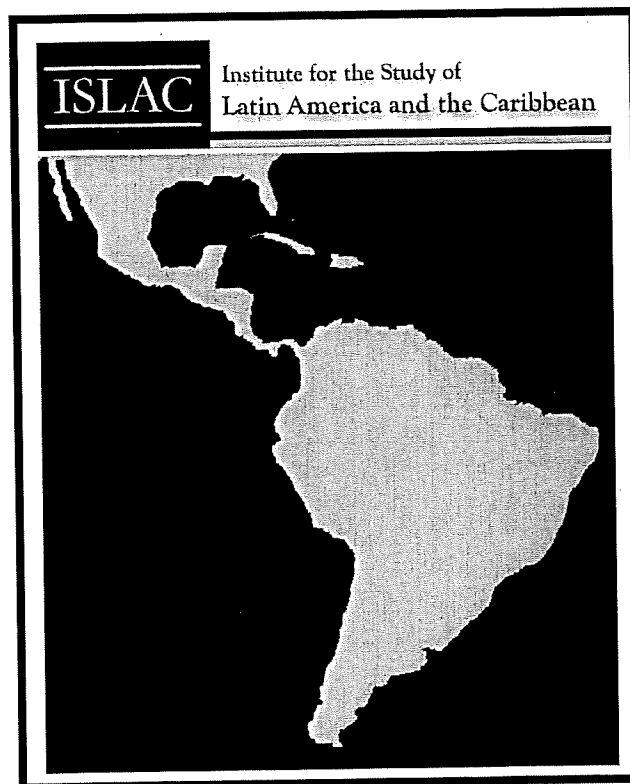

IMPLEMENTING THE CONVENTION
ON BIOLOGICAL DIVERSITY:
THE COSTA RICAN CASE

By Michael J. Miller, Ph.D.

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**THE CUADERNOS SERIES:
A NOTE FROM THE ISLAC DIRECTOR**

The Institute for the Study of Latin America and the Caribbean (ISLAC) at the University of South Florida is proud to announce the launching of the third issue of *Cuadernos*. Our new name - which corresponds with our newly acquired status as Institute- is *Cuadernos ISLAC*. The realization of this effort as part of our series of research publications is possible thanks to the effort and enthusiastic dedication of our colleagues, graduate students, and staff. In addition to *Cuadernos*, we have already issued an ISLAC-sponsored publication of a Special Issue of the *Journal of Developing Societies*, Volume 21, Issue 3-4 (September-December 2005) on *Inter-American Relations in an Era of Globalization: Beyond Unilateralism?* An updated and revised version of this volume is soon to appear in book form. In the same vein, we are preceding with the preparation of a volume emerging from our March 2006 Symposium on New Social Movements and Democracy in the Americas. There are many other plans and dreams. These two years have been most productive, and we hope we can continue to expand in this line of productivity. We are particularly thankful for the support given by the International Affairs Center, and especially Dean María Crummett in facilitating this and other ISLAC endeavors. I am personally thankful for the support from members of our staff, especially Ms. Alina Lezcano Saavedra and Ms. Violetta Urba, but also many others, who went beyond the call of duty in the laborious task of editing and proofing and carrying this endeavor through its completion.

Three of our activities - the ISLAC Lecture Series, the Faculty Research Seminars, and the Distinguished Visitors program - provide the main feeder to our publications. Upon assessment by our Editorial Board, discussion with the authors, and revisions, the materials are produced in conventional hard copy and are also posted on our web page: <http://web.usf.edu/iac/islac>. Our interest is to generate a wide and lively discussion and "multilogue" among interested parties at home and abroad. To that effect, we are inviting interactivity and feedback through our electronic site: islac@iac.usf.edu.

ISLAC as an Academic Project

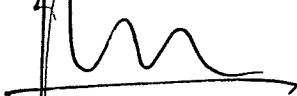
A few words on our institutional mission and the way we see ourselves are in order here: the Institute for the Study of Latin America and Caribbean at USF is an area of academic research and teaching defined by the interdisciplinary analysis of economic, social, political and cultural formations in both the countries south of the Rio Grande, as well as among the Hispanic/Latino populations in North America. The program provides a scientific, philosophical, historical and humanistic approach to the understanding of these subjects in the broader context of human security in the Americas. As such, ISLAC is committed to a liberal arts education, believing that

It is in this spirit that the *Cuadernos* are being produced. Moreover, our editorial line attempts to reflect a number of specific characteristics of ISLAC as an academic project. One is our mission of fomenting and facilitating research and dissemination of knowledge and fruitful discussion about Latin America and the Caribbean among faculty, students, and interested members of the public at the local, state, national, and international levels. Another is to approach the region from a multi and interdisciplinary perspective. A third trademark is to provide for a systemic framework where macro and micro, as well as historical, structural and cultural factors can be inter-related and integrated. A fourth trait is to study these processes in the broader framework of the Americas as an interconnected whole.

