

International cooperation and bioprospecting in Brazil and Peru

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Abstract

This article relates to the “Nature and Impact of North-South, Public-Private Research Partnerships Applied to Bioprospecting” project, which aims to investigate the features of north-south cooperation in bioprospecting and identify its contribution as a mechanism for the promotion of the scientific and technological capacities of southern countries. The methodology is based on case studies carried out in Brazil, Peru, Colombia and Suriname. The article presents preliminary results of the analysis of bioprospecting practice in two countries, Brazil and Peru, based on the analysis of three bioprospecting arrangements in these countries between 1993 and 2001.

Keywords

North-south cooperation, development, bioprospecting, Brazil, Peru

This article relates to the “Nature and Impact of North-South, Public-Private Research Partnerships Applied to Bioprospecting” project, developed at the Department of Scientific and Technological Policy of the State University of Campinas (DPCT-Unicamp), coordinated by the researchers Léa Velho and Maria Conceição da Costa, with funding from the International Development Research Centre (IDRC). The project aims to investigate the features of north-south cooperation in bioprospecting and identify its contribution as a mechanism for the promotion of the scientific and technological capacities of southern countries. The methodology is based on case studies carried out in Brazil, Peru, Colombia and Suriname. This article

presents preliminary results of the analysis of bioprospecting practice in two countries, Brazil and Peru.

The interest of advanced countries in collaborating with Third World countries to help them achieve economic development is long-standing and forms part of the political discourse of a considerable number of nations. From the 1950s onwards, various countries set up development cooperation agencies. These agencies were led by a style of action oriented principally towards non-profit funding for scientific activities, in the face of the growing importance of science and technology and associated needs, at a moment of the growth and consolidation of capitalist nations. Until the 1950s, these actions were directed towards the areas most lacking in

research, such as for example health, sanitation, agriculture and education.

In the light of international cooperation, bioprospecting has proved to be a fertile area for investigation. It is common knowledge that the most dynamic centers of biotechnological activity are essentially located in the northern hemisphere, in advanced capitalist societies. On the other hand, the main reserves of biodiversity are largely concentrated in the southern hemisphere, in societies which are in the less advanced stages of capitalist development. In this way, bioprospecting activity makes it possible to build a picture of the different ways participants may benefit from partnerships, as well as identifying political and socioeconomic conditions in which partnerships can contribute to sustainable development.

Bioprospecting involves the collection of biological material and access to genetic resources in the search for new compounds whose active principles may be used in products or processes. The raw material of bioprospecting is pre-existing knowledge about the natural and biological resources available in a specific region. Bioprospecting bases itself not just on the knowledge developed in institutions or research laboratories but also on traditions and popular knowledge, not always codified, which are passed from generation to generation.

The regulation of bioprospecting activities is relatively recent. The Convention on Biological Diversity (CBD), approved in Rio de Janeiro in 1992, is the international treaty which establishes the parameters for the conservation of biodiversity and the sustainable use of its components. Since then, these components have been considered subject to the sovereignty of nation states and no longer the shared heritage of humanity. Access to these resources depends on prior consent from their owners and the negotiation of the terms of how the profits will be shared between parties.

Bioprospecting may possibly be one of the fields of contemporary scientific and technological development which most throws into relief the involvement of such a myriad of actors: industry, indigenous communities, farmers, consumers, environmentalists, research institutions, non-governmental organizations, local governments and their representatives and the leaders of international bodies. This gives bioprospecting the characteristic of a collective practice conditioned by other social practices, which includes scientists and non-scientists (LATOURE, 2000) and which provokes questions relating to: the logic and the ethics of scientific investigation (SHIVA, 2004; SANTILLI, 2004); the definition of the legitimate representatives of the actors involved (GREENE, 2004); the ecopolitics of international relations (LEPRESTRE, 2000; TOBIN, 2005); the meaning of sovereignty and the concepts of state and nation (BRUSH, 1999) – by setting against each other the needs and expressions of indigenous peoples, their territories and the states which delimit them (COOMBE, 2005); the boundaries between nature

and culture (LATOURE, 2004); and the limits of international regulation of property rights over traditional knowledge (CARNEIRO DA CUNHA, 1999; DUTFIELD, 2004).

In Brazil, the most important bioprospecting firm, *Extracta Moléculas Naturais S.A.*, was set up in 1998 within the Bio Rio Foundation, a biotechnology incubator in Rio de Janeiro. From the outset, the firm opted for partnerships with international associates. Initially, it had an English associate, Xenova Group PLC, a small English pharmaceutical company. This was a contact established by a researcher from the Federal University of Rio de Janeiro (UFRJ) who had studied for her PhD in England some years before. In the same year informal contact was established with the then president of Glaxo Wellcome Latin America who proposed a kind of “technological outsourcing” contract. This contract foresaw the detection of new molecules for use in medicines and that the patent, at the time, would belong to Extracta.

