Benefit Sharing

Experience of Costa Rica

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Introduction

In the Convention on Biological Diversity there are three particular means for benefit sharing: appropriate access to genetic resources, appropriate transfer of relevant technologies and appropriate funding. [1]

The term benefit sharing involves a balance between access to genetic resources and fair and equitable sharing of the benefits of their use through wide variety of monetary and non-monetary mechanisms, ranging from profit sharing or equitable stakes in the bioprospecting business, and also technology transfer, training and collaborative research. [2]

Bioprospection is the systematic search of new sources of chemical compounds, genes, proteins, microorganisms and other products that have economic potential and can be found in biodiversity.

The process of obtaining resources through the use of biodiversity in commercial products includes the negotiations and contracting with industrialized enterprises.

Costa Rica believes that countries that are able to establish the most efficient regulations for the conservation of their biodiversity will be in better conditions to negotiate the acquisition of more benefits.

In this sense, the capacity to produce resources based on biodiversity is directly related with the capacity of each country to create development policies for the conservation of wild areas that concentrate its biodiversity.

The last step in the evolution of the biodiversity prospection has materialized in the negotiation and signature of benefit sharing agreements between organizations that count with regulated access to genetic resources and biochemical, pharmaceutical, agricultural and biotechnological industries.

These agreements not only benefit the organizations or industries involved in it, but also, depending on the negotiation of each agreement, can benefit

[1] L. Glowka et al., A guide to the Convention on Biological Diversity (Gland, Geneva, Cambridge: IUCN, 1994).
[2] K. ten Kate and s. Laird, Biodiversity and Business: coming to terms with the “grand bargain”. (London Earthscan, 1999).

the government of the country where the biodiversity samples are being extracted.

National Experience

Th National Institute of Biodiversity of Costa Rica (INBio) is a leader in the negotiation and signature of benefit sharing agreements. Since its opening in 1989, INBio has signed around 11 agreements of this nature[3].

All INBio agreements contain 7 basic aspects[4]:

1. Direct payments in cash or knowledge exchanges (equipment, training, technological know how).
2. Payment of a significant percentage of the initial budget of the project (10%) and the returns of the commercialization of the products (50%).
3. Cooperation clauses that stipulate the gradual translation of the investigation processes to the supplier country, in order to create new jobs and the achievement of industrial development.
4. Minimum exclusivity.
5. Agreement on the samples property and patents property.
6. The use of chemistry synthesis, semi-synthesis and domestication of the living sources, in order to avoid the continuos extraction of the biotic material.
7. Legal Mechanisms that will provide protection to both parties.

The best-known benefit sharing agreement signed by INBio is the INBio-Merck Agreement, which was signed in 1991, even before the Convention on Biological Diversity was established.

This agreement was the first attempt to use biodiversity in order to achieve the commercialization of genetic and biochemical resources. The parties involved in this agreement were INBio and Merck Sharp & Dome. The parties conceived the agreement as a contract to collaborate in the investigation of the existent biodiversity in Costa Rica's tropical forests in order to establish its potential applications to human health and animals.[5]

[3] The 11 agreements will be mentioned and briefly describe in this paper.
[4] Reid, Laird, Meyer, Gámez, Sittenfeld, Janzen, Gollin, Juma, Biodiversity Prospection, World Resource Institute, USA, 1994.
[5] A further description of this agreement is included as an annex to this document.

Other examples of some of the benefit sharing agreements signed by INBio with companies from different industries are[6]:

- INBio – Givaudan Roure Agreement. This agreement was signed in 1995 and its main objective is to explore the potential of the biodiversity fragrances and aromas, which could be eventually synthetically reproduced and used by the cosmetic company Givaudan Roure. These aromas are taken directly from the forest air, which is in contact with natural fragrant objects.

- INBio – DIVERSA Agreement. This agreement was signed in 1998 and its main objective is to explore new enzymes in aquatic and terrestrial microorganisms from Costa Rica's biodiversity with the biotechnological industry DIVERSA.

- INBio – INDENA SPA. This agreement was signed in 1996 and a second phase of the agreement is being currently negotiated. The objective of this agreement is to obtain anti-microbial potential compounds, which could be used as active ingredients in cosmetics.

- INBio- British Technology Group (BTG). This agreement was signed in 1992, and its main objective is the investigation, characterization and production of a product with nematic activity contained in a tree from the dry Costa Rica's forest.