The ISLAC Perspective on the Americas

The latter point requires some elaboration. Our use of the term the Americas refers to a geopolitical space that encompasses the entirety of the Western Hemisphere, where diverse and heterogeneous "meta-cultures" intersect. Latin America and the Caribbean, like Canada and the U.S., are multicultural societies representing the ongoing conflicts, amalgams and syncretism resulting from the encounter of three foundational and complex cultural domains: the indo-American "First Nations", the Euro-American conquerors and settlers, and the Afro-American Diaspora. This perspective allows us to deal with the fluidity and interconnectedness of peoples, without the usual ethnocentric compartmentalization of "up here" versus "down there" present in conventional wisdom. It also allows the study of the various migratory and sociopolitical issues of the Latin/Hispanic Diaspora in North America as part of a continuous and unfolding whole.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jorge Nef', written over a horizontal line.

Jorge Nef, Ph. D.

Director

Institute for the Study of Latin America and the Caribbean
University of South Florida

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Foreword

Environmental Politics and Ideology in Costa Rica

Costa Rica has been the most enduring example of democracy in Latin America. With a ruling class of coffee farmers, a competitive party system, a free press, numerous social organizations and civic groups, a fairly progressive social legislation, the absence of ostensible repression and violence, and above all the only country in the Americas without an army, it stands as an almost mythological deviant case. In recent years, that democratic exceptionality has been joined by another rarity: its being a reputedly "green" country. With its national parks system molded on that on North America, its green forests and its laws protecting biodiversity, the country has become a heaven for ecotourists. It could be said, that "being green", together with the self-image of democracy have become defining characteristics of "Tico" ideology.

Dr. Miller offers us an insightful study of the interplay between environmental politics, as an often deadlocked process among concrete actors and the image, or ideology of conservatism. His research of the dynamics of environmental policy-making in Costa Rica suggests that there is a significant gap between the discourse of environmentalism and a less than pristine practice. This flies against idealized perceptions that democratic politics and clean environmental policies necessarily reinforce each other. Nevertheless the study also suggest the flip side of the picture, in an almost classical rendition of the well known Thomas' theorem: When people define situations as real, irrespective as to whether they are real or not, they are bound to have real consequences. The ideology of environmentalism in Costa Rica, by becoming part of the culture is affecting perceptions, preferences... and also policy. In this sense, while policy-implementation lags behind normative declarations, the very existence of an environmental debate has forged an ecological consciousness across the population.

Jorge Nef
July 10, 2006

Implementing the Convention on Biological Diversity: The Costa Rican Case

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Introduction

As has been the case with its well-known national parks system, Costa Rica has been in the forefront in implementing the Convention on Biological Diversity. This international agreement began to take form in the 1980s when, in response to indications of increasing species extinction, the United States government pushed the United Nations Environment Program to develop a draft treaty on conservation of biodiversity. "Biodiversity" is generally understood to refer to the variety of ecosystems, species contained within those natural areas, and genetic material found within those species. Developing countries, which contain most of the world's biodiversity, strongly opposed the incorporation of strict requirements to conserve biodiversity. Furthermore, they pushed for and gained the right of nations to regulate "access" to genetic material found within their own territory. This entailed a major legal change, as existing international law considered plant genetic material to be the "common heritage" of humanity (Porter & Welsh Brown, 1996, pp.96-98).

After ratifying this international agreement in 1994, not only did Costa Rica develop a responsive "Biodiversity Law" in 1998, but in 2003 decreed implementing regulations, entitled "Normas Generales para el Acceso a los Elementos y Recursos Genéticos y Bioquímicos de la Biodiversidad" (General Norms for Accessing Genetic and Biochemical Elements and Resources of Biodiversity). While the Biodiversity Law broadly implements this international accord, these regulations address a particular component. Specifically, while the Biodiversity Law aims to better control research on and commercial uses of genetic material and other elements of biodiversity as well as consolidate a national system of protected areas, the "access norms" establish more specific rules regarding the former goal. For instance, this law and norms established new requirements for "bioprospecting," which refers to the search for genes and biochemicals useful in the development of commercial products, such as medicines and crop varieties. Biotechnological enterprises have recently shown renewed interest in such research, spurred by new technology, such as DNA recombination (Cabrera Medaglia, 2004, p.198).

