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A Commentary on the Convention on Biological Diversity

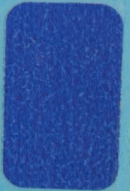
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A COMMENTARY ON THE CONVENTION ON
BIOLOGICAL DIVERSITY

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**A COMMENTARY ON THE CONVENTION ON
BIOLOGICAL DIVERSITY**

ABSTRACT

This paper comments on the Convention on Biological Diversity signed at the United Nations Conference on Environment and Development in June 1992 and expected to come into force early in 1994. The paper reflects on the background to the Convention. It then examines the Preamble and Articles, discussing the positive and negative aspects of the Convention.

In particular, the paper considers the value of biological diversity and the reasons for its loss, both of which are alluded to in the Preamble. In examining the Articles it considers what the Convention means by "biological diversity", "the common concern of humankind", and "sustainable use". It looks at the transfer of benefits (genetic, technology and finance) and whether this can be achieved in a fair and equitable way as proposed by the Convention. Finally it considers the general, administrative provisions of the Convention with particular emphasis on the settlement of disputes.

The paper concludes that the greatest achievement of the Convention on Biological Diversity at present is that it has made the loss of biological diversity a political issue. Time will tell if it can achieve more than that.

Word length

The text of this paper (excluding contents page, footnotes, bibliography and annex) comprises approximately 15010 words.

A COMMENTARY ON THE CONVENTION ON
BIOLOGICAL DIVERSITY

I INTRODUCTION

The Convention on Biological Diversity (CBD) (1) was one of two international conventions signed at the United Nations Conference on Environment and Development (UNCED) held at Rio de Janeiro during June 1992. (2) The European Community and 155 states signed the CBD at this "Earth Summit". (3) By 6 August 1993, 168 states had signed the CBD and 24 states had ratified it. (4)

The CBD enters into force 90 days after the deposit of the 30th instrument of ratification. (5) The European Community and the United States have indicated that they intend to ratify the CBD before the end of 1993. (6) On 16 September 1993 New Zealand lodged the 29th instrument of ratification with the Secretary-General of the United

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- 1 A copy of the Convention is annexed. The references to the Convention relate to this Annex. A copy of the Convention can otherwise be found in the *United Nations Conference on Environment and Development 3-14 June 1992, Rio de Janeiro, Brazil; Outcomes of the Conference* (Ministry of External Relations and Trade and the Ministry for the Environment 1992) Annex I.
 - 2 UNCED (also known as the "Earth Summit") resulted in the Framework Convention on Climate Change, the Rio Declaration on Environment and Development, Agenda 21, the Principles of Forest Management as well as the Convention on Biological Diversity.
 - 3 M Grubb et al *The "Earth Summit" Agreements: A Guide and Assessment* (Earthscan Publications Ltd, London, 1993) 15.
 - 4 Personal communication from NZ Ministry of Foreign Affairs and Trade.
 - 5 Article 36.1 Annex, 18.
 - 6 Personal communication from NZ Ministry of Foreign Affairs and Trade.

Nations. (7) It can be predicted that the CBD will be in force in early 1994.

The CBD, unlike the Convention on Climate Change, does not bear the title "framework". It is more extensive and self-contained than that Convention. However it still lacks specific commitments. (8) The CBD contains very few Articles which require states to take action as most have qualifications particularly, "Each Contracting Party shall, as far as possible and as appropriate, ...". (9) Although the CBD is international "hard" law many of its provisions have a "soft", non-binding approach. Notwithstanding this lack of specification it is "still a considerable achievement." (10)

7 Personal communication from NZ Ministry of Foreign Affairs and Trade. The Secretary-General of the United Nations is the Depository for the Convention. See Article 41, Annex, 19.

8 Above n 3, 16.

9 See Articles 5, 7-11 and 14 of the CBD, Annex, 5-8. This contrasts with the Draft Convention on Environmental Protection and Sustainable Development prepared by the Experts Group on Environmental Law of the World Commission on Environment and Development. The Group were to "prepare legal principles which ought to be in place now or before the year 2000 to support environmental protection and sustainable development within and among all States." In the draft articles it required that "states shall" take action.

"The articles are presented as formal and binding obligations of and among all States. This binding character is represented in the text of the articles by the use throughout of the auxiliary verb "shall" rather than "should".

J Lammers (Rapporteur) *Environmental Protection and Sustainable Development Legal Principles and Recommendations* (Graham & Trotman/Martinus Nijhoff, London/Dordrecht/Boston 1987) 7.

10 Above n 3, 84.

The CBD can be divided into four distinct parts. The Preamble and Articles 1 to 5 provide an introduction and set the jurisdiction limits. Articles 6 to 14 concentrate on conservation and sustainable use, while Articles 15 to 21 consider the transfer of benefits of biodiversity. The final Articles (22 to 42) deal with the machinery provisions of establishing the CBD and its structures.

This commentary commences with a review of the background to the CBD and then considers the distinct parts of the CBD. A discussion on the value of biodiversity (11) and the reasons for its loss flow from statements contained within the Preamble to the CBD. In the course of this

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- 11 I have used the term biodiversity to refer to biological diversity throughout this paper.

"Biological diversity is an umbrella term for the degree of nature's variety, including both the number and frequency of ecosystems, species, or genes in a given assemblage. It is usually considered at three different levels, "genetic diversity", "species diversity", and "ecosystems diversity."

J McNeely *Economics and Biological Diversity: Developing and Using Economic Incentives to Conserve Biological Resources* (International Union for Conservation of Nature and Natural Resources, Gland, Switzerland, November 1988) 3.

"Biodiversity is the variety of the world's organisms, including their genetic diversity and the assemblages they form. It is the blanket term for natural biological wealth that undergrids human life and well-being. The breadth of the concept reflects the interrelatedness of genes, species, and ecosystems. Because genes are the components of ecosystems, altering the make-up of any level of this hierarchy can change the others ... species are central to the concept of biodiversity."

J Nelson and R Serafin "Assessing Biodiversity: A Human Ecological Approach" (May 1992) *Ambio*, Vol 21, No 3, 212.

Note however the discussion on the meaning of biological diversity in the CBD in Part III C of this paper.

consideration of the CBD a number of issues are raised (including the meaning of biological diversity, a questioning of the purpose of "sustainable use", the possible effects of the CBD on intellectual property legislation, the concept of "ecological debt" in relation to financial assistance, and the problems of enforcement), illustrating the positive and negative aspects of the Articles of the CBD.

II BACKGROUND

International law relating to biodiversity is not new. "Specific agreements on the protection of particular species, especially migratory birds, date back to well before the First World War." (12) A convention for the preservation of fauna and flora in their natural state came into force in 1936. (13)

The 1972 United Nations Conference in Stockholm on the Human Environment was "the event which perhaps marked the real beginnings (sic) of international environmental law." (14) This Conference *inter alia* created the United Nations Environment Programme (UNEP) and, through the Stockholm Declaration, established a number of principles which had normative impact. (15) It dealt with the "first generation

12 Above n 3, 3.

13 The Convention Relative to the Preservation of Fauna and Flora in their Natural State entered into force on 14.1.1936. Its objectives were to "preserve the natural fauna and flora of certain parts of the world, particularly of Africa, by means of national parks and reserves, and by regulation of hunting and collection of species."

Register of International Treaties and Other Agreements in the Field of the Environment (UNEP/GC.16/Inf.4, Nairobi, May 1991) 3.

14 The Rt Hon. Sir Ninian Stephen "The Growth of International Environmental Law" (September 1991) *Environmental and Planning Law Journal*, Vol 8, No 3, 186.

15 Above n 3, 5.

environmental issues" (16), particularly pollution. This approach of dealing with specific areas of concern is reflected in the protection of wildlife and natural feature treaties entered into in the 1970s and 1980s. (17)

"In the meantime, the second generation environmental issues entered the scene." (18) These cover the global issues such as climate change, depletion of the ozone layer and the loss of biodiversity. "It became increasingly clear that many of these environmental problems were inextricably linked with broader aspects of social and economic development." (19)

In 1982 UNEP reviewed the 10 years of progress since Stockholm and concluded "that much greater long-term and integrated environmental planning was needed." (20) One response was the establishment of the World Commission on

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- 16 A Adede "International Environmental Law from Stockholm to Rio - An Overview of Past Lessons and Future Challenges" (April 1992) *Environmental Policy and Law*, 22/2, 88.
- 17 See MC Maffei's chapter on Wildlife in T Scovazzi and T Treves (eds) *World Treaties for the Protection of the Environment* (Istituto per l'Ambiente, Milano, May 1992) 323 which distinguishes between conservation of wildlife treaties which aim at regulating exploitation and preservation treaties which aim at avoiding extinction. She discusses the preservation treaties, in particular the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention adopted 2 February 1971) which preserves wetlands; the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention adopted 23 June 1979) which protects birds and migratory species and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES adopted 3 March 1973) which deals with the threat of international trade.
- 18 Above n 16, 88.
- 19 Above n 3, 6.
- 20 Above n 3, 6.

Environment and Development. Its report (21) analysed the socio-economic and environmental perspectives of the world and made a number of recommendations on common issues with particular emphasis on "sustainable development". (22) In relation to biodiversity the Brundtland Report recommended *inter alia* that:

"Governments should investigate the prospect of agreeing to a 'Species Convention', similar in spirit and scope to other international conventions reflecting principles of 'universal resources'. They should also consider international financial arrangements to support the implementation of such a convention." (23)

In 1987, in response to the growing public concern (partly generated by the Brundtland Report) and overwhelming scientific evidence of growing biological erosion:

"governments were called upon by UNEP to examine the possibility of establishing an international legal

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- 21 The report of the World Commission on Environment and Development is entitled *Our Common Future* but is often referred to as the Brundtland Report after its Chairperson Gro Harlem Brundtland.
- 22 *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:*
- * *the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and*
 - * *the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."*

World Commission on Environment and Development *Our Common Future* (Oxford University Press, Oxford, 1987) 43.

- 23 Above n 22, 13-14.

instrument on the conservation and sustainable use of biodiversity. The USA was the first to call for the creation of a comprehensive convention." (24)

On 17 June 1987 the Governing Council of UNEP resolved to establish the Ad Hoc Working Group of Experts on Biological Diversity. (25) It met three times between November 1988 and July 1990 and, as result of its report, UNEP established the Working Group of Legal and Technical Experts. (26) Two sessions of negotiations were held in November 1990 and February/March 1991. A further resolution of the UNEP Governing Council renamed the Group the Intergovernmental Negotiating Committee for a Convention on Biological Diversity (INC). (27) It held five negotiating sessions between June 1991 and May 1992.

Negotiations were not easy. By the end of the third day of the fifth session of the INC in February 1992 "many participants clearly believed that a convention would not be ready for adoption in May." (28) During initial negotiations in 1990 concerns had been expressed by

24 The support of the USA included:

"a joint resolution form the US Congress (H.R. Res 648, 27 September, 1988), which called upon the President to promote efforts to achieve the earliest possible negotiation of an international convention to conserve the Earth's biological diversity, including the protection of a representative system of ecosystem's adequate to conserve biological diversity."

J McNeely et al *Conserving the World's Biological Diversity* (IUCN, Gland, Switzerland and WRI, CI, WWF-US and the World Bank, Washington D.C., 1990) 68.

25 Resolution 14/26 of the UNEP Governing Council.

26 Above n 3, 75.

27 Resolution 16/42 (31 May 1991) of the UNEP Governing Council.

28 INC "Biological Diversity Convention - Fifth Session" (April 1992) *Environmental Policy and Law* 22/2, 81.

developing countries relating to the perceived lack of involvement of developing countries in the UNEP Ad Hoc Group. It was requested that a Preparatory Committee for UNCED continue with the work. This request did not succeed, due mainly to the potential duplication of work and costs. (29)

Finance was also a major concern of developing countries. This concern was supported by the Ad Hoc Group's finding that "an international legal instrument without firm commitments to funding would be meaningless." (30) The main focus of negotiations was "over exchange of biological resources in return for access to technologies, particularly biotechnology." (31)

"This divergence results largely from the reality that while the resources are predominantly located within the territories of the South, the profits derived from their use are almost exclusively reaped by the industrialized North." (32)

The developing countries insisted on sovereign rights over genetic resources within their territories while the developed countries considered biodiversity a "common heritage of humankind". (33) The South sought access to

29 1992 UNCED, First Meeting of the Preparatory Committee, Report on the New Zealand Delegation (Ministry of External Relations and Trade, Wellington, 1990) 30.

