THE CONVENTION ON BIOLOGICAL DIVERSITY'S FIFTH ANNIVERSARY: A GENERAL OVERVIEW OF THE CONVENTION—WHERE HAS IT BEEN AND WHERE IS IT GOING?

I. INTRODUCTION

Biological diversity is based on the study and usage of living genetic matter, categorized into species.[1] To date, a conservative estimate of thirteen to fourteen million species have been identified and classified.[2]

1. A species is generally defined as "a population of organisms that can at least potentially breed with one another, but do not breed with other populations." Paul Roberts, Note, *International Funding for the Conservation of Biological Diversity: Convention on Biological Diversity*, 10 B.U. INT'L L.J. 303, 506 (1992).

2. The exact number may never be known. Estimates vary, with some scientists speculating that the count could be near one hundred million distinct species. *See Biodiversity Secretariat Open for Business in Montreal*, United Nations Environmental Program Press Release (Feb. 1996) <http://www.unep.ch.>.

Approximately 250,000 species have become extinct in the five years since the drafting of the Convention on Biological Diversity.[3] This rate is approximately 1,000 to 10,000 times the rate of extinction estimated for the past 65 million years.[4] A study by the World Conservation Union (IUCN) listed 5,205 species currently at risk.[5]

Extinction, the dying out of a species, has occurred since the birth of the first single-celled organism.[6] Most scientists agree that, while extinction is a natural part of the earth's evolution, the increased rate of extinction in recent years is largely attributable to human causes.[7] Furthermore, without decisive action to arrest this rate of extinction, the earth will lose twenty percent of its living species by 2020, largely attributed to human activities.[8]

In simple terms, biodiversity is commonly referred to as the "variety and variability of all species of plants, animals and microorganisms, and their ecosystems."[9] The final draft of the Convention on Biological Diversity selected the following definition from among many offered: "'Biological diversity' means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between

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3. This species loss estimate originates from scientists awarded the 1996 United Nations Sasakawa Environmental Prize. The 1996 Prize-winning researchers submitted projects on deforestation and biodepletion. These scientists estimated the annual extinction rate at 50,000 species. *See Environment Award Prize Winners Cite Massive Extinction, Urge Drastic Measures*, Int'l Envtl. Rep. (BNA) No. 5, at 5 190 (Mar. 6, 1996).

4. *See id.*

5. This total included 1096 threatened mammals (25% of the total mammal species cataloged), 1117 threatened bird species (11% of total), 253 threatened reptile species (20% of total), 124 threatened amphibian species (25% of total), and 734 threatened fish species (34% of total). *Group Warn Quarter of World Mammals Face Extinction*, JAPAN WEEKLY MONITOR, Oct. 7, 1996, *available in* LEXIS, World Library, Txtlne File.

6. In their book, *The Sixth Extinction*, Richard Leakey and Robert Levin track the progression of the extinction cycle and explain commonly held theories on the five major extinction cycles in the earth's history. RICHARD LEAKEY & ROGER LEVIN, THE SIXTH EXTINCTION 46 (1995).

7. Leakey and Levin's premise is that humans have brought about the beginning of the sixth extinction cycle through habitat destruction, over-exploitation, pollution and other causes. *See id.* at 233.

8. *See Statement Before the Senate Foreign Relations Committee,* U.S. Dept. of State Dispatch, v. 5, no. 16 (April 18, 1994) (statement of Timothy Wirth, Under Secretary for Global Affairs, Statement before the Senate Foreign Relations Committee (Apr. 18, 1994), *available in* LEXIS, News Lib. ASAPII file [hereinafter Statement of Timothy Wirth].

9. *The Convention on Biological Diversity: An Overview* (visited Dec. 1, 1996) <http://www.access.digex.net/~bionet/cbdoverv.html.>.

species and of ecosystems."[10] Biological diversity seeks to prevent the untimely demise of differentiated species.

While states and nations often disagree on the method for protecting diversity, common goals have developed. These goals include accurately monitoring existing species, taking steps to protect those areas in danger from development, over-exploitation and other threats, and actively recovering populations nearing extinction. In addition to the individual species assessment and protection component of diversity conservation, nations also seek to develop methods of sharing the technology and data derived from biological research. Ecosystem management is now thought to be "the most effective way to conserve biological diversity."[11]

Traditionally, northern and southern nations have disagreed on how to properly ensure that developing nations receive fair compensation for exportation of biological/genetic resources, while ensuring adequate intellectual property rights for the developers' research expenditures and innovative uses for the raw materials.[12] Additionally, fair division of the financial responsibility for protection regimes is constantly divisive. This particular issue involves not only state parties, but nongovernmental organizations (NGOs) and political bodies as well. Ownership of, access to, and allocation of scarce resources under conservation supervision increases debate.[13] Finally, threats posed by biologically and genetically engineered organisms to indigenous populations have organized many nations behind a banner calling for biosafety regulations.[14]

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10. Convention on Biological Diversity of the United Nations Conference on the Environment and Development, June 5, 1992, art. 2, U.N. Doc. DPI/1307, *reprinted in* 31 I.L.M. 818, *also available at* <http://www.unep.ch/bio/conv-e.html> [hereinafter Convention].

11. Anthony D'Amato & Sudhir Chopra, *Whales: Their Emerging Right to Life,* 85 AM. J. INT'L L. 21 (1991), *reprinted in* INT'L ENVIRONMENTAL LAW ANTHOLOGY (Anthony D'Amato & Kirsten Engel eds., 1996).

12. *See* GARETH PORTER & JANET WELSH BROWN, THE ENVIRONMENT AND WORLD POLITICS 131 (1991).

13. *See* Catherine Tinker, *The 'Rio' Environmental Treaties Colloquium: A 'New Breed' of Treaty: The United Nations Convention on Biological Diversity*, 13 PACE ENVTL. L. REV. 191 (1995) (providing an excellent identification of the implications of unresolved *ex situ* conservation collections and the Chernobyl effect on the *ex situ* collection in Kiev, Russia).

14. Biosafety includes: labeling of genetically engineered items and the ethical and moral concerns of destroying lethal and dangerous strains of bacteria such as smallpox and polio. *See* Carolyn Hong, *Need for Biosafety in Gene Technology,* NEW STRAITS TIMES, July, 28, 1996, at 16; *Guidelines on Genetically Modified Organisms,* NEW STRAITS TIMES, Jan. 29, 1997, at 2. The United Nations Environmental Programme has completed an online International Register on Biosafety at <http://irptc.unep.ch/biodiv/welcome.html>. *See First International Biosafety Register Launched on Internet by Global Firms, UNEP*, 19 Int'l Envtl. Rep. (BNA) no. 14, at 607 (July 10,

The United Nations' initiative to deal with these areas of agreement and dissension culminated in the Convention on Biological Diversity (Convention).[15] The purpose of the Convention is to protect the planet's valuable biological heritage and ensure fair and equitable transfer of biological resources.[16] Because 1997 is the five-year anniversary of the Convention on Biological Diversity, a general, comprehensive review of the document is appropriate. Such a review provides a perspective from which to alter or reinforce original assumptions on the validity and feasibility of such an ambitious undertaking. This review is especially crucial in light of the 1998 meeting of the Rio Declaration parties, the purpose of which is to assess the progress toward environmental goals and to modify agreements reached at the Rio Conference on the Environment of 1992.[17]

Though the Convention is five years old and has garnered global support, significant obstacles to achievement of the broad directives remain, robbing the Convention of the success the signatory parties anticipated. During the past five years, however, administrative functions assigned by the Convention's leaders, such as reporting requirements, have increased, without commensurate achievements in the delicate tasks of obtaining funding commitments, and regulating intellectual property rights and technology transfers to developing nations. The spirit of the Convention suffers because countries focus their efforts on redefining traditional problems of biodiversity loss while holding fast to traditional views on difficult issues, rather than seeking creative solutions to problems previously defined *ad nauseum*.

To understand the Convention's significance, it is necessary to understand the general principles of biological diversity, the history behind the Convention initiative and the compromises in the final Convention language. This Comment addresses the Convention's characterization of traditional biological conservation objectives and identifies pragmatic (and lethargic) attempts to satisfy these objectives. Part II covers the history and reasoning behind the Convention and provides a framework from which to undertake a detailed deconstruction of the Convention's objectives. Part II also outlines the goals of the

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1996). The Ad Hoc Expert Group on Biosafety is also scheduled to meet May 12-16 and October 13-17, and will likely meet in Montreal, Canada.

15. Convention, *supra* note 10.

16. *See* Convention, *supra* note 10, preamble.