In accordance with the Convention on Biological Diversity, these new restrictions were intended to better assure that bioprospecting as well as noncommercial research on biological materials does not lead to what has been referred to as "biopiracy." More specifically, the Biodiversity Law and its access norms attempt to avoid the appropriation of indigenous and peasant communities' knowledge about uses of biodiversity (e.g. their awareness of medicinal plants) or the exploitation of components of biodiversity that these communities have created

(e.g. crops they have produced through breeding). For instance, even though indigenous groups in South America had used the bark of the “chinchona” tree for years in treating malaria, they have not received any of the profits from the sale of the active component quinine (De Azqueta, 1997, p.4). Likewise, even though experts conclude that a particular bean was developed hundreds of years ago by Andean peasant farmers, the proprietor of a company called Pod-ners L.L.C. was able to patent it in the U.S. (Pratt, 2001).

This paper addresses two questions related to Costa Rica’s execution of the Convention on Biological Diversity. First, it explains how Costa Rica has been able to develop some of the world’s most comprehensive legal measures carrying out this convention. The majority of the parties to the Convention on Biological Diversity have not yet implemented this agreement’s access and “benefit-sharing” measures. According to a database recently compiled by the Convention on Biological Diversity, the parties that have addressed these measures in greatest detail are Australia, Bolivia, Brazil, Costa Rica, Guyana, India, Malawi, Philippines, Peru, South Africa, Vanuatu, and Venezuela (Convention on Biological Diversity, 2004, pp.16, 20). In fact, as explained by Solis and Madrigal (1999), Costa Rica’s Biodiversity Law is probably one of the most comprehensive pieces of national legislation implementing this international agreement (Barber, Glowka, & La Viña, 2002, p.394). Second, this paper examines how Costa Rica might most effectively carry out its access norms. Specifically, it will be explored how these regulations might be executed in a manner that better protects indigenous and peasant rights, as well as the natural environment without generating excessive obstacles to economic and scientific development.

Relevant Laws and Regulations

THE BIODIVERSITY LAW OF 1998

In order to more fully understand how Costa Rica was able to enact a law so thoroughly implementing the Convention on Biological Diversity, it is necessary to step back and point out some general political, economic and social characteristics that in many regards set that country apart from the rest of Central America. Central America in general continues to specialize in agricultural export commodities such as coffee, bananas, cotton, and beef (Booth, 1998, p.26). However, making Costa Rica unique is the importance of tourism to its economy. In fact, this sector has become the country’s largest source of foreign exchange (Watson, et al., 1998, p.93). Costa Rica’s beautiful and relatively well-protected natural environment is the major engine for this tourism. Thus, awareness in Costa Rica that protecting the environment is highly important to the health of the national economy no doubt supported the inclusion in the Biodiversity Law of provisions aimed at better protecting biodiversity, such as those establishing a stronger national parks system.

Additionally, Costa Rica’s economy leaves fewer people in poverty than is the case in other Central American countries. Nevertheless, poverty is still regarded by many in that country as an important social problem, as between 1994 and 2000 the prevalence of poverty among households reached as high as 20 percent (Proyecto Estado de la Nación, 2001, pp.89-90). Helping to lower poverty, as well as further set Costa Rica apart, is that country’s social welfare system. Particularly, Costa Rica’s social democracy is known for its generation of

impressive levels of education and health across the socioeconomic spectrum, and its stable democratic institutions and diversity of “pressure groups.” The fact that poverty remained a significant problem and Costa Rica’s government had a long history of assisting the poor made it more acceptable to include articles in the Biodiversity Law that pursue better protection for the rights of indigenous and peasant groups, who are among the poorest in Costa Rica.