In July 1999, Extracta and Glaxo Wellcome signed a contract to collaborate in the screening of materials derived from natural sources with the aim of finding single molecules. The existence of this contract became public when it was cited by the president of Glaxo Wellcome, in testimony before the Parliamentary Enquiry Committee (CPI) on Medicines in April 2000, as the first research project agreement signed between a multinational company and a local biotechnology firm after the approval of the Intellectual Property Law. At the time, it was one of the biggest research deals in the area of natural products, with an investment of US\$ 3 million spread over three years. At the time, Extracta employed 60 researchers, of whom 20 held PhDs. Today it has a fixed staff of twelve researchers and a turnover of one million Brazilian *reais* (R\$ 1 million).

Extracta set up a Chemical Biodiversity Bank of around 30,000 substances extracted from Brazil’s natural resources and of known chemical composition. The firm was responsible for developing the testing system which allowed the screening of natural compounds. The new molecules of pharmaceutical interest were patented by Extracta and their use was licensed exclusively by Glaxo Wellcome, which would undertake the final development of the product, the clinical tests and the global marketing and sales.

The contract between Glaxo Wellcome and Extracta ended in 2002, after 183 excursions which covered more than 10,000 km² of biologically diverse areas and discovered more than ten bioactive compounds. As a result of the report provided by the president of Glaxo Wellcome Brazil, a request for information was sent to the Ministries of the Environment and Science and Technology, which came back stating that they were not aware of the agreement. In the interim, the Amazon and Regional Development Commission (CADR) of the Chamber of Deputies requested a public audience to debate the

agreements made between pharmaceutical companies and public teaching and research institutions in the area of biotechnology. After evaluation, the contract was approved as it was not considered damaging to the social heritage, the environment and the interests of the Brazilian people. Extracta exploited Brazil's biodiversity without obstacles until 2000 since there was no law regulating this kind of activity until that point.

In a similar way, the first bioprospecting contracts effectuated in Peru were conceived in the vacuum of national legislation on the issue. This trajectory began in 1993, when a partnership was established involving a consortium of public and private sector organizations from the United States, two Peruvian universities and an organization representing the interests of the indigenous Aguaruna communities.

The controversial path of this agreement had a significant influence on the process of institutionalizing the regulation of the exploitation of biodiversity resources in Peru. The contract was signed and sealed at a time when none of the signatory countries to the Convention, including Peru, had put in place national regimes for regulating access to genetic resources and traditional knowledge. In the absence of national legislation, the terms of the agreement were negotiated directly between the partners, without the mediation of the Peruvian state (Greene, 2004; Hayden, 2003).

The contract was conceived in the context of the International Cooperative Biodiversity Groups (ICBG) program, set up in 1991 and financed with resources from United States agencies, such as the United States Agency for International Development (USAID) and the National Institutes of Health (NIH). In 1993, a team from Washington University received funding. The original contract foresaw the participation of the following group of actors: Washington University, Cayetano Heredia University in Peru (UPCH), the Museum of Natural History of San Marcos University and the Aguaruna, an indigenous group which lives in the Amazon region of Peru, represented by the Aguaruna-Huambisa Council. Under the arrangement, the four would participate in the collection of biological material; the research for isolating the active principles would be carried out by Washington University and Cayetano Heredia University, and San Marcos University would be responsible for carrying out an inventory of Peruvian biodiversity and cataloging it.

In 1994, the Aguaruna-Huambisa Council and the ICBG team signed a contract in which Washington University committed itself to make an annual payment for the work of collecting material and for the plant samples obtained. Immediately afterwards, the Washington University team returned to the United States to formalize the participation of a private company in the arrangement. This took place in the form of a licensing contract between the university and G.D. Searle & Co., then the pharmaceutical branch of Monsanto Corporation. According to the terms of the

contract, Washington University would become the legal representative and the only intermediary between the Peruvian partners and Searle.

The next incident was the contesting of the arrangement between the Aguaruna-Huambisa Council and Washington University. During this period the research team from Washington University returned to Peru to collect samples near a non-indigenous reserve, called Imazita, which provoked a great deal of friction between the ICBG team and the Aguaruna-Huambisa Council. At the beginning of 1995, the Aguaruna-Huambisa Council withdrew from the project and the ICBG returned to Peru to consolidate the terms of the agreement with another indigenous organization, the Central Organization of Aguaruna Communities of Alto Maranhão (OCCAAM). When the Aguaruna-Huambisa Council heard of this, it sent a letter of protest to Washington University and to the National Institutes of Health. Amongst other things, the letter alleged that Washington University had refused to provide the Council with sufficient information about the licensing contract with Searle and that the former had removed samples from Aguaruna territory without the necessary authorization.