17. *See* Yvett Collymore, *Environment Groups Hope to Revive Earth Summit's Promises,* IPS, Jan. 11, 1997, *available in* LEXIS, News Lib., Inpres File *See* Tinker, *supra* note 13, at 195. *See* Collymore, *supra* note 15.

Convention. Part III discusses the ratification process. Part IV explains the various parties' responsibilities under the convention. Part IV then critically assesses progress toward the responsibilities in the first five years and attempts to provide the reader with an understanding of the worth of the document as a whole. Additionally, Part IV briefly overviews the remaining objectives, identifying the areas lacking international consensus at even a basic level. A critical look at the success of the overall Convention in terms of other international agreements concludes the comment.

II. GOALS OF THE CONVENTION

The Convention on Biological Diversity is the first international commitment to preserving the planet's biological structure.[18] Like the other Conventions developed at the Rio Conference, the Biodiversity Convention is a comprehensive treatment of one distinct aspect of the larger global environmental problem.[19] The Convention seeks to preserve biological diversity by outlining common goals. These common goals then provide a framework for nations to use when negotiating trade and conservation agreements.

The Convention consists of forty-two legally binding articles outlining a wide range of ecological issues. By organizing a comprehensive partnership agreement among all signatories, the Convention fosters cooperation in biological and genetic research while preserving the core research material from extinction. Sharing the results of cooperative research is one of the goals of the Convention.[20]

For decades, developing countries have exported genetic and biological material.[21] Industrialized nations, who could best discover the value of the natural materials, reaped benefits incommensurate with the scraps thrown to the countries of origin.[22] The Convention seeks to remedy that historical impropriety. Each signatory recognizes the traditional method of transfer as inadequate and pledges to use the means available to fairly and equitably maintain a balance with producing

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18. *See* Tinker, *supra* note 13, at 195.

19. The other Conventions developed at the Rio Conference are the Convention on Sustainable Development, Convention on Climate Change and Desertification.

20. Convention, *supra* note 10, art. 16.

21. *See, e.g.*, William Schomberg, *Scientists Discuss Future of Brazil's Biodiversity,* REUTERS NORTH AMERICAN WIRE, Jan. 7, 1997, *available in* LEXIS, News Lib., Txtnws File; Maria Isabel Garcia, *Biodiversity: Countries of South Negotiate at a Disadvantage,* IPS, Nov. 2, 1996, *available in* LEXIS, World Lib., Inpres File.

22. *See* Schomberg, *supra* note 21.

countries in terms of technology transfer, sustainable exploitation and conservation.[23] Each signatory also pledges to support the Convention and its protocols financially through the Global Environment Fund.[24] Each of these aspects will be discussed in detail.

The Convention divides the broad field of biological diversity into three basic objectives. First, the Convention seeks to promote conservation of biological diversity.[25] The Convention promotes both *in situ* and *ex situ* programs.[26] Second, the parties commit to sustainable use of biological components.[27] In order to reach a broader consensus, the Convention recognizes the need for commercial development, but strives to achieve a balanced goal of sustainable use. Both conservation and economics are motivations for the sustainable use of resources. Countries can realize this goal through implementation of national conservation plans such as the national refuges and wilderness areas here in the United States. Third, signatory nations commit to fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[28] DNA, and the chromosomes and genes constituting it, is the common denominator of biological diversity. The focus on integration with developing countries (who control access to the vast majority of species) encourages the creation of joint ventures, enabling fair sharing of the benefits and results of biological research and engineering. Countries who have signed and ratified the Convention have used these three principles when developing their national programs.[29] In a subsequent section, a review of some of the programs developed within the Convention framework illuminates these concepts.

III. RATIFICATION OF THE CONVENTION

During the time the Convention was open for signature, over 150 nations affixed their approval to the document either at the 1992 Earth Summit in Rio de Janeiro, Brazil, or at the United Nations Headquarters

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23. Convention, *supra* note 10, Preamble.
24. *See id*. art. 20.
25. *See id.* art. 1.
26. *See id.* art. 2.
27. *See id*. art. 1. Sustainable use is the level of use which maximizes the benefits of the resource without depleting the population required to replenish the stock for consistent future use.
28. *See id*.
29. *See infra* Part III.A.; *see also* Convention, *supra* note 10, art. 18; *Decision III/16: Ways to Promote and Facilitate Access to and Transfer and Development of Technology, as Envisaged in Articles 16 and 18 of the Convention,* Conference of the Parties to the Convention on Biological Diversity, 3d mtg., UNEP/CBD/COP/3/38 (1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/cop30016.htm>.

in New York.[30] The treaty entered into effect in December 1993, 90 days after the deposit of the ratification of the thirtieth state, Mongolia.[31] As of August 1, 1996, the Convention touts an impressive 149 members, four additional states who have accepted the treaty but not ratified it, and four entities who have approved the treaty (three states and the European Union).[32]

The impressive list of signatories is overshadowed, however, by the fact that the Western nonsignatory nations (Belgium, Iceland and the United States) possess tremendous power that could cripple the Convention's effectiveness.[33] The United States listed its principle reasons for rejecting the treaty as dissatisfaction with intellectual property rights (IPR) negotiations, funding commitments and biotechnology transfer terms.[34] With regard to IPR, the U.S. position was (and still is) that an international agreement which uses IPR as a constraint on trade and information transfer instead of a prerequisite to negotiations is unacceptable.[35] Additionally, with regard to the funding role of the Global Environment Facility, the United States saw the final mechanism as different from the role established in preliminary negotiations.[36] Lastly, without further explanation, a spokesman for the United States

30. *See* Convention, *supra* note 10, art. 33. The ratification notices were then transmitted back to a formal ratification depository administered by the Convention Secretariat. *See id.* art. 34. With nearly three-fourths of the world's nations signing the Convention, it was well on its way to international recognition. *See Recent Actions Regarding Treaties to Which the United States is not a Party*, 31 I.L.M. 1004 (1992). Each individual state or regional organization then followed its own domestic policy for treaty ratification. In the United States, ratification occurs when the President sends a signed treaty to the Senate for confirmation. The treaty then becomes a part of United States law. President Bush refused to sign the document at the Rio Summit. President Clinton signed the agreement and presented it to the Senate which has refused to ratify it.

31. *See* David Scalise, *International Intellectual Property Protections for Living Matter: Biotechnology, Multinational Conventions and the Exception for Agriculture*, 27 CASE W. RES. J. INT'L L. 83, 110 (1995).

32. The list of signatory nations is available from the Convention Clearinghouse on their World Wide Web site. *Convention Clearing House* (visited Mar. 18, 1997) <http://www.unep.ch/biodiv>. Of the 45 nonsignatories, nine are former Soviet or Yugoslavian republics, ten are African states, eight are small island nations or micro-states, nine are middle eastern oil exporting countries and four are Southeast Asian nations. This breakdown of countries originates from a comparison of nations in the signatory list on file with the Convention Clearinghouse and with the listing of the world's countries available in the 1996 World Almanac. Small island nations and micro-states are defined as nations with less than 3500 square miles of land mass.

33. *See id.*

34. *See* Statement of Timothy Wirth, *supra* note 8.

35. *See id.*

36. *See id.*

stated, "The convention does not treat biotechnology and biosafety appropriately."[37]

IV. EVALUATION OF PROGRESS TOWARD THE CONVENTION'S OBJECTIVES

The forty-two sections of the Convention outline responsibilities and duties for three main groups: Contracting Parties, the Conference of the Parties (COP), and the Secretariat. In addition, the main body of the Convention outlines general goals and objectives for subsidiary bodies.[38] While many sections limit enforceability by including the language, "as far as possible and as appropriate,"[39] several important sections clearly mandate action from nations or their sub-divisions, or the governing body of the Convention.

While significant obstacles to achievement of its broad directives remain, the overall success or failure of the Convention will remain somewhat unclear until the member parties submit their first comprehensive national reports, due at the fourth meeting of the COP in October of 1997.[40] Many member parties have already taken steps to develop new plans or adapt ongoing implementation plans to accurately assess, catalog and preserve biodiversity. To effectively evaluate the Convention's impact, one must look at the progress of the three bodies listed above—the individual member nations, the COP as a whole, and the Secretariat. This section explores the assignment of the main Convention objectives between the two main implementing bodies and critically examines the measures enacted to reach those objectives. Since the Secretariat takes its direction from, and functions as the enabling body of, the COP, Secretariat functions will be included in the discussion of the COP.

A. Member Parties' Progress Toward Objectives

A Party to the Convention (contracting party) is a state who has forwarded its statement of ratification to the Convention depository.[41] Because countries are the basic building blocks of the Convention and have the most control over the biological resources within their borders, a

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37. *See id.*
38. *See* Convention, *supra* note 10, art 25.
39. *See id.* arts. 7-10, 14, 20.
40. *See UNEP/GEF Launches Project On National Biodiversity Strategies and Action Plans* (visited Feb. 3, 1997) <http://www.unep.ch/bio/nbsap.html>.
41. *See* Convention, *supra* note 10, art. 34.

country's efforts are largely focused on legislation and program development. Directives to nation parties include development of the programs described below.