However, other factors were more important in leading to a very thorough implementation of the Convention on Biological Diversity. Namely, domestic public opinion and international legal obligations were highly significant, once again demonstrating the uniqueness of the Costa Rican policymaking context. In a less democratic society with less concern for living up to promises to the international community, such conditions would probably have a smaller impact on the decision-making of political leaders. First of all, since the early 1990s, Costa Rica’s Instituto Nacional de Biodiversidad (INBio) (National Institute of Biodiversity) had been collaborating with the pharmaceutical company Merck on bioprospecting in search of genes and biochemicals useful in developing medicines. In response, there was growing concern in Costa Rica that a foreign corporation might unfairly exploit that country’s rich biodiversity, leading to increasing pressure for tighter regulation of bioprospecting. Second, Costa Rica was a party to the Convention on Biological Diversity. Because of that country’s legal obligation to execute this convention, a social democratic deputy and his advisors heavily drew from this agreement in formulating the initial biodiversity law proposal (Martínez, 1996, pp.7-8).

Comparing the Biodiversity Law and the Convention on Biological Diversity indicates that the former indeed inherited much of its content from the latter. Helping to lay the foundation for the rest of the convention, article 15(1) declares that nations may regulate access to the genetic resources within their territory (Secretariat of the Convention on Biological Diversity, 2001, p.11). Implementing this provision within Costa Rica, article 14(3) of the Biodiversity Law calls upon the Comisión Nacional para la Gestión de Biodiversidad (CONAGEBIO) (National Commission for the Management of Biodiversity) to “formulate and coordinate policies for accessing elements of biodiversity and associated knowledge,” and article 17(1) declares that the Oficina Técnica (Technical Office) will accept or reject access requests based upon these policies (Asamblea Legislativa, 1998, p.3).

Many other provisions in the Biodiversity Law that were aimed at social justice and environmental protection were clearly inspired by the Convention on Biological Diversity. For instance, regarding the pursuit of social justice, which is arguably the key component of the Convention on Biological Diversity, article 15(5) of the convention declares that, in order for anyone to be able to access genetic resources, they must gain the consent of the party controlling those natural resources (Secretariat of the Convention on Biological Diversity, 2001, p.11). Similarly, article 63(1) of the Biodiversity Law declares that one must obtain the “previous informed consent” of the “representatives of the location where the access would take place” (Asamblea Legislativa, 1998, p.7). Furthermore, article 8 (j) of the convention declares that governments will respect and preserve the knowledge and practices of “indigenous and local communities” that involve the sustainable use of biodiversity. States may not promote the broader use of such knowledge and practices without the permission of those communities (Secretariat of the Convention on Biological Diversity, 2001, p.8). The Biodiversity Law also

recognizes indigenous and peasant knowledge about uses of biodiversity, protects related intellectual property rights, and refers to the same vague "local communities." Namely, article 82 declares that the Costa Rican government recognizes and protects the knowledge of uses of elements of biodiversity of "local communities and indigenous villages," known as "sui generis community intellectual property rights" (Asamblea Legislativa, 1998, p.8).

ACCESS NORMS

While enactment of the Biodiversity Law represented major progress in Costa Rica toward realization of the goals of the Convention on Biological Diversity, that country was then faced with the daunting task of developing regulations giving specificity to the many initiatives in this law. It is at this point that many progressive laws fade in significance, due to the development of weak regulations or none at all. This occurs for a variety of reasons, ranging from lack of funding and expertise, to opposition from powerful interest groups, to the fact that government leaders intended for the law to serve political purposes rather than to ever be effectively implemented. But such barriers were not decisive in Costa Rica, as that country developed access norms putting particular components of the Biodiversity Law into action. However, for reasons that should be explored more deeply through further research, this rule-making process was very slow and fraught with difficulties.

First of all, it took a year following the passage of the Biodiversity Law before CONAGEBIO was officially formed; while this law was ratified in May of 1998, CONAGEBIO was not created by the Ministerio de Ambiente y Energía (MINAE) (Ministry of Environment and Energy) until May of 1999. Subsequently, it was not until December of 2003 that CONAGEBIO completed the access norms. According to Silvia Rodríguez, a professor at the National University of Costa Rica who was actively involved in the development of these regulations, CONAGEBIO was held back as a result of a lack of political will among leaders in the Costa Rican government. This maintained a situation in which foreign companies were free "to take our resources, patent them outside of the country and return to sell them as expensive products" (González V., 1999, p.6A). Minister of Environment and Energy Carlos Rodríguez specified that his predecessor at MINAE filed a legal complaint contending that sections of the Biodiversity Law related to CONAGEBIO were unconstitutional. Even though this lawsuit did not legally require slowing the operation of this commission, it was the "policy" of the MINAE leadership to obstruct its activities (C. Rodríguez, personal communication, May 16, 2002).