30 Second Special Session of the Governing Council of the United Nations Environment Programme, Report of the New Zealand Delegation (Ministry of External Relations and Trade, Wellington, 1990) 10.

31 Above n 3, 75.

32 S Bragdon "National Sovereignty and Global Environmental Responsibility: Can the Tension Be Reconciled for the Conservation of Biological Diversity?" (Spring 1992) Harvard International Law Journal, Vol 33, No 2, 388.

33 Above n 3, 75.

the benefits resulting from the use of biodiversity while the North (particularly the USA) saw biotechnology as the concern of industry in which governments should not interfere.

From 11 to 22 May 1992 the Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity was held in Nairobi. At the end of the previous session of the INC the funding mechanism was the major issue left unattended. (34) The final negotiations have been characterised as rather tense, with some countries having relatively inflexible briefs. (35) The atmosphere was charged by:

"1. The constant requirement, especially by developing countries, that conservation objectives and obligations should be balanced by references to the right to development and a state's sovereignty over its resources;

2. A political tension that meant that the debate could easily be (and at times was) reduced to political rhetoric and unconstructive confrontation;

3. A sense of urgency - any request for unbracketed text to be re-opened was met with great disapproval from the chair;

4. A feeling (amongst the few biologists present) that the lawyers were, at times, dominating a debate that needed more biological expertise if satisfactory outcomes were to be obtained." (36)

34 Above n 28, 81.

35 J Sheldon Report on the Final Negotiating Session for a Convention on Biological Diversity (Nairobi, 11-22 May 1992) (Unpublished paper, NZ Department of Conservation, 1992) 2.

36 Above n 35, 1.

There was however "a will, displayed eventually by most countries, to find language and content that would work for as many countries as possible". (37) "The final product reflects compromise by both sides." (38)

III THE PREAMBLE AND INTRODUCTORY ARTICLES

A *The Preamble*

The Preamble (39) reflects the Articles of the CBD and the compromises made in negotiations. Thus it contains statements on the importance of biodiversity and that its conservation is a common concern to humankind. Linked to this however is an acknowledgement that states have sovereign rights over their own resources. Concern is expressed that biodiversity is being significantly reduced by human activity and that there is a lack of information about biodiversity. It is therefore vital to take action against the causes of loss of biodiversity even if there is a lack of full scientific knowledge (the precautionary principle). *In-situ* conservation is to be preferred but if *ex-situ* conservation is required it is preferable that the country of origin is involved.

The traditional relationship of indigenous people to biodiversity is recognised, and with it the knowledge they may have on conservation and use. Women also have an important role in conservation and sustainable use and their participation is needed. Cooperation at all levels of government and with non-government organisations (NGOs) is stressed.

New and additional financial resources and access to technologies will be required to make a difference to the

37 Above n 35, 2.

38 Above n 3, 76.

39 Preamble, Annex, 2-3.

loss of biodiversity. Substantial investment will be needed but there is expected to be a broad range of benefits. Developing countries and small island nations particularly will need assistance. It is recognised that the priorities of developing countries will be development and poverty eradication. Biodiversity will help meet the needs of the growing world population and will ultimately "strengthen friendly relations among States and contribute to peace for humankind". (40)

As a result of the above cognisance, the parties to the CBD wish to enhance the international arrangements and conserve and sustainably use biodiversity for the benefit of present and future generations.

The Preamble contains a number of statements which are not included in the Articles. In particular it identifies that biodiversity has values and that human activity is responsible for its loss, but does not elaborate on the values or the reasons for loss.

1 Value of biodiversity

The value of biodiversity can be viewed from differing perspectives. The Preamble refers to the intrinsic value of biodiversity and lists a range of disciplines for which biodiversity has value. (41) Chapter 15 of Agenda 21 (42)

40 Preamble, Annex, 3.

41 Preamble, Annex, 2.

42 *"Agenda 21 covers several topics which are covered by the UNCED Conventions. ... As legal instruments, clearly the Conventions take precedence, and it was intended that the Agenda 21 chapters should support the Conventions, by outlining the broader approaches and helping to set a framework of ideas for implementation. ... (M)any of the tensions during negotiations on the Conventions emerged again in the debate on Agenda 21, and in such cases language from the corresponding Convention was usually adopted."*

on the other hand lists goods. "Biological resources feed and clothe us and provide housing, medicines and spiritual nourishment." (43) Both of these expressions on the importance of biodiversity consider the end use, making the assumption that because biodiversity is used it is of value without trying to measure that value.

Economists have devised a variety of methods for assigning value to biological resources. (44) The major approaches can be summarised as direct values (consumptive and productive use values) and indirect values (non-consumptive use, option and existence values). (45) The disciplines and goods listed above can be fitted into these categories, with the exception of intrinsic value. For example food gathering, for survival or as a recreational pursuit, has consumptive use values involving direct consumption without passing through the market. An estimated market value can be assigned for the goods (46), although recreational experiences provide a value greater than the actual product. (47)

42 Continued

Paragraph 15.1 of Agenda 21 states that:

"The objectives and activities in this chapter of Agenda 21 are intended to improve the conservation of biological diversity and the sustainable use of biological resources, as well as to support the Convention on Biological Diversity."

Above n 1, 208.

43 Above n 1, 208.

44 J McNeely *Economics and Biological Diversity: Developing and Using Economic Incentives to Conserve Biological Resources* (International Union for Conservation of Nature and Natural Resources, Gland, Switzerland, November 1988) 14.

45 Above n 44, 15.

46 Above n 44, 15.

47 Economists value recreational experiences by using models such as travel cost and contingent valuation methods.

The productive use value is the easiest to assign as it is reflected in national income accounts, although this is not without difficulties. Values are usually assessed at the production end, rather than the higher retail end, of the market. Production of a commercial product often relies on other aspects of biodiversity. Wild species and genes have provided new food varieties and contribute traits and resistance to domesticates. (48) Wild pollinators and destroyers of pests are essential for many commercial crops. (49)

The importance of biodiversity in medicines was identified in Chapter 15 and is a poignant example of the direct value of biodiversity.

"The active ingredients in at least a third of the prescription drugs used by civilization come directly from or were derived from chemical compounds found in wild plants, fungi, or other organisms, especially in tropical forests - digitalis, morphine, quinine and antibiotics being amongst the most familiar." (50)

In 1985 the retail market value of prescription and over-the-counter drugs in OECD countries was estimated as \$43 billion but if social cost values, such as wages not lost, health care averted etc, are included the value of

48 For example:

"A wild tomato, found only in the Galapagos Islands, can grow in seawater and possesses jointless fruitstalks - a trait that has been bred into domesticated tomatoes to make them easy to harvest mechanically. A wild relative of rice collected in India provided a 'resistance gene' that now protects high-yielding rice varieties in South and South-east Asia from their nemesis, brown plant-hopper."

K Courrier (ed) *Global Biodiversity Strategy* (WRI, IUCN, UNEP; 1992) 4-5.

49 Above n 44, 17.

50 P Ehrlich and A Ehrlich "The Value of Biodiversity" (May 1992) *Ambio*, Vol 21, No 3, 220.

plant-based drugs ranges from \$200 billion to \$1.8 trillion annually. (51) As a specific example, the rosy periwinkle from Madagascar was found to have 75 alkaloids, two of which (vincristine and vinblastine) provided a major breakthrough in the fight against cancer. (52) In 1960, a child suffering from leukaemia had only a 20 per cent chance of survival. Due to the rosy periwinkle-based drugs, a child now has an 80 per cent chance of survival. (53)

The indirect values of biodiversity do not generally appear in national accounting systems. The non-consumptive use value relates to the services, rather than the goods, provided by biodiversity. The Preamble recognises this in referring to "maintaining life sustaining systems of the biosphere". (54) These include photosynthesis, hydrological cycles including flood and drought control, soil creation and maintenance, biogeochemical cycles including carbon, nitrogen and oxygen, and absorption and decomposition of pollutants. (55) Other non-consumptive uses include the social, scientific, educational, cultural and recreational values recognised in the Preamble. (56)

51 Above n 44, 19.

52 N Myers *The Sinking Ark* (Pergamon Press, Oxford, 1979) 71.

53 M Munasinghe "Biodiversity Protection Policy: Environmental Valuation and Distribution Issues" (May 1992) *Ambio*, Vol 21, No 3, 228.

54 Preamble, Annex, 2.

55 Above n 44, 21.

56 Organised tourism based on biodiversity (African Game Parks being a prime example) provide one opportunity for economists to value such resources.

"Each lion in Amboseli National Park has been estimated to be worth \$27,000 per year in visitor attraction, and each elephant herd is worth \$610,000 per year; the park yields net earnings - mostly from tourism - of about \$40 per hectare per year, some 50 times the net profit under the most optimistic agricultural projection".

Option value is a means of assigning a value to risk aversion. No one can determine what species or genes may be of value in the future. Society may be willing to preserve reservoirs which, if current trends of continuing supply of biodiversity dwindle, will increase in value.

(57) "Serendipity value" (the potential value to humans that species, especially those not yet discovered, may have) has been given great importance as a reason for conserving biodiversity. (58) Option value also covers the opportunity to make use of the biodiversity in the future, for example the potential opportunity of visiting a protected area as a tourist. (59)

Finally there is existence value, the satisfaction of knowing there are wilderness areas or whales in the ocean without ever expecting to see or use them. One measurement of these values can be seen in the voluntary contributions made to NGOs. Linked with this value is "bequest value", the vicarious value of leaving something to future generations. (60) Although some of these values can not be valued by traditional economics they are seen as relevant to decision-making which directly or indirectly affect biodiversity.

"The establishment of an environmental economic framework facilitates the incorporation of environmental economic concerns into conventional economic analysis, thereby improving decision making at the economy-wide, sectorial and micro levels." (61)

57 Above n 44, 22.

58 Above n 44, 23.
N Myers *A Wealth of Wild Species Storehouse for Human Welfare* (Westview Press, Boulder, Colorado, 1983) provides numerous examples of the potential value of plants and animals for food, medicine, and industry (including growing gasoline).

59 Above n 44, 23.

60 Above n 44, 24.

61 Above n 53, 235.

The Preamble however, also recognises the intrinsic value of biodiversity which, by definition, can not be valued by economists and become part of the "environmental economic framework".

"(Intrinsic value) means that the environment has inherent value just because it exists, regardless of the value conferred on it by humans. ... The value of non-human nature is independent of its usefulness for human purposes in the ecocentric view." (62)

"In essence, deep ecologists ... who emphasize that species have rights, especially a right not to be driven to extinction by humankind, are committed to conserving biological diversity for its own sake. Thus under this view, conserving biological diversity is a moral imperative." (63)

The value of biodiversity can therefore be recognised at two levels. Economists can assign value for the direct and indirect uses that people make of biodiversity.

"Biological resources constitute a capital asset with great potential for yielding sustainable benefits." (64) At the same time, the CBD recognises a moral obligation to preserve biodiversity for its own sake. (65) In terms of

62 J Goodjohn "The Rights of Rocks" (March 1993) NZ Planning Quarterly, 24.

63 W Flevares "Ecosystems, Economics, and Ethics: Protecting Biological Diversity at Home and Abroad" (May 1992) Southern California Law Review, Vol 65, No 4, 2047-2048.

64 Above n 1, Chapter 15.3, 208.

65 This approach was also taken in the UN Assembly Resolution on the World Charter for Nature (UN General Assembly Res, No 37/7 adopted on 28 October 1982). The General Assembly was convinced that:

"(e)very form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action".

Above n 9, 155.

practical effect there may be no difference. If biodiversity is valued because of its option and bequest values it will be conserved, thus protecting its intrinsic value.

It is partly because of the values of biodiversity that the Preamble affirms "that the conservation of biological diversity is a common concern of humankind." (66) The negotiations on the Convention on Climate Change and the CBD provided the first opportunity to legally incorporate the concept in international environmental legislation. (67) The concept is not new, having appeared in various declarations and United Nations resolutions. (68) However, the legal meaning of the phrase is still not clear.

As the international community is decentralised the word "common" replaces the word "public". (69) "Concern is elusive "since it describes causes as well as responses to problems." (70) "Humankind" does suggest "inter-generational rights" although in a strict legal sense "the concept of 'rights' should only apply to subjects of international law. It was difficult to perceive 'generations' as such subjects." (71)

66 Preamble, Annex, 2.

67 D J Attard (ed) *The Meeting of the Group of Legal Experts to Examine the Concept of the Common Concern of Mankind in Relation to Global Environmental Issues* (United National Environment Programme, Nairobi, 1991) 47.