The Convention parties recognized, in Article 13, the need to educate the public on the needs of ecosystems to support diversity and mandated the development of educational programs.[42] The Convention requires each nation to develop a national action plan to conserve biodiversity and incorporate biodiversity conservation into other relevant national programs.[43] Educational and scientific training programs concentrating on biological studies are emphasized.[44] The Convention encourages research that is compatible with the overall goal of sustained biological diversity and recovery in damaged regions.[45] The signatories' responsibilities include taking advantage of media and formal educational programs in order to spread the message that conservation of biodiversity is vital.[46] The Convention also recognized the burden such educational mandates would have on developing countries and added a special clause to the beginning of Article 12 stating that contracting parties must take the special status of developing nations into account when implementing research and training programs.[47]

In addition to developing specific programs, the Convention directs states to develop and propose novel solutions to traditionally divisive issues.[48] The following directives are areas where no consensus currently exists, preventing wide ranging cooperative conservation efforts. Contracting parties are encouraged to find ways to open up access to genetic resources, subject to informed consent.[49] Additionally, the country providing the genetic resources is entitled to participate in the research, with the involved parties sharing any benefits fairly and equitably.[50]

Not only are the parties directed to open up access to genetic resources, the parties must also share that information.[51] Such

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42. *See id.* art. 13.
43. *See id.* art. 6.
44. *See id.* art. 12.
45. *See id.*
46. *See id*. art. 13.
47. *See id.* art. 12.
48. *See id.* art. 15 (Access to Genetic Resources), art. 16 (Access to and Transfer of Technology), art. 17 (Exchange of Information), art. 18 (Technical and Scientific Cooperation), and art. 19 (Handling of Biotechnology and Distribution of its Benefits).
49. *See id.* art. 15.
50. *See id.* art. 16.
51. *See id.* art. 15.

information transfers must be made to developing nations on "most favorable" terms.[52] The text of Article 16 states that the intellectual property laws of developed countries should not hamper or limit the goals of the Convention, but that where patents or other similar regimes are in place, the property rights attached should be respected.[53] In addition, each party to the Convention must take legislative, administrative, and/or policy measures to ensure that the private sector cooperates in the transfer to both developing governments and private sector entities in developing nations.[54]

The Convention contains a clear directive that information on sustainable use in biodiversity shall be shared among the parties, taking into account the special needs of less developed countries.[55] However, this directive is limited by the ability of parties to fulfill their obligation to share results while claiming that repatriation of the information is not "feasible."[56] In addition, national policies are urged as the method of ensuring proper joint efforts between signatory parties.[57] Such efforts include developing national capabilities through human resource development and institutional growth.[58]

Article 20 provides a mechanism for funding the Convention's endeavors.[59] Each party is to provide financial support according to its available resources and commensurate with the national objectives undertaken to meet the Convention's directives.[60] Developed countries are expected to contribute additional funding to compensate for programs needed to aid developing countries.[61] The exact interpretation of the amounts remains with the parties, subject to changes made by the body of ratifying nations as a whole, discussed in the following section.

In addition to transferring the actual resources, the parties to the Convention must find ways to finance the workings of the Convention infrastructure, including grants to developing nations for technology transfer programs, such as those outlined above.

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52. *See id.* art. 16.
53. *See id*.
54. *See id.*
55. *See id.* art. 17.
56. An example of information repatriation would be the return of research results from pharmocological research projects using indigenous methods, techniques, information, or genetic resources from a biodiverse region such as the Amazon rainforest. *See id.* art. 17, para. 2.
57. *See id.* art 18.
58. *See id.*
59. *See id.* art. 20.
60. *See id.*
61. *See id.*

Besides addressing general directives, such as cooperation with other states on biodiversity issues,[62] each member party is responsible for completing multiple specific program objectives within a prescribed time-frame.[63] Parties have made progress in many of the outlined areas, including developing national conservation plans and sustainable use plans[64] for domestic territories through the use of both *in situ*[65] and *ex situ* conservation programs.[66] Other areas where parties have made progress toward directives include developing educational programs, organizing a process for environmental impact assessment, implementing technology and genetic resource sharing procedures, sharing information and fulfilling funding obligations under the Convention.[67] The examples discussed below illustrate the parties' progress in meeting Convention objectives.

1. Technology Transfer and Genetic Resource Sharing

Although the Convention outlines provisions for the transfer of technology, the terms of such agreements are left to the countries engaging in such transfers.[68] Thus, one of the hottest debates along the North/South development line is the degree of access to biological resources and the terms under which access will occur. The debate divides countries engaged in technological advancements on one side and countries possessing the world's genetic storehouses on the other.[69] Without stronger enforcement by the providing countries and greater flexibility on the part of importing countries, few protection schemes will survive.

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62. *See id.* art. 17.
63. *See id.* arts. 6-9, 12, 19, 20.
64. *See id.* art. 6.
65. *See id.* art. 8.
66. *See id.* art. 9.
67. *See id.* arts. 6, 14, 16, 17, 20.
68. *See id.* art. 15.
69. An online search on biological and genetic trade yields new articles every week from around the world. For examples of countries actively engaged in the debate over fair access, *see Environment: Medicinal Plants Under Threat*, IPS, May 29, 1996, *available in* LEXIS, World Lib., Txtnws File; *Countries Mull Over Who Owns Future Cure for Cancer*, REUTERS EUROPEAN BUSINESS REPORT, Oct. 10, 1996, *available in* LEXIS, News Lib., Txtnws File; Curtis Horton, *Protecting Biodiversity and Cultural Diversity under Intellectual Property Law: Toward a New International System,* 10 J. ENVTL. L. & LITIG. 1 (1995); Klaus Bosselmann, *Focus: Plants and Politics: The International Legal Regime Concerning Biotechnology and Biodiversity,* 7 COLO J. INT'L ENVTL. L. & POL'Y 111 (1996); Erin B. Newman, Note and Comment, *Earth's Vanishing Medicine Cabinet: Rain Forest Destruction and Its Impact on the Pharmaceutical Industry*, 20 AM. J. L. AND MED. 479 (1994).

Many examples of technological and biological resource transfer can be found in the rich diversity resources of the Amazon rainforest. For example, an early documented case of non-equitable biological transfer appeared in the nineteenth century. Seeds from the Amazon rubber tree, a genetic resource of Brazil, were exported to Asia to develop cheap rubber tree farms. The commercial rubber production destroyed the South American market.[70] Later, curare, a biological derivative from the poisonous plant syrup used to tip Amazon Indian hunters' spears was refined into a muscle relaxant for use in surgery.[71] Current studies are underway exploring the feasibility of refining the paralyzing venom of a native Amazonian spider in order to slow the atrophy of brain disorders such as Alzheimer's.[72] Each of these examples involved export of a genetic, biological element for research and development of a (profitable) product in a country other than the item's country of origin—with terms less than favorable to the exporting country.

Under the Convention requirements, studies of indigenous practices and knowledge must be conducted with regard to fair payment to and participation of both the resource country and the indigenous source of the product.[73] Many industrialized nations feel this requirement is diametrically opposed to existing property rights regimes.

Nations themselves are negotiating bilateral agreements to protect their respective property interests in genetic resources and create legally enforceable rights. For example, in 1996, the nations of the Andean Pact[74] adopted a Common Regime on Access to Genetic Resources, which outlines processes for negotiating genetic access agreements between member countries.[75]

Additionally, several countries have negotiated cooperative research programs with private parties to exploit their national genetic resources, while cooperatively ensuring adequate property rights in both the host country's raw material and the research partner's applied science expertise. An example of a cooperative effort is the Merck-INBio Trade agreement between the Merck Pharmaceutical Company (Merck) and the

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70. *See Scientists Discuss Future of Brazil's Biodiversity*, REUTERS NORTH AMERICAN WIRE January 7, 1997, *available in* LEXIS, News Lib., Txtnws File.

71. *See id.*

72. *See id.*

73. *See* Convention, *supra* note 10, arts. 15, 16.

74. The countries of Bolivia, Columbia, Ecuador, Peru, and Venezuela comprise the Andean Pact.

75. *See Biodiversity: Countries of South Negotiate at a Disadvantage*, IPS, Nov. 2, 1996, *available in* LEXIS, World Lib., Inpres File.