Despite such obstacles, members of CONAGEBIO continued to work diligently, holding meetings twice per month, which by May of 2002 added up to 62 sessions and had allowed for the development of an advanced draft of the access norms (CONAGEBIO, 2002). According to Isaac Rojas of the Federación Costarricense para la Conservación del Ambiente (FECON) (Costa Rican Federation for the Conservation of the Environment), most important in allowing such progress was "the will to work" of the members of CONAGEBIO (Rojas, 2000, p.8). Probably particularly important in this regard was pressure from several groups with representatives on that commission. Specifically, the Mesa Nacional Campesina (National Peasant Board), the Mesa Nacional Indígena (National Indigenous Board), FECON, and the National University of Costa Rica's Programa Cambio Social, Biodiversidad y Sostenibilidad del Desarrollo (CAMBIOS) (Program on Social Change, Biodiversity and Sustainable Development) banded

together to push the rest of the membership of CONAGEBIO to prioritize developing new controls on bioprospecting and protections of sui generis intellectual property rights (Proyecto Estado de la Nación, 1999, pp.183-185).

For activists in other developing countries hoping to follow in the footsteps of Costa Rica in implementing the Convention on Biological Diversity, that country's experience in developing access norms should be sobering. Despite the continued presence of the factors mentioned earlier that facilitated the development of the Biodiversity Law, such as public opinion and international legal obligations, activists had to wage a difficult, multi-year battle in achieving these regulations. It appears that resistance from high-level government officials was important in slowing progress in carrying out the Convention on Biological Diversity in Costa Rica, but further research should identify if this was indeed the case and why.

It is hypothesized that resistance from leaders in the Costa Rican government was largely provoked by the potential for the access norms to obstruct scientific and economic development. In the case of the development of the Biodiversity Law, in contrast, danger to scientific research and economic growth was less immediate as well as diluted by other perceived benefits. Namely, this law calls for not just increased control of bioprospecting and basic research on genetic material and biochemicals, but also the consolidation of the protected areas system in Costa Rica, which would likely support ecotourism. Plus, this law would only be as impacting as made possible by implementing regulations. In other developing countries characterized by less democracy, desire to maintain fewer restrictions on scientists and business is likely to defeat calls for access norms that will in large part better protect the sui generis intellectual property rights of poorer rural communities.

Executing the Access Norms in Pursuit of Sustainable Development

Costa Rica's access norms as well as the most developed access and benefit-sharing measures in other countries are so recent that little has been learned from implementation (Convention on Biological Diversity, 2004, p.19). As a result, it still is not clear how effective Costa Rica's access norms will be. It seems that a fair measure of effectiveness is degree of attainment of "sustainable development," which accounts for several key societal goals. According to the International Institute for Sustainable Development, "for development to be sustainable it must integrate environmental stewardship, economic development and the well-being of all people-not just for today but for countless generations to come" (International Institute for Sustainable Development, 2005). Similarly, the World Business Council for Sustainable Development defines itself as "a coalition of 175 international companies united by a shared commitment to sustainable development via the three pillars of economic growth, ecological balance and social progress" (World Business Council for Sustainable Development, 2005). As expressed by these two authorities on sustainable development, this concept is generally understood to entail the joint achievement of economic growth, environmental sustainability and social equity. An analysis of Costa Rica's access norms indicates that, while they are likely to better distribute among Costa Ricans the profits generated from bioprospecting, more effectively protect the sui generis intellectual property rights of indigenous and peasant communities, and lead to the better stewardship of the environment, they also may weigh down more heavily than necessary upon persons carrying out scientific and commercial research,

working against scientific progress and economic growth. How well these norms will balance the goals of sustainable development will depend to a great degree upon how the members of CONAGEBIO and its Technical Office interpret and apply them. As explained in article 5 of these regulations, CONAGEBIO is responsible for making overarching policy on access, and the Technical Office will do the legwork of accepting or rejecting access solicitations, as well as overseeing the execution of access permits (Oficina Técnica, 2004, p.6).