68 Above n 67, particularly Annexes III to XV.

69 Above n 67, 28.

70 Above n 67, 29.

71 Above n 67, 29.
The use of "humankind" in the CBD instead of "mankind" as used in the Attard booklet suggests that gender equality in language is at last having an impact at the international level.

As the Preamble (72) and the definition of sustainable use (73) both refer to "present and future generations" it would appear that in the CBD the conservation of biodiversity is a public matter in which present and future generations have rights. As such, both present and future generations have the right to enjoy and use the benefits of biodiversity. The common concern about conservation in the CBD is about biodiversity loss, but it is, more particularly, about the responses to that loss.

2 *Loss of biodiversity*

Extinction has been a fact of life since life started on Earth. At least 90 per cent of all species that have ever existed have disappeared. It is the rate of extinctions at present which is causing concern. (74)

"UNEP estimates there are about 30 million species on the Earth, of which only about one and a half million have ever been described, and that about one-quarter of the Earth's species risk extinction within the next 30 years." (75)

The Preamble acknowledges that biodiversity is significantly reduced by human activity. It only hints at some of the causes. These include lack of information and knowledge on biodiversity which in turn results in poor or no planning; lack of recognition of interested groups and their expertise particularly indigenous people, women and NGOs; lack of financial resources, the pressure of poverty and the growing world population. Chapter 15 is more

72 Preamble, Annex, 3.

73 Preamble, Annex, 4.

74 N Myers *A Wealth of Wild Species Storehouse for Human Welfare* (Westview Press, Boulder, Colorado, 1983) 213-214.

75 Above n 3, 75.

explicit. It refers to habitat destruction, over-harvesting, pollution, and the introduction of pests. (76) These proximate causes in Chapter 15 are readily identifiable and attempts to resolve them have been made over the last 20 years by restricting access to resources and prohibiting destructive behaviour at the national and international level (77); but biodiversity loss continues.

Solutions depend on how the problem is defined. Since the Brundtland Report at least, the problem of loss of biodiversity is now seen in terms of economic and social factors - not just lack of protected land, poachers and poor management and enforcement. (78) The causes of loss alluded to in the Preamble to the CBD are at this more fundamental level than the causes in Chapter 15. They require a change in paradigm, not minor shifts in behaviour or legislation. Just taking the social example of growing world population, it is clear that if the population continues to grow there will be more pressure on resources.

"Population projections indicate an increase in global population from 4.8 billion in 1985 to 6.1 billion by 2000, and to 8.2 billion by 2025. ... More than 90 per cent of this increase is expected in developing regions." (79)

Yet the issue of family planning and contraception is hardly dealt with in the Rio documents "because of Catholic-inspired opposition notably from the Holy See and from the Philippines." (80) It is not just growth in

76 Above n 1, Chapter 15.3, 209.

77 Above n 63, 2072-2076. This refers to CITES and UNESCO's Man in the Biosphere Programme as examples of international approaches to wildlife conservation.

78 J McNeely et al *Conserving the World's Biological Diversity*, (IUCN Gland, Switzerland and WRI, CI, WWF-US and the World Bank, Washington DC, 1990) 37.

79 Above n 22, 101.

80 Above n 3, 31.

numbers however. The issue is also the amount of resources consumed *per capita*. The developing countries sought that the developed countries "address their own profligate levels of consumption". (81) Neither of these issues are explicitly addressed in the CBD, yet consumption and population growth will impact severely on biodiversity.

The "tragedy of the commons" (82) is quoted as one socio-economic reason for the loss of biodiversity. (83)

"The guts of the issue is that private interests do not necessarily run parallel with public interests. In certain circumstances, private interests undermine public interests. ... The trouble does not lie with the moral degeneracy of the individual, however 'short-sighted' or 'greedy' his actions may appear. Rather the deficiency lies with the way society chooses to regulate - or not to regulate - its affairs." (84)

Society has generally treated the environment, including biodiversity, as a free good. (85) There is either no

81 Above n 3, 31.

82 "The Tragedy of the Commons" by Garrett Hardin (*Science*, 162: 1243-1248) described why the population continued to increase. He concluded, in 1968, that the only way to preserve other freedoms was to relinquish the freedom to breed. The problem still continues, but this analysis has been used to explain private behaviour which has a negative impact on the public interest in other situations.

83 Above n 52, 90.

84 Above n 52, 90 and 91.

85 *"Because of the irreversible injury to which a species is prone, and because of its unique genetic attributes, a species is often regarded as beyond normal estimations of value, ie as priceless. Yet, because no private owner can trade a species in the market-place and thus establish a dollar price to reflect its economic worth, it is usually treated as if it is priceless, ie worthless."*

Above n 52, 86.

market, or biodiversity has only been valued for its direct productive use values.

"Since the non-existence of markets is a major cause of the divergence between the private and social cost of environmental externalities in general, and since the non-existence of markets reflects the incompleteness of property rights, it is not surprising that one option for ensuring against excessive species depletion is the allocation of property rights in order to create markets." (86)

"Economists, with the help of ecologists, face the unenviable task of assigning value to biodiversity in such a way that the costs of the loss of a small portion of a vast machinery are reasonable assessed. More, they need to account for the enormous losses that have occurred before now, reflecting the reality that the remaining biodiversity is fast-fading (though otherwise self-renewable) essential resource." (87)

Assigning values and creating a market will not however be enough. The values must return to the people that are meeting the costs of conserving the biodiversity. Without "winning the hearts and minds" (88) of the people improved valuation of biodiversity will have no effect as the people will still need to exploit the resources to survive. This is also true at the national level. While faced with crippling external debt, developing countries will continue to "emphasize short-term exploitation to earn income or foreign exchange rather than long-term sustainable utilization of living resources." (89)

86 C Perrings et al "The Ecology and Economics of Biodiversity Loss: The Research Agenda" (May 1992) *Ambio*, Vol 21, No 3, 208.

87 Above n 50, 226.

88 Above n 63, 2078.

89 Above n 44, 51.

Recognising the value of biodiversity does not necessarily mean that strategies will be put in place to improve the protection of biodiversity. The costs of studying what biodiversity exists and how to protect it, providing the science to manage resources, and ensuring that the organisations responsible for caring for biodiversity are adequately funded and resourced with appropriately trained people and equipment are beyond the means of many countries. (90)

Not all reasons for biodiversity loss can be related to economics. People are prepared to financially support attempts to save some species.

"Such animals as pandas, polar bears, whales, seals, Andean condors, and other mammals and birds have benefited from such efforts. Unfortunately, many other species as threatened or even more threatened than these, especially invertebrates and plants, do not arouse such interest. In fact, some individuals are outwardly hostile towards less aesthetically pleasing species, especially when these species are blamed for halting development of certain lands or industries." (91)

Education is an important tool in combating the loss of biodiversity. Ignorance could be as destructive of biodiversity as a chainsaw. (92) The other global

90 Above n 44, 52.

91 Above n 63, 2045-2046.
Flevaris gives the example of wolves being reintroduced in Yellowstone National Park and the negative reaction of ranchers and local residents.

92 Above n 63, 2048, footnote 50.
Flevaris provides an example of culling buffalo in Yellowstone National Park because the herd was too big for the food supply. This was opposed by the animal right activists but supported by the naturalists as it would result in a more vibrant and diverse mix of plants and wildlife. One can not help but draw comparisons with the culling of the Kaimanawa horses in mid 1993. International League of Horses (NZ) Inc v The Attorney-General C/A 106/93.

environmental issues of climate change, the depletion of the ozone layer and acid rain will also add to the loss of biodiversity. If sea levels rise endemic island species could "sink". The effects of ultraviolet rays on some organisms could be severe. Acid rain has already affected ecosystems in Europe and America. (93)

Loss of biodiversity can be linked to a number of factors but, as the Preamble to the CBD acknowledges, "biodiversity is being significantly reduced by certain human activities." (94)

B Article 1. Objectives

The objectives of the CBD are contained in Article 1. (95) They can be divided into the conservation of biodiversity and its sustainable use, and the fair and equitable sharing of the benefits of the utilisation of genetic resources. When an international legal instrument was envisaged in 1987 it was to cover conservation and sustainable use only but, as discussed above, there was a tension between dealing with the erosion of biodiversity from a conservation perspective and dealing with technology transfer and finance. The objectives illustrate that both conservation and the sharing of benefits were included in the CBD.

Although in 1987 the USA had supported a convention, the Bush Administration refused to sign the CBD as a result of intense lobbying by several biotechnology interest groups and patent attorneys. The lobbyists considered that:

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- 93 The acidification of the Scandinavian aquatic system was a major factor which led to the Stockholm Conference. Above n 3, 4.
- 94 Preamble, Annex, 2.
- 95 Article 1, Annex, 3.

"the Convention contained 'highly objectionable provisions permitting developing countries to ignore or restrict intellectual property rights in the field of biotechnology '" and that it was "an affront to that effort to establish adequate substantive intellectual property standards and effectively enforce them." (96)

No other government supported the USA position and, with a change of administration, President Clinton announced in an Earth Day speech (97) that the United States intended signing the Convention. (98) A convention which would have met the approval of the USA at Rio would not have been acceptable to the developing countries. With hindsight the refusal to compromise further on the text to include the USA has meant that the developing countries have been able to retain the sharing of benefits and have the support of the USA government for the CBD. The objectives of the CBD encapsulate the aspirations of both the developed and developing countries.

96 R Frye "Uncle Sam at UNCED" (December 1992) Environmental Policy and Law 22/5/6, 344.

97 21 April 1993 in the Washington's Botanical Gardens.

"The Biodiversity Treaty which resulted had some flaws, and we all knew that. But instead of fixing them, the United States walked away from the treaty. That left us out a treaty that is critically important not only to our future but to the future of the world. And not only because of what it will do to preserve species, but because of opportunities it offers for cutting-edge companies whose research creates new medicines, new products and new jobs."

Press Release "Clinton Says US Will Sign Biodiversity Treaty", USA Embassy, Wellington, 4.

98 Views were expressed that if the rest of the world complied with the CBD, the USA would be forced to comply anyhow or be left out. See above n 96, 344 and Above n 3, 83.

C *The Meaning of Biological Diversity*

Article 2 of the CBD defines the terms used in the CBD. The first, and most significant, definition is of biological diversity. Generally this is described as genes, species and ecosystems. (99) The definition in the CBD includes these aspects of biodiversity, although it does not refer to genes specifically. Instead it refers to "diversity within species". Given that "genetic material" and "genetic resources" are defined it is interesting that the term "gene" is not used in defining biological diversity. The CBD draws a distinction between "biological diversity" and "biological resources". The later are the biotic components of actual or potential value for humanity and include genetic resources and populations specifically. (100) As "biological diversity" does not make this distinction it is to be presumed that "diversity within species" covers both genes (genetic material) and populations.

The distinction between "biological diversity" and "biological resources" is reflected in the distinction between "genetic material" and "genetic resources". "Resources" are defined in terms of having actual or potential value, while "diversity" or "material" exist without any use or value to humanity being assigned to them. Thus biological resources is a subset of biological diversity; and the same is true for genetic resources and genetic material. In relation to the objectives contained in Article 1, conservation relates to biological diversity, sustainable use to the biological diversity components (which appears to be another term for "biological resources" for it is defined in terms of "biotic component"), and the sharing of benefits to the "utilization of genetic resources". All the objectives

99 Above n 11.

100 Article 2, Annex, 3.

therefore do not apply to all biodiversity, and the meaning of the term "biological diversity" appears to differ from the usual meaning.

The definition of biological diversity in Article 2 starts by stating that it "means the variability among living organisms from all sources". The sources include land and water ecosystems and "the ecological complexes of which they are part". (101) This takes the definition of biodiversity beyond the general meaning of "genes, species and ecosystems". (102) One possibility is that it is to cover more than just natural environments.