Costa Rican research organization Instituto Nacional de Biodiversidad (INBio).[76] INBio, a private nonprofit organization, agreed to provide samples of plants, animals and soil to Merck, who would have exclusive development rights for two years and patent rights to any drugs derived from the natural materials.[77] In return, Merck agreed to pay INBio royalties on revenues from such products and to provide advance payments of cash and equipment.[78]

Daniel Putterman, in his article, *Model Material Transfer Agreements for Equitable Biodiversity Prospecting*, sets forth two draft material transfer agreements to facilitate development of such agreements in negotiating nations.[79] This article emphasizes national and local rights to the resources and the need to enable research and development of the genetic materials.[80] The article outlines draft agreements for three types of research agreements, each focusing on a different type of protection. The first category is genetic resources as a property right which can be traded under a financial market system or a barter system for alternative technology.[81] The second category is intellectual property, suitable for legal protection under standard property law in many countries.[82] Lastly, Putterman examines the category of traditional knowledge, information not protected under traditional Western property law.[83]

This last topic, indigenous and local rights to knowledge, innovations and practices, is particularly amorphous. Two working papers were disseminated at the third COP in Buenos Aires on the subject.[84] Although the Convention explicitly covers such practices, the parties have made little progress as a whole. In contrast, individual nations, such as Colombia, have made progress. Columbia recently passed special legislation recognizing the wealth of ethnic

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76. INBio was originally chartered by the Ministry of National Resources, Energy and Mines (MIRENEM) in 1989. *See* Chris Horton, *Protecting Biodiversity and Cultural Diversity Under Intellectual Property Law: Toward a new International System*. 10 J. ENVTL. L. & LITIG. 1, 30 (1995).

77. *See id.* at 31 (citing Ana Sittenfeld & Rodrigo Gamez, *Biodiversity Prospecting by INBio, in* WORLD RESOURCES INSTITUTE, BIODIVERSITY PROSPECTING 69, 92 (1993)).

78. *See id.*

79. Daniel M. Putterman, *Model Material Transfer Agreements for Equitable Biodiversity Prospecting*, 7 COLO J. INT'L ENVTL. L. & POLICY 149, 153 (1996).

80. *Id.* at 151-52.

81. *See id.*

82. *See id.*

83. *See id.*

84. *Consideration of Articles 6 and 8 of the Convention,* Conference of the Parties to the Convention on Biological Diversity, 3d mtg., Agenda Item 7.1 paras. 13-15. UNEP/CBD/COP/3/11 (Sept. 18, 1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/cop3_11_vfinal.htm)> [hereinafter *Consideration of Articles 6 and 8*].

communities.[85] To emphasize Colombia's commitment to indigenous rights, Colombian Vice Minister of the Environment, Ernesto Guhl, stated that any contract negotiated for access to genetic raw materials for research will not be awarded without "direct consultation" with the indigenous communities.[86]

2. National Conservation Plans and Surveys

To protect species, scientists use various methods of conservation. Scientists separate conservation methods into two basic categories depending on where the species is protected. These two conservation methods are *in situ* conservation and *ex situ* conservation. *In situ* conservation is preservation which is carried out within the country of origin, such as in game reserves, national parks and wildlife sanctuaries. The goal of this type of conservation is to preserve not only the species and diversity in general, but to preserve the complex interdependent web supporting the species, including habitat and food sources.[87] Examples of *in situ* conservation include Yosemite National Park in the United States, Volcano National Park in Rwanda, and the Cockscomb Basin Wildlife Sanctuary in Belize.[88]

Ex situ conservation is preservation which is conducted within a mechanically controlled environment, such as botanical gardens and zoos, preferably in the species' native geographic area.[89] The London Millennium Seed Bank, Kiev Botanical Garden, St. Louis Zoo, Lone Pine Koala Sanctuary and the Annapurna Conservation Area in Nepal are examples of *ex situ* conservation programs.

One of the most important facets of conservation programs is the accurate calculation of individuals within a species or geographic population. Based on population numbers and biological information on breeding and life span, conservationists can adapt conservation plans and

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85. *See Special Unit to be Formed by Early 1997 for Applications on Genetic Resource Access*, Int'l Envtl. Rep. (BNA) No. 22, at 988 (Oct. 30, 1996).

86. *See id.*

87. *See* Convention, *supra* note 10, art. 8.

88. Volcano National Park in Rwanda is the home of the mountain gorilla population where researcher Diane Fossey performed her pioneering studies later documented in the movie "Gorillas in the Mist." Volcano National Park recently received seven new inhabitants—baby gorillas born into the existing groups in the park. *See* World Wildlife Fund, *New Mountain Gorilla Births an Encouraging Sign*, FOCUS, Sept.-Oct. 1996, at 1 (World Wildlife Fund Newsletter). The Cockscomb Basin Wildlife Sanctuary in Belize is the world's only jaguar reserve. *See* World Wildlife Fund, *Belize*, FOCUS, May-June 1996, at 5.

89. *See* Convention, *supra* note 10, art. 9.

propose national legislation to protect threatened or isolated populations of a species.

Effective biodiversity preservation depends on baseline calculations of existing, threatened, and endangered species which serve as a starting point for conservation programs and preservation plans.[90] Although many scientists do offer methods for measuring species, the term "measuring" is misleading; a more appropriate label would be "estimating." In the words of Timothy Wirth, "[w]e can measure the distance to the moon to a matter of centimeters, but we can't even narrow estimates of the number of species here on earth to below a factor of ten."[91]

Of the Convention objectives, the most promising progress has been made toward the use of the above surveying methods and development of national conservation plans. If the countries currently assessing biological resources share their knowledge on conducting accurate, cost-effective methods and support similar projects in fellow countries, each member country should complete a national survey and plan by the target date of October 1997.

On every populated continent, countries are surveying biodiversity resources and investigating ways to protect their diversity resources. Overall, at least ten distinct methodologies are in practice including the GAP Analysis Technique used by the United States Fish and Wildlife Service, Conservation Needs Assessment implemented in Papua New Guinea, Gradsect sampling used in Sri Lanka, several permutations of Rapid Assessment Priority (RAP) techniques, and the All Taxa Biodiversity Inventory (ATBI) program jointly developed by the University of Pennsylvania and INBio of Costa Rica.[92]

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90. Several methods exist for measuring biodiversity. In *The Sixth Extinction*, Richard Leakey and Robert Levin describe three basic methods for conducting calculations. The first method is called Alpha diversity, which measures the number of species within a predefined ecological community. A second method of measurement is Beta diversity, which compares species composition in differing neighboring communities. The third calculation method, Gamma diversity, measures species over a larger geographical region including separate, similar habitats. LEAKY & LEVIN, *supra* note 6, at 100-01.

91. *See* Statement of Timothy Wirth, *supra* note 8. Understandably, changing the method of calculation may alter the final assumptions from which researchers draw conclusions and policy makers develop action plans. "Without such a measure, it is not possible to know whether one allocation of conservation resources is more effective than another." Andrew R. Solow & James M. Broadus, *The Meaning of Biodiversity: Issues on the Measurement of Biological Diversity*, 28 VAND. J. TRANSNAT'L L. 695, 697 (1995).

92. At the third COP, the Executive Secretary promulgated a comprehensive report detailing current methods and techniques used to catalog and preserve biologically diverse areas. The document not only listed the methodologies of the techniques used by various countries, it

In addition to developing or refining methods by which to improve inventory assessment, many nations have substantively utilized available methods to begin developing national biodiversity programs. In Asia, Nepal has forged ahead by opening an institute for biodiversity studies funded under a comprehensive economic package.[93] Malaysia leads developing countries with movement towards a national plan for its highlands, aided in its efforts by the World Wildlife Fund.[94] In April, 1996, Japan began a comprehensive five year biodiversity inventory focusing not only on the species, but also on the intrinsic genetic makeup of the species.[95]

Hong Kong recently finished a biodiversity survey with encouraging results.[96] The results indicate that Hong Kong has managed to protect forty percent of its land,[97] a percentage in sharp contrast to areas of Southern China where ninety five percent of the original wildlife habitat has been destroyed.[98] Hong Kong can also boast of having more land under environmental protection plans than Great Britain.[99] Unfortunately, while terrestrial protection seems to be doing well in Hong Kong, freshwater and saltwater areas lag behind, leaving species such as the Chinese white dolphin insufficiently protected.[100] In addition, the government of Hong Kong is still struggling to balance species preservation and development issues.[101]

Other areas of the world also have progressed toward their objectives. The Convention's funding body, the Global Environment

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systematically outlined costs, human resource needs, time requirements, and added the pros and cons of each methodology. *Appraisal of the SBSTTA Review of Assessments of Biological Diversity and Advice on Methodologies for Future Assessments*, Conference of the Parties to the Convention on Biological Diversity, 3d mtg., Agenda Item 8.2, UNEP/CBD/COP/3/13 (Sept. 15 1996), *also available at* <http://www.iisd.ca/linkages/boidiv/cop_13_vfinal.htm>.