AVOIDING EXCESSIVE BURDENS

Article 1 establishes the overarching goals of these norms: to control access to genetic and biochemical materials and to associated knowledge, innovations and traditional practices, to carry out this regulation in a manner that leads to the “just and equitable” distribution of any social, environmental and economic benefits derived from access, to also regulate in a way that protects sui generis intellectual property rights, and at the same time to facilitate both access to biodiversity in Costa Rica and technology transfer to that country (Oficina Técnica, 2004, p.5). Article 2 goes on to explain that the access norms will apply to both wild and domesticated biodiversity, located both on public and private property (Oficina Técnica, 2004, pp.5-6). Here we begin to see possible sources of resistance to the norms. Will “domesticated” biodiversity be construed by regulators to include the laboratory animals used by scientists in carrying out basic research and teaching students? Additionally, before the Biodiversity Law was enacted, Costa Rica’s legal regime for access was most developed regarding research in government protected areas. For instance, INBio conducted bioprospecting in national parks and was required to turn over to the government 10 percent of its research budget and 50 percent of any royalties it might receive as a result of a successful commercial product. Thus, the access norms entail a more dramatic increase in regulation of bioprospecting and basic scientific research on private lands. While private landowners and indigenous and peasant communities are likely to appreciate this greater protection of the plants and animals that they possess and their knowledge about their uses, it is not as clear how commercial and scientific researchers will respond to these new restrictions.

Article 6 defines key terms, which by restricting or expanding how provisions of the access norms might be interpreted, will have a major impact on implementation. Section (k) indicates that foreign scientists, even those wishing to conduct basic, noncommercial research on biodiversity, will need to have a “national counterpart” in Costa Rica who will “participate” in the research (Oficina Técnica, 2004, p.8). This requirement might be useful in pursuing one of the norm’s overarching goals- the transfer of technology to Costa Rica. But will such benefits make up for any reduced scientific research in Costa Rica, as a result of foreign scientists wishing to work alone or with counterparts from other countries deciding to carry out their research elsewhere? Section (n) is less clear, leading to further speculation about exactly how much of scientific research and teaching is regulated under the access norms. This provision defines the “basic research” to which the norms apply as “activity to investigate, examine, classify or increase knowledge about biological elements in general or their genetic or biochemical characteristics in particular, without an immediate commercial interest” (Oficina Técnica, 2004, p.9). If the norms regulate activity to “examine” “biological elements in general,” it appears that the Technical Office could legitimately apply them to a wide range of uses of biodiversity. Application might range from basic research on genetic material, which

could unintentionally lead to discoveries useful commercially, to basic taxonomy of organisms, which is much less likely to lead to the development of a commercial product. Indeed, article 3 declares that “the use of elements of biodiversity utilized as organic resources” is exempt from the access norms (Oficina Técnica, 2004, p.6). Article 6(s) defines “organic resources” as material from living organisms that are used as a whole or in “macroscopic parts” (Oficina Técnica, 2004, p.10). However, taxonomy and teaching examining organisms at a biochemical level, rather than in “macroscopic parts,” apparently would still be regulated under the access norms, likely to lead to resistance especially from academia.

Following the establishment of key definitions, the access norms contain many measures that might impose excessive burdens on basic and commercial research. For instance, article 8 explains that anyone merely contemplating accessing biodiversity for basic research or bioprospecting must first register with the Technical Office, which in the case of foreigners includes designating a “legal representative” who is a resident of Costa Rica (Oficina Técnica, 2004, pp.11-12). Article 9(1)(b) explains that in the actual solicitation for access, it is again necessary for foreigners to designate a legal representative that is a resident of Costa Rica, and research institutes in this country may be utilized for this purpose (Oficina Técnica, 2004, p.12). It is important to address whether such a requirement is worth possibly leading some scientists to forgo work in Costa Rica in order to save the time and money that would be spent in securing a legal representative. Associated costs would include loss of technology and knowledge transfer, which are highly valued in Costa Rica, long a leader in the developing world in research on biodiversity.

Furthermore, article 9(2)(m) requires parties applying to access biodiversity to study potential environmental and cultural impacts to such an extent that especially basic researchers might be discouraged. In addition to possible cultural impacts, applicants are to take into consideration whether research to be carried out might lead to genetic erosion or indirect harm to endangered species, species with reduced populations, or species that are banned for hunting (Oficina Técnica, 2004, p.14). In order to provide a thorough assessment of potential significance to culture, endangered species and prohibitions related to particular species, it would be necessary to review the scholarly literature and existing laws on these subjects, possibly necessitating the use of consultants with expertise in the natural sciences, social sciences and law. Such requirements are likely to lead not only students to forgo conducting their field research in Costa Rica, but also established researchers.