Human ecology proponents argue that:

"biodiversity is not just a basis and precondition for human activities but also the outcome of human transformation of the Earth that has taken place over past millennia." (103)

"(H)istorical human influences on the environment, especially through the use of fire and shifting cultivation, have been pervasive and even the ecosystems that appear most "natural" have been significantly altered by humans at some point in the past". (104)

It is submitted that this human influence has already been covered by using the term "ecosystem". "Ecosystem" is defined as meaning "a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit". (105) The term

101 Article 2, Annex, 3.

102 Above n 11.

103 J Nebon and R Sefafin "Assessing Biodiversity : A Human Ecological Approach" (May 1992) *Ambio*, Vol 21, No 3, 213.

104 Above n 78, 51.

105 Article 2, Annex, 4.

"non-living environment" must mean something different from the possible alternative term "habitat" which is also defined in Article 2. "Habitat" is the place where an organism occurs naturally. "Non-living environment" therefore suggests areas where organisms may not occur naturally. This proposition is supported by Chapter 15 which covers natural ecosystems and cultivated:

"The natural ecosystems of forests, savannahs, pastures and rangelands, deserts, tundras, rivers, lakes and seas contain most of Earth's biodiversity. Farmers' fields and gardens are also of importance as repositories, while gene banks, botanical gardens, zoos and other germplasm repositories make a small but significant contribution". (106)

Further support can be found in the definitions of "in-situ conditions" and "in-situ conservation" which refer to "ecosystems and natural habitats" and then refer to "domesticated or cultivated species, in the surroundings where they have developed their distinctive properties." (107) These "surroundings" must be covered by the term "ecosystems".

The definition of "biological diversity" covers both "natural" and human-altered environments by the term "ecosystem". The term "ecological complexes" therefore covers another dimension of the environment, a possibility being what has been referred to as "ecodiversity". (108) Ecodiversity is the interaction between geodiversity (both structures - river basins, deserts - and regularities - river flows), climatic diversity and biological diversity (in the sense of genes, species and culture). This allows for micro climates and the non-living aspects of an area which in turn influence the living organisms.

106 Above n 1, 208.

107 Article 2, Annex, 4.

108 S Bilderbeek (ed) *Biodiversity and International Law* (IOS Press, Amsterdam, 1992) 47-48.

It also provides for the human influence through cultural diversity (109), which covers more than the land-management practices discussed above. Diet, and raw materials for clothing or housing for example may result in greater pressure on certain organisms than others. Spiritual beliefs may result in certain elements of the ecosystem being protected. (110) Such a definition of biodiversity is wider than "genes, species and ecosystems" but would recognise that there are influences on biodiversity beyond the "plant, animal and micro-organism communities and their non-living environment" interactions. (111)

D The Principle

Article 3 of the CBD restates Principle 21 of the 1972 Stockholm Declaration. (112) It "attempts to define the relationship between a nation's freedom of action over its natural resources and its responsibility to prevent extraterritorial damage" (113) This Article will make

109 Above n 48, 3 which suggests that human cultural diversity could also be considered part of biodiversity. Given the separation between human and biodiversity throughout the CBD it is not considered that this was intended for this Convention.

110 M Godgil "Conserving Biodiversity as if People Matter: A Case Study from India" (May 1992) *Ambio*, Vol 21, No 3, 268 provides one such example:

"Nevertheless, the effectiveness of traditional conservation can be clearly seen in the landscape of Utlara Kannada, where a large number of monkeys still survive and thousands of Ficus trees dot the countryside due to their religious significance. The only remaining natural stand of the genus Dipterocarpus persists in a sacred grove, as does the last patch of a Myristica swamp."

111 As provided in the definition of "ecosystem" Article 2, Annex, 4.

112 Article 3, Annex 4-5.

113 Above n 32, 384.

states responsible for activities within their jurisdiction or control, not just within their territories as was the traditional sovereignty view. (114) The extent of a state's jurisdiction is defined in Article 4 of the CBD. For the components of biodiversity the provisions of the CBD apply to the limits of a state's jurisdiction but in relation to processes and activities carried out under a state's jurisdiction or control then the CBD may apply beyond the limits of national jurisdiction. (115)

Restating "Principle 21" in the CBD has the advantage of making it part of the binding international law instead of encouraging cooperation through declarations. The legal effect however may be minimal as some experts consider that this principle was already a rule of customary law. (116)

The principle does not:

"detail the actions that states are expected to take to prevent environmental damage nor is it explicit about the nature of a state's liability should external damage occur." (117)

The CBD does however provide some indication of the actions states are expected to take. States are expected to cooperate with other parties on areas beyond their jurisdiction or on matters of mutual interest. (118)

Article 14 also provides for impact assessments with a view to avoiding or minimizing significant adverse effects on biodiversity including consultation on activities which are likely to have effects beyond the jurisdictional boundaries. (119) It is true that the CBD does not deal

114 Above n 32, 386.

115 Article 4, Annex, 5.

116 Above n 108, 87 and Above n 17, 21.

117 Above n 32, 386.

118 Article 5, Annex, 5.

119 Article 14.1(a) and (b), Annex, 8.

with liability nor does it spell out what is meant by state responsibility. It has been argued that state responsibility must go beyond the direct causes of biodiversity loss and deal with the fundamental socio-economic issues indicated above.

"State responsibility must go beyond the actions within developing countries that cause species loss. It must extend to responsibility for other critical, though perhaps indirect, actions in the North such as patterns of consumption, inappropriate development efforts, and other national economic and trade policies that have destructive implications for the conservation of biological diversity." (120)

Given the negotiations over transfer of resources from the North to the South surrounding the CBD such an extension of state responsibility was optimistic for the CBD. However by including "Principle 21" there is at least identified that sovereign rights must be tempered by the recognition that biodiversity is a common heritage.

A state's right to exploit its own resources must also be tempered by its own environmental policies. The CBD requires states to incorporate conservation and sustainable use into their national policies. The rights asserted over biodiversity should therefore be restrained by other requirements of the CBD.

IV CONSERVATION AND SUSTAINABLE USE

The CBD requires conservation of biodiversity and sustainable use of the components of biodiversity. (121) Sustainable use is defined in terms of use at a rate which maintains the potential to meet the needs of present and

120 Above n 32, 390.

121 Article 2, Annex, 3.

future generations. (122) Although conservation as such is not defined (123), the definition of *in-situ* conservation includes a preservation approach referring to "the maintenance and recovery of viable populations of species". (124) However it also refers to "the conservation of ecosystems" which indicates that "conservation" means more than preservation as suggested by "maintenance and recovery".

A Articles 6 and 7

Article 6 requires each party to develop national strategies or plans, or adapt existing ones for the conservation and sustainable use of biodiversity. Strategies are to be integrated into relevant sectorial plans. (125) Such documents are a useful tool for conservation.

"One of the best ways to ensure that the various institutions involved in conservation are in general agreement on priorities is to prepare a strategy that defines the basic problems and paints a broad picture of appropriate objectives. Strategies are turned into

122 Article 2, Annex, 4.

123 However conservation is defined in the Draft Convention prepared by the Experts Group as:

"the management of human use of a natural resource on the environment in such a manner that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. It embraces preservation, maintenance, sustainable utilisation, restoration, and enhancement of a natural resource on the environment."

Above n 9, 38.

124 Article 2, Annex, 4.

125 Article 6, Annex, 5.

action through a more tactical process of planning specific activities to address the broad strategies; this often involves the preparation of an action plan." (126)

The CBD does not however provide any indication of how such documents are to be prepared or what they should contain. Although the Preamble refers to women, indigenous people and NGOs there is no requirement in this Article that such groups be consulted even though "(e)xperience has demonstrated conclusively that action plans ... need to be developed in the closest possible collaboration with those who are most directly affected by the action proposed." (127) There is not even a requirement that new strategies be developed as existing ones can be adapted and the contracting party need only undertake these general measures "in accordance with its particular conditions and capabilities". (128)

Article 7 requires identification and monitoring by contracting parties for the purposes of conservation and sustainable use. Identification of the components of biodiversity is important for, without information on what exists, it is difficult to develop the strategies required under Article 6 or undertake the conservation actions under Articles 8 and 9. The process of identification is to have regard to the indicative list of categories in Annex I. (129) This is divided into ecosystems and habitats, species and communities, and genomes and genes. The concern is for threatened elements or those elements of social, scientific, cultural or economic importance. Thus the identification concentrates more on the components of biological diversity, that is "biological resources", rather than "biological diversity", as earlier defined, and

126 Above n 78, 109.

127 Above n 78, 109.

128 Article 7, Annex, 5.

129 Annex I of the CBD, Annex, 21.

the values concentrated on are anthropocentric not ecocentric. This is reinforced by the Article 7 itself which requires the monitoring of the components of biodiversity, particularly those which need urgent conservation measures and "those which offer the greatest potential for sustainable use". (130)

Contracting parties are also required to identify activities which are likely to have significant adverse impacts on biodiversity and monitor those effects. It should be noted that, as with the identification and monitoring of biodiversity, this only has to be done "as far as possible and as appropriate". (131) It is not difficult to imagine that it may "not be appropriate" to monitor particular processes even if they do have adverse effects on biodiversity. Although the results of the identification and monitoring of biodiversity and adverse processes have to be maintained the procedure of monitoring is unlikely to have any effect on those causing adverse impacts on biodiversity without more. As there is not even a requirement that the data be made publicly available it is possible that nothing more may be done. (132) This contrasts with the Elements for a Draft Convention on Environmental Protection and Sustainable Development which required states to "inform all persons in a timely manner of activities which may significantly affect their use of a natural resource". (133)

130 Article 7(b), Annex, 5.

131 Article 7, Annex, 5.

132 However Article 8(1) does require that where a significant adverse effect on biodiversity has been determined under Article 7 states are to regulate or manage the process.

133 Above n 9, 26 (Article 6).

B Conservation

In-situ conservation, which is defined in Article 2 in terms of conservation of ecosystems and maintenance and recovery of species (134), is elaborated upon in Article 8. Again each contracting party need only take these measures "as far as possible and as appropriate". (135) Protecting species can best be done through protecting their natural habitat. (136)

The first 5 paragraphs of Article 8 deal with the establishment of protected areas and the need to regulate or manage biological resources important for conservation of biodiversity. The importance of such an approach is obvious.

However, when discussing the loss of biodiversity above, one issue identified was the pressure on resources by local people who make use of protected areas to meet their survival needs. "(P)rotected areas cannot co-exist with communities which are hostile to them." (137) The CBD recognises the important relationship between indigenous people and local communities with biodiversity. It seeks

134 Article 2, Annex, 4.

135 Article 8, Annex, 6.

136 Above n 78, 12.

"Virtually all countries today contain protected areas, and the area protected currently totals nearly 4 percent of the world's land surface; Bhutan, Botswana, Chile, Malawi, New Zealand, Rwanda, Senegal, Sri Lanka, and Togo have each established protective regimes which exceed 10 percent of their territory (though effectiveness of protection varies considerably), a reasonable minimum standard suggested by IUCN ... and the World Commission on Environment and Development".

Above n 44, 25.

137 J McNeely "New Programme for Parks and Protected Areas" (June 1992) Environmental Policy and Law 22/3, 140.

"subject to national legislation" that the knowledge, innovations and practices of such people be respected and maintained to assist with the preservation of biodiversity, provided the holders of the knowledge give their approval. (138) Protected areas may therefore preserve both biodiversity and cultural diversity.

What the CBD does not deal with however, is how to get support for a protected area from the local people, whether they be indigenous or new-comers. It is important that the full benefits of a protected area are recognised and that local people, including women (139), are involved in its management. Direct incentives in the form of cash (fees, rewards for exemplary behaviour, compensation for damage caused by protected animals, grants or subsidies to assist behaviour change or wages for work done) or in kind (payment in food, improved domesticated stock or plants, or access to resources in a protected area on a sustainable basis) can help win "hearts and minds". (140)

Protected areas have often been created as "islands" surrounded by incompatible land uses. To be effective protected areas need to be part of broader regional approaches to land management. Bio-regions which cover extensive land areas and watersheds have a much greater chance of ensuring that biodiversity survives. (141) This has been recognised in the CBD which seeks the biological resources important for the conservation of biological diversity are regulated or managed in and outside protected areas and the promotion of environmentally sound and sustainable development in areas near protected areas. (142)

138 Article 8(j), Annex, 6.

139 Above n 137, 142.

140 Above n 44, Chapter 4, 57.

141 Above n 137, 141.

142 Article 8(c) and (e), Annex, 6.

Article 8 also deals with risks to biodiversity seeking the rehabilitation of degraded ecosystems, managing the risk of genetically modified organisms and the eradication of pests. It is perhaps ironic that the negotiations focused on the benefits of biotechnology transfer but under the conservation section of the CBD the risks of such technology to the environment and human health was specified. (143)

The CBD also recognises that *in-situ* conservation will require financial and other support. (144) Cooperation on these issues is agreed to by the contracting parties but this can not be enforced. It does however point to support for bilateral agreements between developed and developing countries.