93. *See New Airport and Water Supply Scheme and Institute Planned in Arunachal Pradesh*, BBC Summary of World Broadcast, (Jan. 29, 1997).

94. *See A Grim Outlook for Our Ecology*, SOUTH CHINA MORNING POST, Jan. 27, 1997, *available in* LEXIS, World Lib., Schina File [hereinafter *Grim Outlook*].

95. See Agency to Embark on Genetic Survey of Nation's Animals, JAPANESE SCIENCE SCAN, Jan. 1996, *available in* LEXIS, World Lib., Txtlne File.

96. The Hong Kong survey sought to identify not only which plants and animals live in the country, but also where the populations occur. *See A Grim Outlook, supra* note 94.

97. *See id.*

98. In Guangdong, for example, all but one percent of the once abundant woodland has been destroyed. *See id.*

99. *See id.*

100. *See id.*

101. *See id.* One example of these conflicting goals is the recent Privy Council ruling favoring a developer seeking to build adjacent to the protected Mai Po marshes, a Ramsar site. The Ramsar Convention seeks to protect waterfowl habitat by listing areas rich in waterfowl species.

Facility (GEF) recently approved a $20.1 million dollar grant to Russia to enable fulfillment of its national obligations under the Convention.[102] The grant will fund four major initiatives to organize a management program, protect the Lake Baikal region, improve biodiversity strategies, and create an endowment for protected areas.[103]

Elsewhere on the globe, New Zealand issued a formal policy statement in January, 1997, listing environmental preservation as a top priority.[104] African nations have also progressed significantly in the assessment area. The GEF funded a request from Kenya, Uganda and Tanzania during the 1996 funding cycle, initiating a $10 million dollar project to assess the biodiversity issues in the three nations.[105] This initiative is the second such project for the region which includes the Minziro-Sango forests, the Rivt valley lakes and portions of the Kilimanjaro forests.[106]

Oman has also taken concrete steps to implement the Convention's directives. The Oman Ministry of Regional Municipalities and Environment (MRME) recently unveiled a draft national conservation strategy, which was drawn up by a diverse committee, including both public and private sector representatives.[107] The Oman government currently seeks to provide legal protection for its indigenous species.[108] For example, a new regulation requiring permits to enter a protected area has limited the number of visitors allowed in the Ras Al Hadd area, where Indian Ocean sea turtles nest.[109]

On the other side of the globe, Ireland's national biodiversity plan is underway. This plan complements the existing comprehensive categorization of native species, which also provides information on the

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102. *See World Bank Approves Aid to Russia for Capital Markets and Environment*, Int'l Trade Reporter (BNA) No. 23, at 945 (June 5, 1996).

103. *See id.*

104. The statement included plans for establishing national policies on "land management and indigenous biodiversity." *Coalition Deal: The facts*, WAIKATO TIMES, Jan. 16, 1997, *available in* LEXIS, World Lib., Curnws File.

105. *See East Africa Biodiversity Project to Start in August*, XINHU NEWS AGENCY, Jan. 8, 1997, *available in* LEXIS, World Lib., Xinhua File.

106. *See id*.

107. *See Oman Celebrates Environment Day Today*, TIMES OF OMAN, Jan. 8, 1997, *available in* LEXIS, World, Lib., Curnws File.

108. The species in Oman include more than 400 bird species, 75 species of amphibian and reptile, four species of sea turtle, 13 varieties of dolphin and more than 700 different plants. *See id*.

109. The areas of Oman already under protection include the Arabian oryx sanctuary, named a UNESCO World Heritage site in 1994. *See id*.

relative health of native species and a listing of endangered, threatened, vulnerable or extinct species.[110]

Ahead of many other nations, France revealed its national biodiversity action plan in late 1996.[111] The report, 320 full color pages, outlines threats to biodiversity and lists the steps the government will take to protect its biological heritage.[112] The French report is a model for other nations' plans because it was designed for non-technical readers and breaks the protection plan into three areas: definitions, threats, and the French and European laws covering the topic.[113]

Though the impact of such national biodiversity plans will not be known for several years, several countries are limiting the effectiveness of their plans even before the ink dries. Many plans suffer from two common maladies: untimeliness and inconsistency. Many nations, though working toward completion of comprehensive plans, proceed with development activities in stark contravention of the goals of biodiversity preservation or simply take no action to implement the plans.[114]

The French biodiversity action plan is an example of action directed toward two distinct conflicting goals. Though the plan outlines France's objectives for the future, little has been done to implement it.[115] A serious flaw is that "[t]his plan is presented as if the actual measures in place today will suffice to guarantee the protection of our biological diversity, but there is no new perspective, no ambition, or new ideas. . . ."[116]

The European Union as a whole is also falling behind in meeting its Convention responsibilities because the individual nations are not

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110. *See Government Ratifies Biodiversity Treaty, Begins Work on National Action Plan*, Int'l Envtl. Rep. (BNA) No. 8, at 316 (Apr. 17, 1996).

111. *See First-Ever Biodiversity Action Plan Released by Ministry of Environment,* Int'l Envtl. Rep. (BNA) No. 23, at 1015 (Nov. 13, 1996) [hereinafter *French Action Plan*].

112. *See id.*

113. *See id.* The Action Plan is available free of charge from the Ministry of Environment, Service de Presse, 20 av. Segur, 75006 Paris, France.

114. Often, countries do not incorporate the ideas of biodiversity into existing government infrastructure. In New Zealand, for example, the Conservation Department receives 20% of its budget from tourism, leases, licenses and other property-type activities. With such a sizable income raised from allowing access to conservation areas, where is the incentive to restrict access? *See Top Priority for Unique Species,* DOMINION, Jan. 13, 1997, *available in* LEXIS, News Lib., Curnws File.

115. *See French Action Plan, supra* note 111.

116. *Id.* (statement of Maurice Wintz, natural areas network director for France Nature Environment).

meeting the EC Directive on the Environment.[117] The French Prime Minister announced only three months prior to the release of the program that France would not implement the European Union Directive on Conservation of Natural Habitats and of Wild Flora and Fauna.[118] Though the EU provided 2.15 million ECUs (2.66 million U.S. dollars) to allow for computer networks, software, and training with which to implement the regional assessment plan, none of the European Union countries provided the proper information on habitat and biodiversity status by the June, 1996, deadline.[119]

A greater evaluation of the commitment to biodiversity will be possible in October 1997, when the member nations deposit their national plans at the third COP. However, at this point in time, the outcome is uncertain. Many nations are working diligently to complete working program goals on the existing time frame, but many others are simultaneously proceeding with biodiversity and development projects.[120] For the Convention to succeed, the principles of biodiversity preservation will need to be incorporated into every aspect of government funding, decision making, and project planning and assessment. One of the most effective ways to communicate the necessity for incorporation of biodiversity ideals is through education at all levels.

3. Education Programs

A second area of concern is in the development of training and education programs. Although the Convention outlines the need for scientific and technical education programs, assessment of the progress in this area is more difficult.[121] The difficulty arises because most of the developed nations currently offer advanced education programs and technical training facilities, and therefore are less likely to advertise the addition of biodiversity programs to current curriculums. Some examples, however, illustrate the overall theme of biodiversity education, at least with regard to developed nations.

Africa's developing nations have taken the first steps toward fulfillment of the Convention objectives. The first East African project

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117. The European Union approved the Convention on December 21, 1993.

118. *See id.* (referencing EU directive 92/43).

119. *See Conservation Information Submitted to EEA Incomplete; Lack of National Inventories, Low Priority of Data Collection Cited*, Int'l Envtl. Rep. (BNA) No. 22, at 992 (Oct. 30, 1996) [hereinafter *Conservation Information Incomplete*].

120. The Hong Kong development of the Mai Po Marshes is a prime example of conflicting goals and implementation strategies.

121. *See* Convention, *supra* note 10, arts. 12, 13.

promoted education, training, and research in associated fields. The January 1997 New Zealand environmental policy statement referenced in the previous section listed environmental education as a chief goal of the new program.[122] The European Union, a signatory of the Convention, has made significant achievements in promoting education on sustainable development and biodiversity. For example, in January 1997, the European Union's Science, Research and Development Directorate-General released a call for proposals for training grants, which requested both new technologies and proposals for training biotechnologists in ethics, law and economics.[123]

4. Environmental Impact Assessment

An Environmental Impact Assessment (EIA) appraises the impact a proposed program or project will have on the surrounding environment and usually provides for public participation in the decision making process regarding a proposed activity.[124] An EIA process is vital to environmental protection because through the assessment process, policies and programs are, in theory, subjected to a rigorous justification process where possible negative impacts may be raised and minimized or mitigated through amendments. In some rare circumstances, EIAs have forced abandonment of huge public works projects because the possible adverse consequences of the development outweighed the benefits when public comments unearthed unforeseen dangers or legal violations.[125] At least seventy-five states currently require some type of environmental impact assessment process.[126] In addition, the World Bank, one of the organizers and overseers of the funding mechanism for the Convention, requires environmental impact assessments as part of its grant process.[127]

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122. *See Coalition Deal: The Facts, supra* note 104.