The evolution of the case can be summed up in the trajectory of the ICBG team and the OCCAAM to increase their legitimacy by winning over allies. OCCAAM formed links with three other indigenous organizations: the Aguaruna Domingusa Foundation (FAD), the Federation of Native Aguaruna Communities of the Nieva River (FECONARIN) and the Alto Mayo Aguaruna Organization (OAAM). The "motivation" of this cooperation was the inclusion of these organizations in the ICBG project and in the arrangement for sharing the profits. The next step was the selection of the Confederation of Amazon Nationalities of Peru (CONAP), one of the largest indigenous federations in Peru, to represent this consortium of indigenous organizations in dealings with Searle.

The fieldwork recommenced in 1996. The tests were limited to attempts to identify the active principles for the treatment of diabetes and cardiovascular problems, an approach which dispensed with the majority of the information collected in the Aguaruna communities. In September 1999, Searle cancelled the contract with the ICBG team on the grounds that the tests had not led to an area of research which was attractive in cost-benefit terms.

As well as this project, other experiences have had a significant influence on the process of constructing the normative framework for regulating bioprospecting in Peru. One of the most representative cases was the process of contesting the patent for the extract of the Maca plant, cultivated for generations by Andean populations. Since the 1990s, on the scent of profits such as those made by Pfizer from sales of Viagra, the plant has attracted the attention of pharmaceutical and phytotherapeutic companies and

has frequently been the subject of media reports calling it the “natural viagra”.

In July 2001, after identifying and isolating the active principles of the plant's root, a US firm, Pure World Botanicals, successfully lodged a patent application with the US Patent and Trademark Office. The patent was contested in July 2002 at the headquarters of the Lima Ecological Forum by a consortium including: grassroots organizations (indigenous federations and rural leaders), national (Peruvian Environmental Law Society – SPDA) and international (ETC Group) non-governmental organizations and the Peruvian government, through the National Institute for the Defense of Competition and the Protection of Intellectual Property (INDECOPI). The coalition demanded that the Peruvian government investigate the register of all the patents of products and/or processes derived from the use of traditional knowledge and Peruvian biodiversity resources.

The US company reacted to the accusations of biopiracy, saying that its procedures met US patent legislation criteria. The Peruvian coalition presented a counterargument based on the principle of the existence of prior knowledge about the therapeutic effects of the plant, without which the screening could not have been carried out.

The asymmetry between the litigant parties and the high costs involved in an international contestation of a patent hampered the attempt to oppose the US patent. This does not mean that other strategies have not been used by the Peruvian actors. The conflict sparked a movement which resulted in the creation of a multisectoral working group to track patent applications related to the exploitation of biodiversity resources and traditional knowledge, which was formally constituted as the National Commission for the Protection of Biodiversity in 2004. Among the Commission's main projects is the population of a database for tracking biodiversity resources and the creation of an international certificate for the identification of origin.

Finally, the preliminary examination of the trajectory of bioprospecting agreements in Brazil and Peru has led to the following observations:

- Initial expectations are out of step with the real results of projects, whether in terms of the development of new products or processes, the promotion of the scientific and/or technological capacities of southern countries or the sharing of profits with indigenous communities.

- The process of constructing the normative and institutional framework in both countries is essentially reactive and unstable.

- The question of intellectual property occupies a central position. Despite the complexity of the issue, there are signs that a future trend will be the widening of mechanisms of the “rights first, access later” (TOBIN, 2005) type, as in the case of identification of origin certificates, as the most probable instruments for the

regulation of access to genetic resources from biodiversity reserves.

- There are conflicting visions around the role of non-governmental organizations as to the limits of their activities and the legitimacy they assume to speak on behalf of other social sectors in bioprospecting, such as indigenous groups. Part of the literature views the actions of these organizations as part of a neoliberal project to spread an erroneous concept of the emancipation of marginalized populations, whilst others see them as a vector of assistance for excluded communities (GREENE, 2004).

As for the future of bioprospecting, expert perspectives seem to be split between those which are positive and those which are more sceptical. The debate around the search for normative models reveals a reality characterized by instability and relative ambiguity about the strategies which should be developed (TRIGUEIRO, 2006). There are therefore ongoing questions of the most varied kinds. Perhaps this is the main attraction of research into bioprospecting: the possibility of raising issues which point to aspects which have not yet been explored, suggesting the need to dedicate more attention to the analysis of the complexity of this phenomenon.

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