convention on Biological Diversity has established ample guarantees for an equitable sharing of benefits. All these legal innovations constitute ways of legally protecting rights through using arguments provided by environmental law. These legal innovations come out from grass-roots movement at the national level or from the work of international institutions at the international level.[23]

22 Individual Intellectual Property Rights: rights to protect an intellectual creation for the exclusive benefit of an individual who is the right-holder. Collective Intellectual Property Rights: rights to protect an intellectual creation of a community of individuals for the exclusive benefit of the community who is the right-holder. Public rights: to protect societal benefits derived from intellectual creations. The society is the right-holder and the rights are exercised by the state. From Dutfield, G., *op. cit*., note 11, pp. 34, 36 y 37; Abbot, F. *et al.*, *op. cit.,* note 10, p. 21.

23 In other area the idea of legal innovation have been put forth by Addink, H. *et al.,* "Climate change policy in changing contexts: globalization, political modernization and legal innovation", in Ierland, E. *et al*., *Issues in climate change policy: theory and policy*, Dordrecht, Kluwer Law International, 2003, p. 85.

An example of this tension is biopiracy, "patents for illegally extracted natural genetic resources".[24] Four cases were depicted in the first part of this introduction. These cases illustrate of a debate related to intellectual property rights as well as Public rights. In this context, a debate has been going on in order to find solutions to the conflict between intellectual property rights and other rights. Three main standpoints can be distinguished:

a. *Intellectual property rights and rejection of biopiracy*

According to Heald, intellectual property rights offer sufficient protection of any intellectual creation and the so-called "biopiracy problem" is an artificial debate initiated by anthropologists without a clear understanding of legal principles. Moreover, he believes that biopiracy is merely an argument to justify economic gains from utilization of natural genetic resources. He thinks that it is not possible to create any new intellectual property right for the protection of community intellectual creations.[25] The author solves the problem by proposing that intellectual property rights will protect any invention under the umbrella of Trade-Related intellectual property rights Agreement.

b. *Recognition of intellectual property rights and existence of biopiracy*

Dutfield and Posey are pleading for protection against patents related to illegally extracted natural genetic resources, because indigenous people have conserved and studied these resources from immemorial times. Indigenous people's intellectual property rights are recognized in Article 8 (j) of the Convention on Biological Diversity and in different international declarations. These rights have their origin in the communities' knowledge of plants and animals. Recognition of intellectual property rights enables indigenous peoples to establish a better price for their knowledge and to protect

24 E. De Geer, M., "Biopiracy, the appropriation of indigenous people's cultural knowledge", *New England Journal of International Law and Comparative Law*, vol. 9:1, 2001, p. 179.

25 J. Heald, P., *Your friend in the rain forest: an essay on the rhetoric of biopiracy*, pp. 2, 3 and 6, in *http://ssrn.com/abstract=285177*.

their communities from further destruction by biopiracy.[26] Therefore, these authors propose to recognize and protect intellectual property rights because of the efforts made by indigenous people to conserve natural genetic resources and to make their knowledge available to the world.

c. *Beyond biopiracy, sharing benefits as means of resolving tension*

According to Sanchez, an obligation to equitably share benefits from natural genetic resources is explicit in the Convention Biological Diversity in order to provide some gains from transactions related to intellectual property rights and other intellectual rights. The Convention on Biological Diversity recognizes individual and collective intellectual property rights as well as property rights, because right-holders contribute to research on natural genetic resources . Sanchez argues that the World Summit on Sustainable Development in 2002 encourages an international regime which favors an equitable sharing of benefits is possible.[27] This author points out the ways to share benefits arising from research, because the Convention Biological Diversity and recent international developments make such a mechanism possible.

26 Posey, D. and Dutfield, G., "Plants, patents and traditional knowledge: ethical concerns of indigenous and traditional people", in G. van Overwalle (ed.), *Octrooirecht, Ethiek en Biotechnologie Patent Law, Ethics and Biotechnology*, Brussels, Bruylant, 1999, pp. 102-132, reproduced in Dutfield, G., *op. cit*., note 11, pp. 20 and 41; Dutfield, G., "Indigenous people declarations and statements and equitable research partnerships", in Laird, S. (ed), *Biodiversity and Traditional Knowledge*, London, Earthscan, 2002, pp. 229 y 230; Posey, D., *National Laws and International Agreements affecting Indigenous and Local Knowledge: Conflict or Conciliation?*, p. 4, in *http://lucy.ukc.ac.uk/Rainforest/SML_files/Posey/posey_TOC.html*. Posey, D., "Ethnobiology and ethnoecology in the context of national laws and international agreements affecting indigenous and local knowledge, traditional resources and intellectual property rights", in Allen, R. *et al.* (eds.), *Indigenous Environmental Knowledge and its Transformation*, Amsterdam, Harwood Academic Publishers, 2000, p. 43.

27 Sanchez, V., "The convention on biological diversity: negotiation and contents", in Sanchez, V. and Juma, C., *Biodiplomacy*, Kenya, ACTS, p. 4; Sanchez, V., "Genesis and Projections of the Convention on Biological Diversity", *Seminar on Commercial Prospects of Access to and Benefit-Sharing of Genetic Resources*, Tokyo.

IV. CONCLUSION

A lot of possibilities have been faced to balance rights and obligations. Discussions on this subject have been developed during the last 10 years and most probably will be developed by academics, politicians, representatives of countries and other discussants in the next years.

However, it is necessary to consider that a conclusion is not possible because some of the discussions have been developed by authors outside the legal framework of the Convention on Biological Diversity. As far as this Convention is concerned the solution is strict, clear and obliges countries and people: Article 15 of the aforementioned convention has developed the procedure and solution to discussions.

What has been called *lege data*, the law as it is, has organized and solved the problem long ago, to be clear in 1994. Today discussions at the international level are possible only if the countries that are party to the convention decide to establish formal negotiations for a protocol in the framework of the convention. Such a protocol might solve the problems discussed here by the recognition of new rights and obligations but it is not possible to think in solutions arising from discussions only. Such solutions are not legally binding for States that are parties to the Convention on Biological Diversity.