123. *See Biotechnology: Commission Launches Training Through Research Call for Proposals,* AGRI-INDUS. EUR., Jan. 31, 1997, *available in* LEXIS, News Lib., Curnws File.

124. *See* Convention, *supra* note 10, art. 4.

125. U.S. environmentalists will most readily identify the EIA process with the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370d (1994) (NEPA), and the impact NEPA, in conjunction with the Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1994), had on the Tellico dam project. *See* Tennessee Valley Authority v. Hill, 437 U.S. 153 (1978).

126. Tinker, *supra* note 13, at 208. One such process is in China. Construction projects in China now must have an impact statement approved by the National Environmental Protection Committee. *See Coal Use Poses Greatest Threat to China's Environment*, ASIAN ECON. NEWS, Feb. 1, 1994, *available in* LEXIS, World Lib., Txtlne File.

127. *See* World Bank Operational Directive 4.01.

5. Information Sharing

The Convention weaves a thread of cooperation through the text, binding all of the parties toward a common goal—preservation of biological diversity. To achieve this goal, the parties to the Convention must work together. One of the chief cooperative directives is to share information.[128] Fortunately, this directive is not hindered by limiting phrases, such as "as far as possible," found in other Convention articles.[129] While the exchange of technology and biological resources is plagued by intellectual property protection problems and valuation problems, few can disagree with the need to share information on biological resources, especially in those countries whose borders bisect the habitat of a single species' population.

Forging ahead in this area, Panama and Columbia signed a joint protective statement on the El Darien National Park ecosystem.[130] Panamanian President, Ernesto Perez Balladares spoke at the historic ceremony and stated that, "we encourage the exchange of technical, cultural, scientific, and demographic information on the communities and the biodiversity in the border region. . . ."[131] Protection of the 5800 square kilometer park is important because it lies at the border between the two countries and is one of the United Nations Education, Science and Culture Organization's (UNESCO) "reserve[s] of the biosphere and man."[132]

The European Union has also entered the information sharing negotiations by making plans for a computer network-based information integration program between the EU member states.[133] While the network as a whole is behind schedule, certain connections are nearing completion.[134] The Italian company that won the bid competition for the network has begun installing the computer network infrastructure in union offices, and anticipates an April 1997 completion date.[135]

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128. *See* Convention, *supra* note 10, art. 17.

129. *See id.* arts. 7-10, 14 (providing as examples of the language used to limit the force of the Convention's mandates).

130. *See Panama, Columbia Vows to Protect Environment,* XINHUA NEWS AGENCY, Feb. 1, 1997, *available in* LEXIS, Europe Lib., Xinhua File.

131. *Id.*

132. *Id.*

133. The network includes creation of the European Environmental Information and Observation Network (EINET). *See Conservation Information Incomplete, supra* note 119.

134. *See id.*

135. *See id.*

6. Funding Obligations

The financial grants from the Global Environment Facility (GEF) sponsor various activities, including enabling assistance to forty one countries, totaling $3.926 million dollars.[136] Without GEF's financial contributions to the fund, these grants would not be possible, and would leave many developing nations without the resources to meet their Convention obligations. Fortunately, many countries take their responsibilities seriously and generously support the Global Environmental Facility (GEF) funding mechanism.[137] Such support has enabled countries where biodiversity loss is great to take concrete steps to recover and protect endangered populations.[138]

However, the GEF funding mechanism as a whole is not receiving the amounts pledged.[139] Without financial aid to support programs in developing countries, the commitment to biodiversity pledged at the Rio Summit will fail.

B. COP's and Secretariat's Progress

The Convention outlines certain duties and responsibilities for the COP as the governing body. Performance of these duties fosters more efficient and successful completion of tasks by the signatory states under the Convention guidelines. The tasks outlined below give an indication of the types of decisions the Convention requires the Counsel to make.

One of the chief provisions of the Convention is the creation of a mechanism to collect, manage and disperse information and statistics on the global biological diversity.[140] Section three of Article 18 on

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136. *See Draft Report of the GEF to the Third Meeting of the Conference of the Parties to the Convention on Biological Diversity,* GEF Council, Agenda Item 10, U.N. Doc. GEF/C.8/10 (1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/cop3_5_vfinal.htm> [hereinafter *GEF Draft Report*] (enabling assistance funds assessment and inventory programs to enable development of the country's national conservation plans). Each member country must submit a report on the development of the national plan at the fourth COP in October of 1997.

137. The United States, which is not a ratifying member of the Convention, also contributes to the GEF by way of other environmental obligations. From 1993 to 1995, 20% of the 975.2 million dollars in total treaty funding went to activities related to the Biodiversity Convention, second only to the UN Framework Convention on Climate Change. *See* GENERAL ACCOUNTING OFFICE INTERNATIONAL ENVIRONMENT: U.S. FUNDING OF ENVIRONMENTAL PROGRAMS AND ACTIVITIES (1996) (GAO/RCED-96-234), *also available at* <www.gao.gov>.

138. Korea, upon signing the Convention in 1994, pledged 290 million U.S. dollars.

139. In 1996 the GEF received $315 million, a full 7 million less than the previous year, while the number of projects requesting funding has increased. *See Environment: Groups Hope to Revive Earth Summit's Promises*, INTERPRESS SERV., Jan. 11, 1997, *available in* LEXIS, News Lib. Curnws File.

140. *See* Convention, *supra* note 10, art. 18.

Technical and Scientific Cooperation directed the COP to determine how to establish a clearing House mechanism.[141] The pilot phase of the Biodiversity Clearing House Mechanism is a World Wide Web site providing information on the Convention, and interface to on-line databases of environmental information, a source of information on the meetings and decisions of the administrative and governing bodies, and many other helpful sources of information.[142] The COP is also responsible for making financing decisions for the Convention.[143]

Article 20 is perhaps the most important and most debated provision of the Convention for the COP. This provision covers the financial resources for implementing the Convention. Section two directs the COP to establish and maintain a list of developed countries who will voluntarily assist developing countries in meeting their financial obligations.[144]

Although the Convention did outline the information-sharing and financing structures, the COP is still responsible for year-to-year oversight decisions on allocation of financial resources.[145] Article 21 outlines the COP's method for determining policy, strategy and program priorities. This article also details criteria and guidelines for access and utilization of the financial mechanism by which the governing body shall dispense financial resources.[146] The COP determines the implementation and monitoring mechanisms for the financial structure after consulting with the organization entrusted with the operation of the financial mechanism.[147] An additional provision in Article 21 directs the COP to regularly review the effectiveness of the mechanism and recommend improvements if necessary.[148] The reviews of the financial mechanism and their findings are discussed in a following section.

In addition to functioning as a quasi-legislative body, the Conference of Parties is responsible for many administrative decisions. Article 23, the empowering section for the COP, sets the time frame for

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141. The Clearing-House Mechanism is a standard provision in other United Nations conventions. The Convention on Sustainable Development also provides for a clearing-house mechanism which can be found at <http://www.unep.ch/>.

142. *See The Clearing House Mechanism Homepage* (visited Mar. 19, 1997) <http://www.biodiv.org.>. The site includes an online "workstation" divided the information into eight easily navigable sections. *See id.*

143. *See* Convention, *supra* note 10, art. 20.

144. *See id.* para. 2.

145. *See id.* art. 21

146. *See id.*

147. *See id.*

148. *See id.*

the first formal COP meeting and provides for the scheduling of subsequent regular and extra COP meetings.[149] This article also directs the creation and modification of procedural rules and financial rules for Secretariat funding.[150] The article further mandates presentation and adoption of inter-COP meeting budgets.[151]

The COP powers include creation of an administrative body responsible for facilitating the global cooperative goals of the treaty.[152] This administrative body, the Secretariat, manages the day-to-day functioning of the Convention.[153] The Secretariat's duties include: arranging for and servicing meetings of the COP, performing any functions assigned by protocols added to the Convention, preparing reports on the execution of its duties and presenting them to the COP for review, coordinating with other international bodies, and entering into administrative and contractual agreements to further the goals of the Convention.[154] The COP has the power to add to these duties when necessary to satisfy the Convention's goals.[155]

The COP (alone, and through the actions of the Secretariat) has made progress on all five general directives, with varying degrees of success. Discussed in the section below are the COP's activities regarding information availability, review of the funding mechanism, administrative decisions, and additional non-categorized actions.