One of the key mechanisms in the access norms for achieving a more equitable distribution of benefits coming from research on biodiversity and better protection of the sui generis intellectual property rights of rural communities is the requirement that persons seeking to access biodiversity obtain the informed consent of the party controlling that biodiversity. Article 9(3) lays out the content for an informed consent agreement. Although these components are likely to promote social justice and better environmental protection, they may excessively burden especially basic researchers. Probably most significant in this regard are the elements described in article 9(3)(f) and (s). Section (s) declares that the party interested in accessing biodiversity and the party controlling that biodiversity should agree upon an amount to be paid to the latter, reaching as high as 10 percent of the researcher’s budget. Earlier, it is stated in section (f) that this percentage should be determined with consideration of the amount that the researcher

has agreed to pay for each sample of biological material (Oficina Técnica, 2004, pp.15, 17). Granted, it seems fair that the party providing biological resources be able to demand compensation. Nevertheless, in combination with all of the other requirements in the access norms, the prospect of having to pay a substantial amount for access is likely to lead some basic researchers to decide not to carry out their project in Costa Rica. Students and scholars often have limited research budgets, so having to pay an additional fee might make it undesirable or even impossible to carry out an intended project.

Putting further strain on especially researchers with smaller budgets is a related requirement in article 9(4)(c). In the case that the Technical Office does approve access, the researcher has only eight working days after approval to submit to the provider of biodiversity the agreed percentage of the researcher's budget (Oficina Técnica, 2004, p.18). Some researchers might not be able or desire to make this payment so soon and in a lump sum, as they have not yet gained access to their entire research budget. Additionally likely to be discouraging, 9(3)(s) identifies categories of parties to which such payment may be channeled, which in some cases are very vague. Among these parties are "the authorities of local communities and indigenous villages" (Oficina Técnica, 2004, p.17). As defined earlier in article 6(g), a local community refers to people living in the same geographic area, sharing a collective identity, and living in urban and rural areas (Oficina Técnica, 2004, p.8). First, it is very unclear which Costa Rican communities fit into this category; might all communities arguably fall under this definition? Second, in the case of peasant or "campesino" communities, how does the researcher determine the authorities with which to negotiate and turn over payments? Campesino communities do not have political hierarchies that are as clear as in the case of indigenous reserves in Costa Rica. Considering these potential problems, it might be useful for Costa Rica to modify its access norms along the lines of what has been done in the Philippines. In that country a main characteristic of a recent law is the establishment of distinct procedures for the accessing of genetic resources depending on whether they are to be used for research or commercial purposes (Convention on Biological Diversity, 2004, p.19).

The development of commercial products, made possible through bioprospecting, is also restricted by the access norms to such a degree that it is advisable to carefully examine whether the benefits of these restrictions will exceed costs. As indicated by articles 7 and 9 of these regulations, it is necessary to obtain a permit from the Technical Office and the informed consent of the party controlling biodiversity not only in order to conduct exploratory research on these biological resources to determine if a commercial product might be developed. It is also required that one obtain a distinct permit and informed consent before progressing to the development of a commercial product (Oficina Técnica, 2004, pp.11-19). However, the access norms do not clearly define when research has evolved from "bioprospecting" to "economic exploitation." Thus, how does a bioprospector know when to obtain a new permit and consent, and will the Technical Office have the capacity to effectively monitor bioprospectors to assure that they are obtaining these additional approvals when they have begun to develop a product? Other provisions lay an even heavier burden on bioprospectors developing a product. Particularly, article 9(5)(c) requires any party progressing from bioprospecting to economic exploitation to agree in the new informed consent to turn over up to 50 percent of any royalties to the providers of the biodiversity that is being utilized. Furthermore, if the bioprospector is developing products from natural resources found on their own property, it is still necessary to relinquish up

to 50 percent of royalties, but to CONAGEBIO (Oficina Técnica, 2004, pp.18-19). The possibility of losing such a substantial portion of royalties after investing large sums in research and development might lead some bioprospectors to decide to work instead in other biologically diverse countries, reducing prospects in Costa Rica for technology and knowledge transfer as well as job creation and tax revenues. Based upon an analysis of problems faced by Pacific Rim countries in regulating access, some researchers have recommended differentiated access regulation for low-tech and small-scale commercial users (Convention on Biological Diversity, 2004, p.22), and this appears worth considering in Costa Rica.