Although there is the potential for concern that the CBD does not provide details on how to establish *in-situ* conservation it is doubtful that specific measures would meet the needs of distinct countries.

"(T)he legislation which is needed to conserve biological diversity must be attuned to the conditions of each individual country. No general recipe is available, not only because of the differences between the various legal systems, but also because of the different socio-economic conditions." (145)

Ex-situ conservation is covered by Article 9. Conservation of biodiversity outside their natural habitats is accepted but "predominately for the purpose of complementing *in-situ* measures". (146) It is preferred that such measures are

143 Article 8(g), Annex, 6.

144 Article 8(m), Annex, 6.

145 W Burhenne "Biodiversity - The Legal Aspects" (Dec 1992) Environmental Policy and Law, 22/5/6, 236.

146 Article 9, Annex, 7.

taken within the country of origin. Where possible threatened species should eventually be reintroduced into their natural habitats. The removal of species should not damage the ecosystem remaining.

This approach is appropriate. *Ex-situ* conservation provides a back-up to *in-situ* conservation, the environment for scientific study to help threatened species survive and an opportunity for public education. It also has disadvantages. The cost of maintaining animals in a zoo can greatly exceed the cost of keeping them in the wild.

(147) Even if animals will breed in captivity, the gene pool is limited so species lose their genetic vitality.

(148) Although the problems of breeding does not generally apply to plants, like animals, they are cut off from their natural environment and so may not adapt to changes.

Although the seed has been frozen for years, pests and diseases have continued to evolve. Once the seed is germinated it will not have the appropriate resistance.

(149) There is also the risk that changes in policies or mistakes may result in the loss of species.

"In conclusion, *ex situ* contributions to conservation are essential for ensuring the survival of crop plants dependent on humans and can provide an extremely valuable insurance policy against extinction of wild species of plants and animals that have been reduced to very low levels in the wild. Yet *ex situ* approaches depend on *in situ* approaches to enable their genetic stocks to be replenished. Therefore, the two approaches should be seen as opposite ends of the total spectrum required for effective conservation." (150)

147 Above n 52, 220.

148 Above n 78, 62.

149 Above n 52, 221.

150 Above n 78, 62.

C Sustainable Use

The CBD provides not only for conservation, but also for sustainable use. As discussed above this is defined in terms of meeting the needs and aspirations of present and future generations. It is specifically considered in Article 10. There are however some problems in differentiating between sustainable use and conservation. For example the protection and encouragement of customary use of biodiversity according to traditional practices is encouraged, provided it is compatible with conservation or sustainable use. (151) It is hard to differentiate this from Article 8(j). Likewise support is to be given to remedial action for degraded ecosystems by local populations (152), but this appears to be no different in intent from Article 8(f). Integration with national decision-making (153) is already provided for in Article 6. Sustainable use therefore relates to adopting measures to avoid or minimise adverse impacts on biological resources (154) and cooperation between government and the private sector to develop methods for sustainable use of biological resources. (155) Both of these aspects of sustainable use are also covered to a certain extent by Article 14.

Sustainable use appears to be the compromise term accepted by the developed countries which were looking for a convention which would conserve/preserve biodiversity and the developing countries which considered that to develop they needed to be able to use their resources. Although the definition relates to "sustainable development" as

151 Article 10(c), Annex, 7.

152 Article 10(d), Annex, 7.

153 Article 10(a), Annex, 7.

154 Article 10(b), Annex, 7.

155 Article 10(e), Annex, 7.

articulated in the Brundtland Report, the substance of sustainable use in the CBD is minimal, particularly if one accepts that conservation could mean the same thing. (156)

The only possible distinction is that conservation relates to biological diversity while sustainable use relates to biological resources. Although this distinction is drawn in Article 1, it is not carried over into the rest of the CBD. Both Articles 8 and 10 refer to "biological diversity" and "biological resources". In the same way that "biological resources" is a subset of "biological diversity", it is submitted that "sustainable use" is a subset of "conservation". From a legal interpretation perspective the term "sustainable use" does not add anything to the requirements of the CBD.

The image of conservation and sustainable use does however link into the concept of "common concern of humankind" contained in the Preamble. Given that present and future generations have rights to biodiversity this combination of preservation and appropriate, limited exploitation does mean that all generations can share the benefits.

D Other Methods to Conserve Biodiversity

One of the reasons for biodiversity loss is perverse incentives. Subsidies either in cash for opening up "waste land" or the provision of infrastructure such as roads has lead to the loss of forests and their replacement with farms. Urban over-population has resulted in resettling policies in remote areas - and the loss of natural ecosystems. Subsidies for pesticides or the provision of hybrid seeds reduce the natural biodiversity. (157)

Article 11 recognises this perversity and requires contracting parties "as far as possible and as appropriate" to adopt economic and social measures that will act as

156 See footnote 123.

157 Above n 44, 44.

incentives for biodiversity. (158) A corollary of that must be that incentives which work against biodiversity should be eliminated. Unfortunately the prevailing system of subsidies and grants often supports the economically or politically powerful and therefore change will not be easy.

The remaining Articles dealing with conservation and sustainable use are general in nature. Article 12 is concerned with research and training. Unlike the other Articles, this Article is written as if it were mandatory. The contracting parties shall establish and maintain programmes for training in the identification, conservation and sustainable use of biodiversity. However there appears to be a limitation in that the promotion and encouragement of such research is *inter alia* to be in accordance with decisions of the Conference of the Parties. (159) This suggests that action on this Article will be delayed until the Subsidiary Body of Scientific, Technical and Technological Advice (160) has made recommendations.

A similar delay could be expected for the, also mandatory, public education and awareness requirements if there is to be cooperation with other states to develop programmes. (161) Education on what biodiversity is, why it is important for people, and how it can be conserved or sustainably used is essential if the loss of biodiversity is to be halted. Without this understanding the general public in the developed countries are not going to support their governments spending money in developing countries on conserving biodiversity. In developing countries education is going to be equally important to ensure the people support the conservation measures undertaken.

158 Article 11, Annex, 7.

159 Article 12(b), Annex, 8.

160 Established under Article 25, Annex, 14.

161 Article 13(b), Annex, 8.

V TRANSFER OF BENEFITS

A *Multilateral Agreements on Genetic Resources*

Those Articles in the CBD on access to genetic resources and access and transfer of technology were controversial. The original idea for a convention was one that preserved plant and animal life. Instead, the USA considered, the convention finally agreed to "was more about commerce than conservation". (162) One argument used to justify the USA refusal to sign the CBD was that bilateral agreements were already in existence and there was no need for a global convention on access and transfer. (163) The Merck-INBio agreement provides an example of such an arrangement. (164) This agreement between a Costa Rican agency and a USA pharmaceutical company will provide benefits for one country and its biodiversity.

162 W Burhenne (ed) "Rio Conference on Environment and Development" (August 1992) *Environmental Policy and Law* 22/4, 207.

163 W Reid et al *Biodiversity Prospecting* (World Resource Institute, USA, 1993) 44.

164 *"In September 1991, Costa Rica's National Biodiversity Institute (INBio) - a private non-profit organisation - and the US-based pharmaceutical firm Merck & Co, Ltd, announced an agreement under which INBio would provide Merck with chemical extracts from wild plants, insects, and micro-organisms from Coasta Rica's conserved wildlands for Merck's drug-screening program in return from a two-year research and sampling budget of \$1,135,000 and royalties on any resulting commercial products. INBio agreed to contribute 10 percent of the budget and 50 percent of any royalties to the government's National Park Fund for the conservation of national parks in Coasta Rica, and Merck agreed to provide technical assistance and training to help establish drug research capacity in Costa Rica".*

Above n 163, 1.

The advantage of a multilateral agreement is that it assists all countries. It can provide the framework for financial and technical support to cover all biodiversity. It can create a "level playing field" so that developing countries can obtain expertise to assist with negotiations with companies. As more countries enter the business of "biodiversity prospecting" it is likely that the world price for biodiversity may fall. All countries which are the source of biodiversity will benefit from uniform arrangements even if it is minimum obligations on those "prospecting". (165) The potential for "the tragedy of the commons" to occur again with individual countries maximising their personal benefits by selling more products for less environmental returns could be stopped with an effective global convention.

Bilateral agreements are usually between a company and a developing nation (or agency of that nation). The developed country has no input and can disregard the actions of its nationals in exploiting the resources of another country. Under appropriate international agreements the developed country may be forced to take action to ensure that its nationals follow the correct procedure.

"(It) could pass laws requiring that gene or biochemical patent applications within (the developed) country include evidence that the material in question was collected with the prior informed consent of the source country and of local landowners or land claimants." (166)

An international agreement also acknowledges that the benefits of conserving biodiversity, although of local importance, are also essential for global survival.

165 Above n 163, 45.

166 Above n 163, 46.

B Access to Genetic Resources

Article 15 of the CBD deals with access to the genetic resources. It reiterates the sovereign rights of states to their national resources and that the authority to determine access to such resources is subject to national legislation. (167) However the recognition of sovereignty is not absolute as the parties shall "endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses" and are not to impose restrictions which run counter to the CBD. (168)

"Environmentally sound uses" looks to the final use of the genetic resource and not to its removal from the ecosystem. This suggests companies have an end product in mind when they are "prospecting". In some cases this may be true if companies are looking for a particular remedy or are searching for particular species. In other cases it may be a "fishing expedition". (169) Even if a company does know what it looking for it may have trouble justifying the end product in terms of "environmentally sound use". If the end product is to be used in biological warfare then, however environmentally sound the process of "prospecting" may be, a contracting party would be justified in not facilitating access to genetic resources. But what if the search is for a cure for baldness? Although financially sound it is hard to classify this as an "environmentally sound use". Given an ecocentric approach it may be hard to justify trying to find cures for cancer or AIDS as an

167 Article 15.1, Annex, 9.

168 Article 15.2, Annex, 9.

169 *"In any given trial, the likelihood of discovering a valuable compound for the pharmaceutical industry is quite low. By most estimates, only about one in 10,000 chemicals yields a promising lead, and less than one fourth of the chemicals reaching clinical trials will every be approved as a new drug".*

"environmentally sound use" when humans are causing the greatest destruction of the environment. The *quid pro quo* to sovereignty may not amount to much if countries do not wish to grant access.

However, if access is granted, it is to be on mutually agreed terms and shall be subject to prior informed consent. (170) The parties are to take "legislative, administrative or policy measures, as appropriate, ... with the aim of sharing in a fair and equitable way the results" of research and its commercial utilisation. (171)

"Acknowledging that Contracting Parties must share the benefits of any profits arising from work on genetic resources is commendable, especially in the light of disagreements on this issue." (172) Problems still exist.

"Fair and equitable" is not defined. Although the chances of finding promising leads in natural products is much higher than synthetic chemicals because a single biodiversity sample may contain hundreds of different chemicals, it is still only 1 lead per 1000 samples. That lead may not however prove to be commercial, or, if it is, it may not be a "blockbuster" worth millions of dollars.

(173) As well research takes time so it may make sense to seek higher payments for access with relatively small royalties. Deciding what is "fair and equitable" with so many uncertainties is going to require value judgements.

The subsidiary body to the Conference of Parties (174) may well be required to provide legal and economic expertise to develop precedents and provide advice.

The genetic resources referred to in Article 15 and the following Articles relating to transfer of benefits are those which are obtained in accordance with CBD. The CBD

170 Article 15.4 and 15.5, Annex, 9.

171 Article 15.7, Annex, 9.

172 Above n 3, 79.

173 Above n 163, 17.

174 See Article 25, Annex 14.

makes no recognition of genetic resources which have already been obtained by whatever means. (175) It will also not apply if the genetic resources are obtained from countries which are not a party to the CBD.

C Access to and Transfer of Technology

In return for developing countries agreeing to provide access to genetic resources the developed countries are to provide access to technology (which includes biotechnology). Access and transfer of technology are "essential elements for the attainment of the objectives of this Convention". (176) The technologies cover those for conservation and sustainable use of biodiversity or those which use genetic resources and do not cause significant damage to the environment. It is to be provided to developing countries on "fair and favourable terms, including on concessional and preferential terms". (177) Unlike access to genetic resources which is treated as an equal partnership in that the benefits are to be shared "in an equitable way", access to technology requires positive discrimination for developing countries. This positive discrimination may provide some form of compensation for exploitation of biodiversity made prior to the CBD, but as the compensation will not be targeted to those countries which have already lost control of genetic resources this "scatter-gun" approach will not redress all losses.