1. Information Dispersal

To facilitate rapid world wide access to the information collected by the Convention activities, the COP created a clearinghouse. The Clearing-House Mechanism recently concluded its pilot year with significant success.[156] At its inception, the pilot project incorporated

149. *See id*. art. 23.

150. *See id*.

151. *See id.* Article 23 also demands review of implementation of the Convention, including the form and interval for information transmission, review of all scientific, technical and technological advice submitted by members, consideration and adoption of protocols in furtherance of the Convention (Article 28), consideration and adoption of amendments (Articles 29, 30), consideration of amendments and annexes to protocols, adoption of annexes to the Convention (Article 30), and establishing subsidiary bodies to provide needed assistance.

152. *See id.* arts. 23, 24.

153. *See id.* art. 24.

154. *See id.*

155. *See id.* art. 24(1)(e).

156. As suggested at the second Conference of the parties, the COP planned the pilot program phase from January to September 1996, with a review planned for the third COP meeting. The pilot phase concluded in November 1996. *See Operation of the Clearing-House Mechanism to Promote and Facilitate Technical and Scientific Co-Operation*. Conference of the Parties to the

eight directives from the COP.[157] Chief among these directives were desires to develop national capabilities to take advantage of the information available, respond to demands, avoid duplication of effort, maximize efficiency, and minimize cost.[158] The Secretariat was able to facilitate the functioning of the Clearing-House by contacting several partners, including the World Conservation Monitoring Centre (WCMC), the Commission of the European Communities, Australia, Brazil, Canada and Germany.[159]

The first phase of the Clearing-House Mechanism, a dedicated site on the World Wide Web, is complete.[160] In addition, a second site at the UNEP provides many of the documents that are available through the Clearing-House Mechanism, allowing redundancy of data transfer to ease connection and transmission demands.[161] The Biodiversity Clearing-House site takes advantage of the most modern technology, utilizing self-indexing scripts and a powerful search engine allowing term searches in multiple fields. The most remarkable element of the site is the availability of a "question and answer service" staffed by a panel of environmental experts.[162]

In addition to the functionality of the Clearing-House Mechanism, the Secretary has made information-sharing arrangements with other major international agreements[163] to spread the available information as quickly and broadly as possible.[164] At the third COP meeting, The Executive Secretary of the Convention presented recommendations on the collection and sharing directives, discussing the Clearing-House, the proposed Biological Conservation Information

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Convention on Biological Diversity, 3d mtg., para. 4, U.N. Doc. UNEP/CBD/COP/3/4. (Sept. 18, 1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/3_4_final.htm> [hereinafter *Clearing-House Mechanism*].

157. *See id.* § 1, 2.

158. *See id.* § 7.

159. *See id*. para. 9.

160. *See id.* para. 22. The Convention Clearing-House is available at <www.biodiv.org/>.

161. *See UNEP Home Page* (visited Mar. 18, 1997) <www.unep.ch/biodiv.html>.

162. The Internet site allows rapid access to materials. The access speed will vary with the speed of the user's connection to an Internet service provider. The information gathered in this comment arrived by way of either the Tulane University connection to a fiber optic communications line or a 28.800 baud rate modem connected to a home telephone line.

163. *See Consideration of Articles 6 and 8, supra* note 84, paras. 13-15.

164. The Convention on Biological Diversity Clearinghouse now has cooperative plans for the transfer of articles and papers with the clearinghouses of the Ramsar Convention (waterfowl habitat), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Jakarta Mandate on Marine and Coastal Biological Diversity and the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention). *See id.* paras. 22, 26.

System (BCIS), and possible duplication of efforts with other organizations.[165] Steps suggested in the Secretary's recommendations include a concerted effort at non-electronic publication of information.[166]

Future goals include workshops designed for parties without current Internet access to determine non-network methods for spreading the information collected.[167] A newsletter is also a tentative non-electronic proposal for information presentation, which would include "new technologies, methodologies and national experiences."[168]

Lastly, the Executive Secretary announced the creation of a Clearing-House logo.[169] The logo is to be used by member nations on their national information dispersal sites which will link with the Convention Clearing-House.[170] The Secretary pointed out that the logo would allow easy identification of sites and sources affiliated with the Clearing-House.[171]

One of the oversights that should concern developing nations is the lack of advancement of information dispersal by non-electronic means. While the Executive Secretary cautioned the body to further develop non-electronic access to the Clearing-House information in the report on implementation of Articles 6 and 8, many of the other documents produced as guidance for future action overlook the information access completely.[172] Developing nations without sufficient food, shelter and clean water are not likely to spend limited financial resources on Internet infrastructure necessary for connection to the Clearing- House information site. Additional consideration is needed in this area to enable the Convention to succeed.

2. Financial Mechanism

Initially, the Convention parties accepted the Global Environment Fund (GEF) as an interim funding mechanism for the Convention's goals and objectives with a decision on adoption of a permanent mechanism to

165. *See id.*
166. *See id.* para. 30.
167. *See Clearing-House Mechanism, supra* note 156, para. 32.
168. *Id.* para. 34.
169. *See id*. para. 39.
170. *See id*.
171. *See id.*
172. *See Consideration of Articles 6 and 8, supra* note 84, para. 30.

come later.[173] Two additional COP meetings have passed and no consensus as to proper funding structures has been reached.[174] The most recent progress report by the GEF outlined in minute detail the steps taken to advance the Convention's objectives.[175]

This report categorized progress on the major GEF programs into three distinct spheres: operational programs encompassing long-term measures, enabling activities and short-term response measures.[176] By establishing categories, the GEF can create a hierarchy of requirements for each level of project proposal submitted under the objectives of one of the three spheres. All programs funded by the GEF entail "operational programs encompassing long-term measures . . . enabling activities . . . and short-term response measures."[177] The GEF report outlined the definition and categorization of such operational programs, identifying four initial program sectors of arid and semi-arid terrestrial systems, water-based systems including marshland and marine areas, forest systems, and mountain systems.[178]

Within the above categorizations, the GEF administered grant programs with impressive amounts of funding.[179] The report to the third COP alone lists GEF-financed projects totaling $3.926 million dollars in countries ranging from Argentina to Zaire.[180] An estimated forty additional projects are expected in the 1997 funding year to allow all member nations to meet their requirements under the Convention.[181]

In addition to grant funds, the GEF recently announced a pilot loan program to help small and mid-sized companies in developing countries preserve native biodiversity through several innovative

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173. *See GEF Draft Report, supra* note 136, para. 30. The GEF is a financial body administered by the United Nations Environment Program, the United Nations Development Program, and the World Bank.

173. *See id.*

174. *See id.*

175. In the pages of appendices that followed, the listings of projects funded and planned covered nearly every continent. *See id.*

176. *See id.* para. 8.

177. *Id.*

178. *See id.* para. 10.

179. *See id.* para 15.

180. Argentina received $289,000 for a general biodiversity conservation project; Zaire, in cooperation with Uganda, received US$25,000 to implement a Survival Plan for the Northern White Rhinoceros. *See id.* Annex A (List of Biodiversity Project Preparation Financing (Approved from July 1995 to July 1996)).

181. The projects include providing reports to the Convention on progress toward national conservation plans. Annex B to the report lists the entire schedule of funding for the 1996 funding cycle. The report lists and outlines the progress taken toward meeting each of the COP directives from the second COP meeting. *See id.* § V.

projects.[182] The pilot program offers long term, low interest loans to Poland, Egypt, Papua New Guinea and Costa Rica, totaling $2.9 million dollars.[183] Companies in these four countries have pledged to proceed with planned activities in a manner that reinforces the belief that private sector projects need not be at odds with environmental protection.[184]

The COP planned a comprehensive review of the GEF funding mechanism for biodiversity projects for their fourth meeting in October 1997.[185] Because 1997 will mark the first year national reports will be presented on the reach of implementation programs funded by GEF endowments, this fourth meeting should provide a more accurate benchmark by which to determine the success of the GEF. Until the comprehensive reports are complete, little can be done to evaluate the success or failure of project funding so that more adequate guidelines can be developed for future funding cycles.