Besides the industrial sector, INBio has also signed agreements with academic, non-government and government sectors. Normally the objectives of these agreements are based mostly in sharing investigation resources and knowledge in order to achieve solutions to specific problems. Some of the agreements signed by INBio with academic institutions are:

- INBio – University of Massachusetts. This agreement was signed in 1995 and is almost reaching its end. Its main objective is to locate in the environment components that contain insecticide activity.

- INBio – University of Strathclyde. This agreement stipulates that INBio will supply diverse industries of the Japanese private sector with samples of plants, which will be studied with the technical collaboration of the University of Strathclyde

[6] A. Guevara, Biodiversity Prospection, INBio 1998

- "ChagaSpace Project", this agreement is done by INBio in collaboration with the EARTH (School of Agriculture of the Wet Tropical Region of Costa Rica), the National University of Costa Rica, other Latin-American academic institutions and NASA from the United States. The main objective of this project is to find a cure to the sickness called Chagas or American Tripanosomiasis. This project is paralyzed because of budget problems.

As it was mentioned before, INBio also subscribes agreements with governmental and non-governmental institutions. Some of these agreements are:

- Support for small economies in the development of the use of Biodiversity. INBio and the Inter- American Development Bank (IADB) subscribed this project in February of 1999 and finished it in December of 1999. As its own name describes, the objective of this project was to empower the ability and knowledge of the uses of Biodiversity, strictly in the small economies of the hemisphere.

- Validation of Plants. This project was recently agreed upon and is being sponsored by the CRUSA Foundation and it consists of 3 subprojects. The first consists of the study of two plants in search of components that could help eradicate Malaria. The second consists in validating plants that are traditionally used in the Gastritis treatments. And finally, there will be validated some plants which are supposed to have a high alkaloid content.

- Chemistry Prospection within a Conservation Area. This project was subscribe in 1993 and finished in September 1999. It was sponsored by one of the International Cooperation in Biodiversity Groups (ICBG´s) of the National Institute of Health (NIH) of the United States. It was executed within the territory of the Guanacaste Conservation Area and it was done with the cooperation of the University of Costa Rica, Cornell University and Bristol Myers Squibb. Its main objective was to incorporate tropical insects in the research processes of new pharmaceutical products, as well as building capacity in ecology, taxonomy and eco -chemistry sectors.

The "Ley de Biodiversidad" of Costa Rica (Biodiversity Law of Costa Rica) is the national legislation in charge of regulating the functionality of all these agreements. Before the entrance in force of this law in 1998, the "Ley de Vida Silvestre" of Costa Rica (for the wildlife conservation) regulated them. The Biodiversity law stipulates that the Bioprospection institutions have to

count with a prior permission from the Ministry of Energy and Environment of Costa Rica (MINAE) in order to proceed with extraction.

The next chart was published by INBio and shows the contributions and payments or contributions done by its Bioprospection Program since 1991.

Chart 1
Contributions and Payments done by the Bioprospection Program
(Dollars)

	1993*	**1994**	**1995**	**1996**	**1997**	**1998****	**Total**
Ministry of Energy and Environment	110,040	43,400	66,670	51,092	95,196.	24,160	390,558
National Conservation Areas	86,102	203,135	153,555	192,035	126,243	29,579	790,649
National Universities	460,409	126,006	46,962	31,265	34,694	14,186	713,522
Other INBio groups	228,161	92,830	118,292	172,591	129,008	0	740,882
TOTAL	884,712	465,371	385,479	446,983	385,141	67,925	2,635,611

* Estimated quantities since 1991
** (January – February)

SUMMARY OF THE COLABORATION AGREEMENT BETWEEN INBIO AND MERCK & CO., INC

Institutions involved

- National Institute of Biodiversity (INBio) which is a non-profit association established under Costa Rican law with the objective to integrate the national biodiversity to the society, develop its activities through a national inventory of biodiversity, bio-prospection, development of information systems on biodiversity and the dissemination of the knowledge generated to the different sectors of society. INBio has a formal agreement with the Ministry of Environment, which allows it to undertake specific activities regarding the national inventory and utilization of the biodiversity in the protected areas.

- Merkc & Co., (Merck) which is a corporation established under New Jersey State laws.

Day of enter:

1 November 1991, renewed for the first time in July 1994 and for the second time in August 1996.

Purpose of the Agreement:

- INBio is an institution interested in establishing collaboration programs with the private industry in order to create mechanisms to preserve the Conservation Areas of Costa Rica, making them economically viable.
- Merck is a corporation interested in collaborating with INBio in order to obtain plants, insects and environmental samples with the purpose of evaluating them for potential pharmaceutical and agricultural applications.