The USA saw Articles 16 and 19 as a major threat to its biotechnology industry and intellectual property rights. (178) However the transfer of technology is not a forced sale. It is on mutually agreed terms and where the technology is subject to intellectual property rights the

175 Above n 163, 20.

176 Article 16.1, Annex, 9.

177 Article 16.2, Annex, 9.

178 Above n 162, 207.

access and transfer shall be provided on terms which are consistent with those rights. (179) In effect this Article provides that one of the ways of "paying" for access to genetic resources is by the transfer of technology. There is a preference stated for the transfer of technology relevant to the genetic resources taken, but again on mutually agreed terms. (180) The Contracting Parties are to try and facilitate the same approach between the private sector of developed and developing countries. "Facilitation" however does not mean governments will require private companies to transfer their trade secrets to potential competitors.

"To 'facilitate' the transfer of such technology, there are several possibilities:

- *acquisition by the State (unlikely);*
- *acquisition through the Funding mechanism under the Convention;*
- *volunteer measures on the part of the industry;*
or
- *a mixed system (incentives to make technology available)."* (181)

The potential threat to business which worried the USA does not appear justified on the terms of the CBD. Technology transfer will only occur if the companies involved are agreeable to the transfer. Access to genetic resources may now cost - but this is only fair and normal compensation for resources. Biodiversity is no longer to be treated as a free good. How that payment is to be made will be up to the company involved, although it is possible that governments may provide some incentive for technology transfer, especially where the technology relates to the resource taken.

179 Article 16.2, Annex, 9-10.

180 Article 16.3, Annex, 10.

181 Above n 145, 326.

Technology transfer can of course go the other way - from developing to developed countries. The Preamble and Articles 8 and 10 refer to the knowledge of indigenous people and local communities. Although this knowledge is generally considered in terms of conservation and sustainable use, practices such as traditional medicine also makes use of genetic resources. In considering the appropriate legislative measures, developing countries may also have an interest in protecting such intellectual property and traditional technology. (182)

The CBD does note intellectual property rights "may have an influence on the implementation of this Convention". (183) It seeks that parties cooperate to ensure such protection is supportive of and not counter to the objectives of the CBD. It does not require that intellectual property rights be ignored nor does it suggest that such rights are essential.

"(I)n effect, the subsection thus represents an agreement to disagree for now on whether particular intellectual property rights should be strengthened or weakened consistent with the Convention. ... Rather than mandating unfavourable technology transfer,

182 A claim was made over 2 years ago to the Waitangi Tribunal (Wai 262) for tino rangatiratanga over native flora and fauna, for example. This was spurred by overseas companies already having patents on native flowers including the pohutukawa, clematis and kowhai under the Plant Variety Rights Act 1987.

Tama Poata, one of the claimants said:

"(Q)uite a few people thought it was a bit of a ha ha, you know. They saw it as a why bother thing, you know, because seeds, you know, who the hell's concerned about seeds, and they're such a bloody insignificant thing. But now I think their attitude's changed a bit."

Audio Monitor Ltd transcript of 2YA Mana News 6:38am
22/9/93 - on file with author.

183 Article 16.5, Annex, 10.

Article 16 can be read as promoting such non-compulsory measures as tax incentives, trade assistance, clearinghouses, and grants or awards for private companies agreeing to transfer biotechnology to countries providing genetic resources. In the long-run, Article 16 should strengthen intellectual property rights, not undercut them." (184)

Part of the above reasoning is based on the historical fact that as countries acquire basic levels of technology and therefore develop their own technology, intellectual property rights become desirable. Some form of intellectual property rights may also be necessary to protect the value of biodiversity prospected. (185)

To enable the developing countries to reach a level where intellectual property rights may be desirable some consideration should be given to the type of technology transferred. This is to be mutually agreed upon but often the technology designed for industrialised nations does not work in the South or does not address the appropriate issues. "(T)he industrialised nations should be encouraging the capacity-building of developing nations, rather than simply encouraging the transfer of 'hard' technologies." (186)

One aspect of capacity-building is exchange of information. This is covered by Article 17. It covers all publicly available information relevant to conservation and sustainable use including information held by indigenous people. Scientific knowledge will generally be available in written form and it will be reasonably clear when it is

184 Above n 163, 297.

185 Above n 163, 191.

186 M Townsend "The International Transfer of Environmental Technology" (June 1993) *Environmental and Planning Law Journal*, Vol 10, No 3, 168.

publicly available, although inadvertent disclosure of trade secrets is always possible. Cultural information on the other hand is unlikely to be written and its availability may be limited to particular members of the public - the tribe itself. When Contracting Parties facilitate the exchange of information they may need to consider how to promote confidentiality of information which is not traditionally covered by such restraints. (187)

Another aspect of capacity-building is through technical and scientific cooperation. Article 18 provides for such cooperation through institutions, training (including on indigenous knowledge), the establishment of a clearing-house and joint ventures. Training is an effective means of technology transfer provided the graduates return to their own country. It should "not act as a mechanism for the industrialised nations to 'purchase' the poorer states' brightest young scholars." (188) On the other hand training on traditional technologies should not be treated as a free good. Intellectual property rights could protect such knowledge. (189) Joint ventures will enable the parties to develop programmes appropriate for their particular circumstances, but within the framework of the CBD.

187 An example from Above n 163, 35 of what should not happen:

"The author of Medicinal Plants of East Africa (which gives complete descriptions of the taxonomy, distribution, and uses of the medicinal plants) writes in the foreword:

'Many of the herbal medicine men will not like this book since it may deprive them of their profession once their secrets are revealed. The majority of them were reluctant to show me the drug plants as a whole for this reason. In most cases, I was given the leaves or root of the plant already crushed or picked. But after some persuasion, I was shown the plant on the condition that I would not reveal it to anyone else' (Kokwaro, 1976)."

188 Above n 186, 167.

189 Above n 163, 298.

Although Article 16 recognises that technology includes biotechnology, Article 19 specifically deals with biotechnology. (190) Besides providing for participation in biotechnology research by the country which supplied the material (and in that country if feasible) it also requires that parties "shall take all practicable measures to promote and advance priority access on a fair and equitable basis" to the results of such research. (191) This differs from Article 15 where there was an aim of fair and equitable sharing. This provision suggests not only sharing of the benefits of the commercial success but also an opportunity to obtain a competitive advantage by having priority access to the scientific results. Again such access is to be on mutually agreed terms so it is not a mandatory requirement.

The risks of biotechnology were recognised as a potential threat to *in-situ* conservation. This concern is carried over to Article 19 which requires a protocol on procedures for dealing with a living modified organism and the provision of information on any such organism where it is to be introduced into any contracting party's area.

Articles 15, 16 and 19 all make the assumption that there is only one country from which the genetic material is sourced. In many cases however this will not be the case. Often there are a number of countries which have the same species, and within each country a number of places from which the genetic resource can be obtained. The CBD does not indicate how this is to be dealt with. If there is to be "fair and equitable" sharing of benefits can this be achieved if the benefits go to the country that was prepared to enter the best contract for a company? The same can be asked at a national level. If a number of tribes within an area practice similar traditional technologies is it "fair and equitable" that the first

190 Article 19, Annex, 11.

191 Article 19.2, Annex, 11.

tribe the company deals with gets the benefits when the other tribes could provide similar information? One solution may be a clearing-house which deals not just with technical and scientific cooperation but also the sharing of the financial and conservation benefits.

D *Financial Mechanisms*

This sharing of benefits is envisaged to a certain extent in the financial mechanisms of the CBD. As noted earlier this proved to be a controversial area and was not agreed to until the last negotiating session. (192) Article 20 requires that each party provide "in accordance with its capabilities" financial support for national activities.

(193) The developed countries shall also provide "new and additional financial resources" to enable developing countries to meet the costs of implementing the CBD obligations. (194) The term "new and additional" is deliberate to ensure developed countries do not just move their financial contributions from one fund to another.

The mechanism which determines how the financial resources are to be contributed and distributed is placed under the "authority and guidance" of the Conference of Parties in Article 21. (195)

The placing of the financial mechanism under the authority of the Conference of Parties was another reason given for the USA refusal to sign the Convention. Other developed nations were also concerned that "it may be interpreted as requiring a blank cheque from the North". (196)

192 Above n 28, 81.

193 Article 20.1, Annex, 11.

194 Article 20.2, Annex, 11.

195 Article 21.1, Annex, 12.
The Conference of the Parties is established under Article 23, Annex, 13.

196 Above n 145, 325.

"Nineteen developed country governments signed a declaration after the final negotiations in Nairobi stating that Article 21 should not be construed to give the Conference of the Parties the power to decide the amount of individual contributions to be provided by the donor countries. Some governments repeated this reservation when signing the Biodiversity Convention in Rio, with additional statements to that effect." (197)

As Article 23, which establishes the Conference of the Parties, requires that the Conference "shall by consensus agree upon and adopt the rules of procedure for itself" (198) there is some additional protection for the North in controlling how the Conference will deal with financial issues.

The other controversy surrounding the financial mechanisms was the provision of the interim financial arrangements under Article 39. (199) This is to be provided by the Global Environment Facility (GEF) of the United Nations Development Programme, the UNEP and the International Bank for Reconstruction and Development from when the CBD comes into force until the Conference decides otherwise. "(T)he developing countries delayed acceptance (of Article 39) until the very last minute, subjecting it to the restructuring and democratisation of the Facility." (200)

Throughout the UNCED negotiations there was a tension over financial arrangements. The developing countries requested a separate "Green Fund" to deal with the non-global issues while the developed countries "would not agree to large-scale transfers unless they had faith that the money

197 Above n 3, 81.

198 Article 23.3, Annex, 13.

199 Article 39, Annex, 19.

200 Above n 145, 325.

would be well used, and not wasted or dissipated, for example through corruption." (201) The compromise was a reformed and democratised GEF led by the World Bank (202) which was accepted as the interim funding mechanism for the Convention on Climate Change as well as the CBD. "Details still need to be resolved and uncertainties persist about its exact role and the degree of funding commitments." (203)

The financial debate was seen in terms of the North providing aid to resolve its own environmental global problems and the South seeking aid with the environment giving them bargaining power. It may be that what is required is a change of paradigm at a national and international level. While the developed world considers they are providing aid it is easier for the tax-payers to see this as discretionary expenditure for which there is no return. Governments will not provide the funds necessary because it is not "a vote catcher". The reality is however that it is not the North funding the South:

"(E)ven after deducting all forms of World Bank, IMF, AID and other government and private bank funding, there is a net cash flow of 50 thousand million US dollars each year from the poorest nations of the world to the richest nations." (204)

201 Above n 3, 29.

202 *"Statement on the Future Evolution of the Global Environmental Facility, Report of meeting, World Bank 29-30 April 1992. Thirty two governments, half from developing countries, agreed a final document (The GEF - Beyond the Pilot Phase) which set revised guiding principles for the GEF."*

Above n 3, 40, footnote 23.

203 Above n 3, 40.

204 Above n 108, 154.

The public therefore need to be educated not only on biodiversity but on how the world's financial system works and where the money goes, so it can make informed decisions on what is important for the environment. More importantly people need to consider the fairness and equability of the present situation. As noted earlier the CBD only covers resources which are obtained from when the CBD takes effect. What may help to resolve the financial situation is an acknowledgement of the ecological debt owed by the North.

"Developed nations should be urged to look upon environmental assistance to developing countries as a way of partially paying the debt to the global environment which they have incurred through their past, largely environmentally insensitive, development." (205)

Although the valuation of such a debt would be near to impossible the mental approach of seeing the payments for the protection of biodiversity as compensation for the environmental harm, including climate change and ozone layer destruction, caused by those nations which enjoy a high living standard and partake in excessive consumption may make the payments more acceptable to the public and thus their governments.