3. Administrative Functions

As an initial matter, the COP reached working agreements for administrative matters at their first meeting in November, 1994.[186] The subsequent meetings have solidified and refined those initial decisions, demonstrating the member countries' consensus on how the Convention should function. Procedural rules promulgated at that initial meeting retain the same language with one exception: paragraph one of Rule 40.[187] This debated section outlines the method for reaching decisions on matters before the COP.[188] The difference of opinion stems from the determination of how the funding mechanism decisions shall be reached when parties are not in agreement, whether by consensus or by a two-

182. *See Joint IFC-GEF Funding Program Focuses on Involving SMEs in Developing Countries*, Int'l Envtl. Rep. (BNA) No. 20, at 883 (Oct. 2, 1996).

183. *See id.*

184. *See id.*

185. *See Financial Resources and Mechanism*, Conference of the Parties to the Convention on Biological Diversity, 3d mtg., para. 4, U.N. Doc. UNEP/CBD/CP/3/6 (Sept. 22, 1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/3_6_vfinal.htm7.>.

186. Information on the decisions reached at the first COP meeting is available from the Convention's *Clearing-House Mechanism* (visited Mar. 18, 1997) <http://www.unep.ch/biodiv.html>.

187. *See Pending Issues Arising From the Work of the Second Meeting of the Conference of the Parties*, Conference of the Parties to the Convention on Biological Diversity, 3d. mtg., para. 2, U.N. Doc. UNEP/CBD/COP/3/2 (Sept. 20, 1996) (referencing rules of procedure adopted at the first COP in decision I/1 Annex), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/cop3_2_vfinal.htm>.

188. *See id.*

thirds majority vote.[189] This paragraph remained an issue of contention through the second meeting of the party members in Jakarta, Indonesia, in November 1995 and was tabled until the third COP meeting in Buenos Aires, Argentina, in November 1996.[190] The issue was still pending on the agenda for the third meeting of the COP.[191]

The most significant development regarding the COP's supervision of the Secretariat is the opening of the new permanent Headquarters Offices in Montreal, Canada.[192] Although four countries originally offered to host the offices (Switzerland, Spain, Kenya, and Canada), Canada received the majority of votes.[193] The Canadian agreement included rent-free office space in the World Trade Center, telecommunications services and convention facilities.[194] A staff of more than twenty professionals will support the functions of the Secretariat and the Convention, and will service the needs of the more than 140 member governments and organizations.[195]

4. Additional Advancements

The Executive Secretary, in an effort to guide nations in developing biological diversity assessment programs, has recently elaborated on certain terms used in Convention.[196] The explanation of terms and definitions includes the following terms; ecospheres, endemic species, social and cultural components to ecosystems, and economic importance.[197] In addition, the Executive Secretary outlined what activities may threaten the goals of the Convention.[198] Such threats include pollution, habitat reduction, over harvesting, invasive species, climate change, and human actions.[199] Chief among such human actions

189. *See id.*
190. *See id.*
191. *See id.*
192. *See Montreal Elected to Host Biodiversity Secretariat*, ASIAN POLITICAL NEWS, Nov. 20, 1995, *available in* LEXIS, News Lib. Curnws File [hereinafter *Montreal Elected*].
193. *See Biodiversity Vote on Secretariat Set for November 13,* ASIAN POLITICAL NEWS, Nov. 13, 1995, *available in* LEXIS, News Lib., Curnws File [hereinafter *Biodiversity Vote*].
194. *See Montreal Elected, supra* note 192.
195. *Biodiversity Secretariat Open for Business in Montreal,* UNEP Press Release, Feb. 1996.
196. *See Options for Implementing Article 7 of the Convention,* Conference of the Parties to the Convention on Biological Diversity, 3d mtg., § 2.1, U.N. Doc. UNEP/CBD/COP/3/12 (Sept. 15, 1996), *also available at* <http://www.iisd.ca/linkages/biodiv/cop3/cop3_2_vfinal.htm>.
197. *See Consideration of Articles 6 and 8, supra* note 84, § 2.1.
198. *See id.* § 3.3 (proximate threats).
199. Additionally, the Executive Secretary lists twenty-one human actions that may contribute to the threats listed above. *See id.*

are land mismanagement, population, cost-benefit inequity, cultural choices, misdirected economic policies and poor national policies.[200]

V. CONCLUSION

In the past five years, the Convention on Biological Diversity has been procedurally successful by investigating, outlining and researching many aspects of biodiversity problems. Substantively, however, the Convention has accomplished little because of fundamental divisions between countries on intellectual property rights, biosafety issues and funding implementation.

In its 1997 State of the World Report, released in January 1997, the Worldwatch Institute urged the world's top eight "environmental heavyweights"[201] to organize a yearly meeting to discuss how best to achieve the Rio objectives, including satisfying requirements of the Biodiversity Convention.[202] In addition, Worldwatch criticized many nations for not fulfilling pledges to the GEF, whose budget has declined from $322 million in 1992, to $315 million in 1996.[203] The World Bank did not escape without comment, either. Worldwatch chided the bank for its hypocritical funding activities, noting that it continued to provide large sums for projects contributing to the destruction of ecologically endangered areas while funding biological diversity initiatives at the same time.[204]

Without more progress in the funding and intellectual property regimes, this Convention is only a comprehensive restatement of the problem and a dream for the future. Support only counts if it is upheld with funding and the commitment of technology transfer.[205] With compromise, however, the major stumbling blocks can be overcome. The compromises will only be reached if countries trust one another to

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200. *See id.*

201. The top eight "heavyweights" are Brazil, China, Germany, India, Indonesia, Japan, Russia, and the United States. *See Environment: Five Years Later, Rio Summit's Results Fall Short,* IPS, Jan. 6, 1997, *available in* LEXIS, News Lib., Curnws File.

202. Of these "heavyweights," only the United States has yet to ratify the Convention. *See id.*

203. *See* Vicky Allen, *Earth's Symptoms Worsen Since Rio Summit*, REUTERS EURO. COMM. REP., Jan. 12, 1997, *available in* LEXIS, News Lib., Curnws File.

204. *See Worldwatch Institute: State of the World Report Deplores Lack of Progress Since RIO*, EUR. ENVT., Jan. 28, 1997, *available in* LEXIS, News Lib., Curnws file.

205. Technology transfer is a key stumbling block because the developing countries, where most of the biological resources originate, need to be able to sustainably use their resources. Transferring technology can preserve diversity, thereby reducing the risks of extinction through unwise use of biological resources.

meet their obligations—a difficult task considering the widening gap between lesser developed and developed countries.

To fulfill the goals of the Convention, work must be achieved in two separate spheres: restoration and preservation. In a speech before the first Forum of the Andean and Amazonian countries on Biodiversity in July of last year, Jose Mogollon, the Colombian Minister of Environment, addressed the causes of biodiversity loss and stressed the need to increase achievements in two areas:[206] "[t]o defend biodiversity we must work on two great fronts: the achieving of sustainable development and the restoration of the already-degraded environment."[207]

Minister Mogollon's statement should be a call to arms for all nations interested in the preservation of biological diversity. Restoring areas where diversity has been damaged is futile without commensurate accomplishments in biodiverse areas under current attack. The outcome must be a net gain in the areas protected, not merely a shifting of the burden from one area to another. The comprehensive national plans due at the third COP will hopefully shed light on the complex dilemma of developed countries' unsustainable use of biological diversity in developing countries. Hopefully, 1997 will be the year the nations of the world realize that environmental preservation goals are not inconsistent with growth and development. They are simply more difficult to incorporate.

In a recent report on the state of the United Nations, the Executive Secretary of the Conference on Biodiversity stated that 1997 is the year the Conference will transform from a planning document to an active plan, reaching local, national and international levels.[208] The Secretary's statements are encouraging, and hopes are high that the first progress reports by the Conference Parties, due in mid 1997, will fulfill the high expectations of its members. However, parties must move from promises to progress on the more difficult issues of technology transfer, indigenous rights and financial requirements. As stated superbly by Canaganayagan Suriyakumaran following his acceptance of the United Nations Environment Program (UNEP) Sasakawa Environmental Prize, "we have become experts in laying out the problem[,] but we have been

206. *See Latin American Countries Must Unite on Protection of Biodiversity, Forum Told*, 19 Int'l Envtl. Rep. (BNA) No. 15, at 665 (July 24, 1996).

207. *See id.*

208. *See Thursday Highlights*, U.N. PACKAGE SECTION, FEDERAL NEWS SERV. Jan. 3, 1997, *available in* LEXIS, News Lib., Curnws File.

reticent and backwards in approaching the solutions."[209] Without swift action to find the solutions, the Convention's concerns are merely writing on the wall—more species will continue to be lost while the Convention members stand back to further analyze the meaning of the words.

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209. *Environment Award Prize Winners Cite Massive Extinction, Urge Drastic Measures,* 19 Int'l Envtl. Rep. (BNA) No. 5, at 190 (Mar. 6, 1996).

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