OBTAINING NECESSARY RESOURCES AND EXPERTISE

In addition to questions regarding how the Technical Office will interpret the access norms and to what extent these understandings will discourage scientific and commercial research that will bring benefits to Costa Rica, it is also important to examine how well prepared the Technical Office is to handle the numerous and often technical tasks involved in evaluating access solicitations and monitoring approved research and bioprospecting (not to mention assuring that such research is not taking place without a permit). Indeed, lack of technical expertise and budgetary constraints are among several factors that have presented the greatest obstacles in many countries to the development of national access and benefit-sharing measures. For instance, in case studies of Pacific Rim countries, it was found that monitoring of bioprospecting has proven difficult as well as expensive (Convention on Biological Diversity, 2004, pp.20-22).

The Technical Office, in 2005 only composed of five employees, is nevertheless responsible for overseeing a very technical and work-intensive regulatory process in a country with a history of hosting much research on biodiversity, basic as well as commercial. For instance, article 9(2) requires that applicants to access biodiversity must submit to this regulatory body as a part of a "Technical Guide" the type and approximate quantity of genetic or biochemical materials sought, the methods to be used to collect these materials, a review of previous research on these materials, and a study of potential environmental and cultural impacts of the research to take place (Oficina Técnica, 2004, pp.13-14). In order to effectively analyze all this information it will be necessary for the Technical Office to have access to expertise in the natural as well as social sciences. The responsibilities given to the Technical Office in article 24 also illustrate the need for such expertise. Here it is declared that, in deciding whether to allow or prohibit access, the Technical Office will consider a variety of environmental, public health, cultural, and legal factors, requiring research to be conducted by experts in various fields. For instance, the Technical Office must consider potential impacts on endangered species, human health and culture, as well as adherence to relevant environmental law (Oficina Técnica, 2004, pp.24-25). As of August of 2005, the Technical Office was composed of an executive director, a financial administrator, an attorney, a biologist, and a secretary, which appears insufficient to properly execute all of these technical requirements.

Article 15 requires the Technical Office to publish at the website of CONAGEBIO a summary of access applications and this office's decisions on them (Oficina Técnica, 2004, p.21). Even though the access norms have been in effect since December of 2003, as of October of 2005 this information still had not been made available at that website, no doubt to some

extent because this small office has a large workload (MINAE, 2005). The Technical Office is also in charge of making sure that access takes place according to approved permits. Article 20 declares that this office may carry out inspections in areas where access has been approved and investigate allegations of violations of access permits (Oficina Técnica, 2004, p.23). Until the Technical Office has a larger staff, it will have limited capacity to carry out such enforcement for research that is taking place at many remote sites around the country.

REASONS FOR OPTIMISM

On a more positive note, other components of the access norms give reason to believe that CONAGEBIO and its Technical Office will implement the Biodiversity Law, and in effect the Convention on Biological Diversity, in a manner better pursuing sustainable development. Namely, these provisions indicate avenues by which the access norms can more effectively protect the environment, the rights of Costa Ricans, and especially those of rural communities, while not weighing down more heavily than necessary upon the business sector and scientific researchers. For instance, in order to have a larger number of persons providing labor and expertise, CONAGEBIO might take advantage of the allowance in article 5 of designating ad hoc committees for the provision of advising to the commission (Oficina Técnica, 2004, p.6). Furthermore, article 21 allows for research institutions to obtain a “framework agreement” with CONAGEBIO, if approved by the Technical Office (Oficina Técnica, 2004, p.23). While it is not clear from the norms how such an agreement would function, it appears to be an attempt to streamline the application process by allowing institutions to carry out multiple research projects under the umbrella of one agreement.

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Acronyms

CAMBIOS	Programa Cambio Social, Biodiversidad y Sostenibilidad del Desarrollo- Program on Social Change, Biodiversity and Sustainable Development
CONAGEBIO	Comisión Nacional para la Gestión de la Biodiversidad- National Commission for the Management of Biodiversity
FECON	Federación Costarricense para la Conservación del Ambiente- Costa Rican Federation for the Conservation of the Environment
INBio	Instituto Nacional de Biodiversidad- National Institute of Biodiversity
MINAE	Ministerio de Ambiente y Energía- Ministry of Environment and Energy