When assessing the ecological debt it is:

"important not to make a distinction between internal and external debts, as ... a state is not only responsible when it causes harm to biodiversity outside its national boundaries, but also when it causes harm to biodiversity under its own jurisdiction. Moreover, the compensation should not only refer to the harm that has been caused as a

direct consequence of the actions of a certain state, but also the harm that is caused as an indirect consequence of certain actions." (206)

When the finance provided is seen as assistance then developing nations can legitimately attach conditions on how the money is to be spent to ensure it is not wasted or to ensure it is used for the global environmental issues. The fact that the environmental concerns of the developing nations (which may be fresh water supplies, desertification or education of local people) do not coincide with the wishes of the developed country has meant that the local environmental projects have not received aid. If, however, the finance is for payment of a debt then the justification to impose conditions does not exist and developing countries can take control of their own destiny. This may enable developing countries to meet their first and overriding priorities of "economic and social development and poverty eradication". (207)

The Preamble also noted that it would be finance and access to technologies which could be expected to "make a substantial difference to the world's ability to address the loss of biological diversity". (208) Unfortunately with the present attitude to providing finance the loss of biodiversity will not be addressed in a way that will make a difference.

VI THE GENERAL PROVISIONS

A number of the remaining Articles of the CBD establish the machinery to run the Convention. Identifying UNEP as the interim Secretariat (209) contained none of the controversy

206 Above n 108, 18.

207 Preamble, Annex, 3.

208 Preamble, Annex, 3.

209 Article 40, Annex, 19.

of the interim financial arrangements. For practical reasons of communication and relationship with other environmental organisations the interim Secretariat has however been based in Geneva, not Nairobi. Other provisions deal with the machinery of bringing the Convention into force, the rights to vote and withdrawing from the CBD. I only intend discussing the remaining Articles which raise particular issues.

A Administration

Article 22 clarifies that the CBD will not affect the rights and obligations of any party under existing international agreements "except where the exercise of those rights and obligations would cause a serious damage or threat to biodiversity". (210) Thus the existing international environmental treaties will continue, as should the intellectual property treaties. This subordination by the CBD to other treaties should also provide reassurance to those concerned about intellectual property rights that the CBD is not going to destroy the existing system.

Both the Secretariat and the requirement that the parties are to present reports on the measures taken to implement the CBD and their effectiveness in meeting the objectives (211) will be very important to ensure the CBD is "not a sleeping beauty".

"The establishment of a central administrative, coordinating body, such as a secretariat, has proven to be very important for the implementation of a treaty, especially when this administrative body is reinforced by national agencies. Simply by arranging for regular meetings the treaty will have the

210 Article 22.1, Annex, 13.

211 Article 26, Annex, 15.

permanent attention of the signatories, enabling them to react to changing circumstances. Exchange of data, coordinating planning, and evaluation requirements will further improve the quality of the cooperation." (212)

In this particular case there is also the subsidiary body which is to provide scientific, technical and technological advice to the Conference. (213) This body, if properly funded, should help redress the imbalance between developing countries and multinationals when it comes to negotiating "mutually agreed" contracts on access and transfer.

The establishment of such a regime which ensures the CBD will be under continual review is likely to result in the adoption of protocols. (214) The CBD already envisages such a protocol for biotechnology safety (215) and the establishment of a clearing-house (216) is another possibility. The provisions to add protocols and annexes and make amendments to any part of the CBD will ensure it is a living document which can respond to changes. (217)

B Settlement of Disputes

Article 27 and Annex II deal with the settlement of disputes. They provide for negotiation, followed by mediation, followed by either arbitration or submission of

212 Above n 108, 103.

213 Article 25, Annex, 14-15.

214 Article 28, Annex, 16.

215 Article 19.3, Annex, 11.

216 Article 18.3, Annex, 10.

217 An example of this living document is the Vienna Convention for the Protection of the Ozone Layer to which has been added the Montreal Protocol on Substances that Deplete the Ozone Layer which itself has been altered by the London (1990) and Copenhagen (1992) Amendments.

the dispute to the International Court of Justice if either has been specified. If parties have not agreed on the same process or have not chosen a process then conciliation is to be used, unless the parties agree otherwise. (218) This process is not new. Article 11 of the Vienna Convention for the Protection of the Ozone Layer in 1985 provided the same menu which "offers a sufficient number of dishes and lacks nothing in flexibility. What it lacks, however, is a great deal in terms of certainty and authority: similar disputes could end up being decided quite differently." (219) Change to other aspects of the process have also been noted:

"There is a need for improved judicial mechanisms both for the settlement of disputes between states and between individuals and their associations and states, and for securing advisory opinions on the interpretation on international environmental law at the request of national courts or other institutions. This could be accomplished by making more effective use of and enhancing the jurisdiction of the International Court of Justice. The Court could establish a special Environmental Chamber, when appropriate. If this is not feasible a new International Environmental Tribunal should be established possibly with branches operating in regions." (220)

The President of the International Court of Justice (ICJ) considered that Court not only has a role in settling environmental disputes but also has "a vital role in the

218 Article 27, Annex, 15.

219 Sir Geoffrey Palmer "The Implications of Climate Change for International Law and Institutions" (Spring 1992) *Transnational Law and Contemporary Problems*, Journal of The University of Iowa College of Law, Vol 2, No 2, 253.

220 Above n 108, 200.

development and elaboration of general law". (221) It has an advisory role and can make "authoritative statements of the law in answer to the requests of certain qualified bodies". (222) The President states that there are Judges with a particular interest in environmental legal problems and a standing environmental Chamber could be created. Most cases however are presently submitted to a full Court (rather than an *ad hoc* Chamber) which enables 15 Judges from the developed and developing world to consider the case, with most decisions recently being unanimous or near-unanimous. (223)

Although improving the process of decision-making to ensure near-unanimous judgements without division along North-South lines may cause some states to consider using the ICJ, the President's claims do not answer the other concerns raised above - particularly the ability of individuals to seek the settlement of disputes or national courts to request advisory opinions. These are not "qualified bodies". The establishment of a special Chamber is a possibility, but again this would not answer the concerns of wider standing.

The alternative of a completely new Court, an International Court of Justice for the Environment has been advanced.

(224) It would be:

"a new permanent organ of the United Nations (with the task of resolving disputes about the environment that, due to their nature, touch vital interests within the international community and with powers for taking

221 Sir Robert Jennings "Need for Environmental Court?" (Dec 1992) *Environmental Policy and Law* 22/5/6, 312.

222 Above n 221, 313.

223 Above n 221, 314.

224 A Postiglione "An International Court for the Environment?" (1993) *Environmental Policy and Law* 23/2, 73.

urgent measures in the event of environmental disasters or of situations that seriously endanger the environment); a body that is accessible not only to the States but to individuals and non-governmental organisations, in exercising the human right to the environment." (225)

The accessibility of an international Court to the public is based on the promoter's belief that "the environment is not a right of the States but of the people". (226) As such the International Court of Justice can not deal with such disputes "because it is placed as a human right in potential or, in actual fact, in real opposition to the States and their institutions, which are still tied to economic interests contrasting with it." (227)

Such a Court would answer the concerns about public access but it is unlikely to find favour with many states. Again the problem is one of sovereignty. States are not prepared to use the International Court of Justice as a mechanism for settling disputes because it will give power to a body outside the State. As a result there is a "choice of dishes". A Court giving individuals or NGOs access to the international legal system would not gain the support of all states. If it was established outside the United Nations system any decisions or advisory opinions could be ignored.

It has been argued that "States have already lost their sovereignty in the field of ecology as no single State is able any longer to defend its territory or its atmosphere on its own." (228) The debate on access to genetic resources indicates that this argument has not been accepted by states at least.

225 Above n 224, 77.

226 Above n 224, 75.

227 Above n 224, 75.

228 Above n 224, 74. Quote from Lester Brown of the Worldwatch Institute.

An alternative suggestion has been the establishment of an International Environmental Ombudsman. If this was to be done it would have to be more than "a kind concession made by existing institutions, because of his purely representative role." (229) The Ombudsman would need to be competent to request an advisory opinion from the ICJ, and perhaps even take disputes on behalf of individuals and NGOs. (230)

That there were problems with the existing dispute settlement system were recognised at UNCED. Chapter 39 of Agenda 21 provided that:

In the area of avoidance and settlement of disputes, States should further study and consider methods to broaden and make more effective the range of techniques available at present, ... This may include mechanisms and procedures for the exchange of data and information, notification and consultation regarding situations that might lead to disputes with other States in the field of sustainable development and for effective peaceful means of dispute settlement in accordance with the Charter of the United Nations including, where appropriate, recourse to the International Court of Justice, and their inclusion in treaties relating to sustainable development." (231)

Given the tight timetable for the CBD and the fundamental debates on content it is not surprising the settlement of dispute provisions followed the tested formula. It is however a matter the United Nations has now made an issue to be considered in relation to Agenda 21. If there was to be any change to dispute resolution by providing a Court where individuals could be heard, either through an Ombudsman or directly, there would need to be some alteration to the CBD.

229 Above n 224, 75.

230 Above n 108, 200.

231 Chapter 39.9 Agenda 21, Above n 1, 470.

Besides changing the dispute resolution provisions there may need to be greater provision for participation of the public. The CBD concentrates on educating the public and using their knowledge to assist in the conservation of biodiversity. It leaves national legislation matters to the states. The only place where it suggests the public may participate is in the preparation of environmental impact assessments, and that is only "where appropriate". (232) Articles 6 and 20 of the Draft Convention (233) provide an example of a differing approach.

"States shall inform all persons in a timely manner of activities which may significantly affect their use of a natural resource or their environment and shall grant the concerned persons access to and due process in administrative and judicial proceedings." (Article 6)

"States shall provide remedies for persons who have been or may be detrimentally affected by transboundary interference with their use of a transboundary natural resource or by a transboundary environmental interference. In particular, States of origin shall grant those persons equal access as well as due process and equal treatment in the same administrative and judicial proceedings as are available to persons within their own jurisdiction who have been or may be similarly affected." (Article 20)

Although these Articles do not reform the international legal system they do at least provide that individuals and NGOs are able to obtain information on the environment and where harm has been done that they have access to the national judicial process. The CBD on the other hand makes no attempt to regulate the relationship between the citizen and the state. Sovereignty means this is left to the state.

232 Article 14.1(a), Annex, 8.

233 Above n 9, 29 (Article 6) and 32 (Article 20).

As noted above (234), the CBD does not provide for either liability or remedy. Again the Draft Convention may provide some assistance if a review of the dispute settlement process was undertaken. If a state carries out an activity which causes substantial harm to the environment (within or outside its jurisdiction) then it shall ensure compensation is provided, even if the state did not know such harm would occur. (235) It also provides remedies for a breach of an international obligation in that a state shall:

- "(a) cease the internationally wrongful act;*
- (b) as far as possible, re-establish the situation which would have existed if the internationally wrongful act had not taken place;*
- (c) provide compensation for the harm which results from the internationally wrongful act;*
- (d) where appropriate, give satisfaction for the internationally wrongful act."* (236)

Spelling out responsibilities will not resolve everything - Is it an internationally wrongful act ?, What was the situation existing before the act ?, How much compensation ? Is there any moral or political injury caused to another state for which "official regrets or apologies, ... penal or disciplinary measures against guilty minor officials, or ... a declaration by an international court... that an internationally wrongful act has been committed" (237) may give satisfaction ? Unfortunately Article 22 of the Draft Convention does not advance the manner in settling disputes as it is also "reminiscent of medieval duelling: choose your weapon." (238)

234 Part III D of this paper.

235 Above n 9, 28 (Article 11).

236 Above n 9, 32 (Article 21).

237 Above n 9, 130.

238 Above n 219, 253.

Thus, although there are possibilities in clarifying the responsibilities of states, providing for greater participation of individuals and NGOs in the judicial process, and reforming the international judicial system to encourage the use of one forum such changes to the CBD are only likely to occur if the United Nations itself acts on Chapter 39 of Agenda 21. (239)

239 *"(T)he first optional protocol to the International Covenant on Civil and Political Rights by which individual citizens of an acceding state have a right of direct petition to a United Nations body for violation of the rights contained in the Convention, provided they have exhausted all available domestic remedies" is a possible precedent.*

M Mulgan "Violence, Women and the Rights Debate" (August 1993) Challenging Law and Legal Processes - the development of a feminist legal analysis, New Zealand Law Society Seminar, 70.

This would not give rights to NGO's but could meet the needs of individuals including "group of individuals" whose rights under the CBD have been violated.