INBio's obligations

1. INBio will establish the necessary facilities in Costa Rica for the collection and process of plants, insects and environmental samples.
2. INBio will hire and train the necessary personnel for the collection and process of the samples. Merck agrees to give training in its laboratories to INBio's personnel or to whom INBio appoints.
3. INBio will yearly provide Merck with a specific number of plants, insects and environmental samples for a period of two years, as it is established in the working program of the Agreement.
4. The samples of plants and insects will be processed in a laboratory established by INBio at the University of Costa Rica through a subcontract of services and at INBio.

Merck's obligations

1. Merck will provide INBio with a research fund of 1 million dollars during the first two years of the Agreement and will contribute with the laboratory equipment and the required materials for INBio to operate the laboratories for processing the samples at INBio and at the University of Costa Rica
2. Merck will assess the samples supplied by INBio through biological experiments owned by Merck to detect potential activity of compounds for use on human and animal health and for agriculture.
3. Merck will notify INBio of any activity capable of reproduction identified in the samples sent by this institution.
4. Merck will give a unique numeric identification to all the samples sent by INBio and will keep an identification system which will allow the two parties to identify all the products from which there is a possibility to obtain royalties under the Agreement.

Exclusivity of the Agreement

- INBIo agrees that during an initial assessment period of two years, it will not supply other companies with any of the samples requested by Merck. However, INBio can offer to any company the samples requested by Merck and send to it, as long as their assessment interests are completely out of Merck's field of interest. When the assessment period of two years is completed, INBio will have the freedom to supply other companies with the samples that were given to Merck to be assessed in activities related to human and animal health and for agricultural uses.

- With respect to no more than 1% of the total number of samples requested and assessed by Merck, Merck could request the extension of the exclusive period of assessment of a sample, as long as it has a diligent performance in the assessment and commercial development of the sample. The exclusive rights will finish in the moment that Merck decides to suspend the program of commercial development of products produced from the sample.

- INBio can reject the collection of a sample for Merck if it is impossible to get the sample for logistical or biological reasons or if it can put the specie in danger.

- At least once a year, Merck will submit to INBIo written progress reports of its activities of commercialization in respect to specific samples.

Confidentiality Issues

- During the Agreement and for a period of seven years after the Agreement is concluded the parties agree not to reveal to third parties confidential information obtained during the period of the Agreement.

- Each of the parties could publish the results of the investigations carried out by means of this collaboration program after providing the other party the opportunity to examine the publication.

Inventions and Patents

- The inventions created within the investigation will belong to Merck.

- Merck will be responsible for requiring and registering in a proper manner the applications for the award of the patents.

- INBio will be compensated for its contribution to any invention with royalties in the sales of the products.

- INBIo has the right to supply other companies with samples for their assessment and commercial development, as long as it respects the limited exclusivity guaranteed to Merck under this Agreement.

Payments

- Merck agrees to pay royalties to INBio for any pharmaceutical product for human or animal use or for any product that can be used in agriculture that has been initially isolated or produced by any sample sent by INBio to Merck.

- The royalties will also apply to any product derived from or analogous to these compounds, to chemical compounds derived from living microorganisms isolated from environmental samples or from samples of dead tissue.

- The percentage of royalties is considered as confidential information and will not be published. This percentage is within the range of usually used percentages for this type of agreements.

- Merck will keep precise registries that will allow both Merck and INBio to identify all the products subject to possible royalties that will allow INBio to confirm with precision the reports of royalties from Merck.

Compensation

- Merck agrees to compensate INBio for any legal complaint for the use of samples, except when the complaints are the result of negligence or bad performance by INBio.

- Merck agrees to comply with all the regulations and requirements set for the use of samples.

Duration

- This Agreement will have an initial duration of two years from the date in which the facilities and laboratories for the processing of samples are ready to start working.

- Three months before the conclusion of the initial assessment period established in this agreement, or before the conclusion of any "addendum" to the agreement, the parties will meet to decide if they extend or not this Agreement for one more year. Merck will provide an additional fund to support INBio's work during the extended period.

Termination

Any party can terminate this Agreement if the other party violates its provisions. For this purpose, a written note must be sent three months in advance.

Any party can terminate this Agreement if the other party turns to be insolvent or is declared bankrupt.

If the present agreement is terminated, the confidentiality clause and the payment of royalties will continue to be effective.

Assignment and sub-licensing

Non of the parties can transfer this Agreement.

Merck can do sub-licensing contracts, as long as the contracts are subject to all the obligations indicated in this Agreement and as long as INBIo's royalties are payed. Merck will notify INBio of any sub-license subject to a license of samples from INBio or to confidential information from INBio.