VII CONCLUSION

This paper has commented on the Convention on Biological Diversity by considering how its specific articles deal with biodiversity. The CBD must also be approached from a holistic stance. Its greatest single achievement is that the loss of biodiversity is no longer the concern of a few conservationists and biologists. It has now become a political issue. (240) It is the consciousness-raising aspect of the CBD which is most likely to result in people taking action. Until "the public" recognise that there is an issue there is no incentive for politicians to take action which will cost money.

"The world is losing perhaps 1.8% of its forests each year, which is little more than the rate at which a man loses his allotted three score years and ten of life.

That rate, quick as lightning in terms of the history of life, slow as old age to an individual human, is one of the reasons why efforts to save the world's species have been so sporadic and feeble." (241)

The fanfare of UNCED, including all the preparatory work such as country reports, has meant that more people have become aware of environmental issues, including the loss of biodiversity. It is probably still true that most people are more concerned about pandas and whales than they are about grasses and insects, but the rate of loss in the tropical areas and its significance is beginning to filter through. (242)

240 J McNeely "The Biodiversity Convention Since UNCED" (June 1993) The Independent Sectors' Network, No 27, 7.

241 "Noah's Fridge" (10th April 1993) The Economist, 15.

242 As an example consider the Body Shop and the messages contained on its products which include saving the tropical rain forests.

"(I)t is as if we had available to us an enormous library full of scientific information, much of which may be of crucial importance, only a fraction of which has been catalogued and which hardly anyone has started to read. The point is that the library has started to disappear and if we are not careful it is likely to be largely destroyed within a few decades."
(243)

This paper has considered the most recent plan to deal with this "library of scientific information". A review of the values of this information confirmed that much of it may be of "crucial importance" to humankind. The discovery of new species, the improvement in science in identifying the components of biodiversity, and the advancements in biotechnology all reinforce the idea that further scientific information of value to human survival on Earth could well be revealed from within the "library". Given this importance of biodiversity it is somewhat disconcerting to realise that only a fraction of the species have been "catalogued". (244)

The analogy of biodiversity being contained within a disappearing library can be applied to the CBD. As a plan for this library it contains requirements for "cataloguing" (245), rare "books" are to be placed on "Closed Reserve"

243 C de Klemm "Extracts from Conservation of Biodiversity and International Law" (1991) IUCN, Switzerland.

244 *"Surprisingly, scientists have a better understanding of how many stars there are in the galaxy than how many species there are on Earth. Estimates of global species diversity have varied between 2 million to 100 million species, with a best estimate of somewhere near 10 million, and only 1.4 million have actually been named."*

Above n 48, 9.

245 Article 7, Annex, 5.

(246), rules are to be introduced on how the library is to be used (247) (including the training of "librarians" and the public (248)), "books" are to be made more readily available to "members of the library" (249), and "reading classes" are to be made available to members so that they can study and benefit from the contents of the "books" (250).

The problem with perceiving biodiversity as scientific knowledge within a library is that it suggests the only value of biodiversity is its genetic richness. If this was so, then one solution would be to send a fleet of international airships to the tropics and take samples of everything that can be collected living in the trees, their roots, the soil and on the forest floor as well as samples from the trees. These could then be frozen in liquid nitrogen and transported to frozen vaults providing a "library of scientific knowledge" that would not disappear. DNA from these vaults could be used to re-establish species. (251)

Besides the problems of species not evolving and the potential for mechanical or human failure, such a solution ignores the other values of biodiversity. Although some of these values such as aesthetic, existence, bequest and intrinsic values may not be accepted by all people, or not accepted in the same way because of their subjective nature, other indirect values including the life sustaining systems of the biosphere are measurable from an objective stance. Just creating "Noah's fridge" will not save biodiversity or humankind.

246 Articles 8 and 9, Annex, 6-7.

247 Articles 10 and 11, Annex, 7.

248 Articles 12 and 13, Annex, 7-8.

249 Article 15, Annex, 9.

250 Articles 16 to 19, Annex, 9-11.

251 Above n 241, 16.

One of the achievements of the CBD is the inclusion of the concept of "intrinsic value". Just including the idea in an international convention gives the concept more validity. (252) It provides a moral suasion for the conservation of biodiversity. Although the text of the CBD does not refer to intrinsic value except in the Preamble, the difference in meaning between "biological diversity" and "biological resources" in Article 2 of the CBD (253) does provide some support that "biological diversity" includes organisms which do not have "any actual or potential use or value for humanity", in other words organisms which only have value of and in themselves

Another achievement was the inclusion of the concept of "a common concern of humankind" which had not previously been incorporated in a convention. Linked with the references to "future and present generations", it acknowledges that both the loss of biodiversity and the responses to that loss are a matter of interest to all people, whether living now or in the future. This also indicates a concern beyond pure scientific information and incorporates "bequest value".

The CBD also includes the concept of "sustainable use". From a legal perspective this paper concluded that it really did not add anything to the CBD. Everything that was covered by the term "sustainable use" could be covered by the term "conservation", and had been done so by the definition of "conservation" in the Draft Principles. (254)

252 An example of how ideas or concepts take on validity can be seen within this Convention by the use of the phrase "common concern of humankind". The fact that this gender-neutral language has become part of the international legal terminology illustrates how, over time, concepts become incorporated into the norm.

253 Article 2, Annex, 3.

254 See footnote 123.

The fact that "conservation" was not defined, even though it was a key term in the CBD, does raise questions of what it means. It was suggested that "sustainable use" was perhaps a subset of "conservation" in that the later covered not just use but also preservation. However, from a political point of view the term "sustainable use" has a great deal of merit. Like "sustainable development" it is a term that people can latch on to. It suggests "having one's cake and eating it too". "(A)lmost no one outside the green movement shares the aim of stopping growth".(255) While people continue with the ideal of economic growth and improving the standard of living, phrases such as "sustainable use" which suggest that we can readily continue to use the Earth's resources are attractive politically.

The CBD provides a general framework for the conservation of biodiversity from identification of species through to requirements for impact assessment and the establishment of emergency responses and contingency plans. (256) This meets the first objective and relates to the initial proposal for a convention. Due to its emphasis on *in-situ* conservation the CBD places the responsibility, in the first place, on tropical developing nations and small island states with high endemism, to conserve their biodiversity. By including Principle 21 of the Stockholm Declaration in Article 3 this requirement to conserve is measured against the sovereign right to exploit. The responsibility of the North to help conservation in the transfer of technology and finance is an important aspect of this balancing act of preservation and exploitation. This acknowledgement of joint responsibility is also an important aspect of the CBD. It was an idea which was supported in the Brundtland Report when considering a 'Species Convention':

255 P Holway "Can we afford to be affluent?" (10 October 1992) *New Scientist*, Australia, 47.

256 Article 14, Annex, 8.

"Collective responsibility for the common heritage would not mean collective international rights to particular resources within nations. This approach need not interfere with concepts of national sovereignty. But it would mean that individual nations would no longer be left to rely on their own isolated efforts to protect species within borders."
(257)

The inclusion of Articles 15 to 19 in the CBD were also an achievement. Without them it is likely that the South would not have agreed to the CBD. The access to genetic resources and access to and transfer of technology were essential elements of the CBD. However, the restraints imposed in the CBD means that there is not open access to either the genetic resources or technology. In both cases it is to be on mutually agreed terms. This has resulted in the sovereignty of states being preserved. It opens the way for the sharing of the benefits of biodiversity without making it mandatory. Nor does it mean the imminent collapse of the intellectual property system. The paper suggests that it may result in its strengthening as developing countries recognise the worth of such an intellectual property system to them.

The CBD is not without its problems. Key amongst them is money. As discussed the financial conditions were among the last to be agreed, and even when they were some of the developed countries signed a reservation stating that the Conference of Parties could not decide the amount of individual contributions. (258) In the initial negotiations it was acknowledged that an international agreement would be meaningless without a firm commitment to finance. (259) As an indication of the costs involved:

257 Above n 22, 162-163.

258 See footnote 197.

259 See footnote 30.

"The UNCED Secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of (Chapter 15) to be about \$3.5 billion including about \$1.75 billion from the international community on grant or concessional terms". (260)

Much of the costs will depend on the measures undertaken by the developing countries to meet the CBD obligations. (261) This in turn will depend on the policy, strategy and programme priorities determined by the Conference of Parties. (262) To meet the objectives of the CBD such strategies and policies could be very expensive. Not only do the developed nations need to meet these external requirements but they may also have to undertake internal activities to meet the objectives. The commitment to these costs will be the real test of the CBD, and while such payments are seen as aid as opposed to ecological debt, it is likely that this will be the major stumbling block on the CBD.

Another area of concern is the transfer of benefits. Valuing the price of access to resources is not going to be a simple matter given the uncertainties about the value of the end result. A general ability to prospect could readily result in the financial benefits being used by the country as whole, although there may be issues of whether it should be used for poverty eradication or further conservation. If however a particular traditional plant-based medicine developed by a village healer proves to be a cure for AIDS, how are benefits to be dispersed? Just to the healer, her tribe, the other healers or tribes which also use the same medicine, the country? If the benefits to be dispersed are technology, instead of cash, will this

260 Above n 1, 213.

261 Article 20.4, Annex, 12.

262 Article 21, Annex, 12.

make a difference ? "How the costs and benefits are distributed remains a key point of contention, likely to keep governments meeting for many years to come." (263)

A further area of concern is dispute settlement. The CBD follows the usual formula but there has been pressure for a change to the international legal system. In particular there is seen to be a need for individuals and NGO's to be involved. Their ability to take cases or obtain a declaratory judgement are seen as necessary to ensure that the CBD objectives are met. Without an enforcement procedure which has teeth, the destruction of biodiversity can continue based on the sovereign right to exploit one's own resources and no international sanction could be imposed. Dispute settlement processes are not going to change until the United Nations decides to revamp the present procedure. This is an item of Agenda 21 but it is not something which is likely to change in the near future.

As the CBD is however a living document with the ability to be altered through protocols and with requirements for countries to provide regular reports, its own secretariat and the provision for meeting of the parties which can include NGO's as observers it is possible that these informal measures may ensure that there are no major breaches of the CBD. They will also ensure that it changes with the times.

The CBD is still not in force. It will be some time before it is proved whether the CBD will "strengthen friendly relations among States and contribute to peace for humankind". (264) In combining the aspirations of the North and South in its objectives the CBD has taken a major step along the way, whatever its shortcomings.

263 Above n 240, 7.

264 Preamble, Annex 3.

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ANNEX

CONVENTION ON BIOLOGICAL DIVERSITY

5 JUNE 1992

CONVENTION ON BIOLOGICAL DIVERSITY

Preamble

The Contracting Parties,

Conscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components,

Conscious also of the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere,

Affirming that the conservation of biological diversity is a common concern of humankind,

Reaffirming that States have sovereign rights over their own biological resources,

Reaffirming also that States are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner,

Concerned that biological diversity is being significantly reduced by certain human activities,

Aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures,

Noting that it is vital to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at source,

Noting also that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat,

*Noting further that the fundamental requirement for the conservation of biological diversity is the *in-situ* conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings,*

*Noting further that *ex-situ* measures, preferably in the country of origin, also have an important role to play,*

Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components,

Recognizing also the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation,

Stressing the importance of, and the need to promote, international, regional and global cooperation among States and intergovernmental organizations and the non-governmental sector for the conservation of biological diversity and the sustainable use of its components,

/...

Acknowledging that the provision of new and additional financial resources and appropriate access to relevant technologies can be expected to make a substantial difference in the world's ability to address the loss of biological diversity,

Acknowledging further that special provision is required to meet the needs of developing countries, including the provision of new and additional financial resources and appropriate access to relevant technologies,

Noting in this regard the special conditions of the least developed countries and small island States,

Acknowledging that substantial investments are required to conserve biological diversity and that there is the expectation of a broad range of environmental, economic and social benefits from those investments,

Recognizing that economic and social development and poverty eradication are the first and overriding priorities of developing countries,

Aware that conservation and sustainable use of biological diversity is of critical importance for meeting the food, health and other needs of the growing world population, for which purpose access to and sharing of both genetic resources and technologies are essential,

Noting that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind,

Desiring to enhance and complement existing international arrangements for the conservation of biological diversity and sustainable use of its components, and

Determined to conserve and sustainably use biological diversity for the benefit of present and future generations,

Have agreed as follows:

Article 1. Objectives

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Article 2. Use of Terms

For the purposes of this Convention:

"*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 part; this includes diversity within species, between species and of ecosystems.

"*Biological resources*" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

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"*Biotechnology*" means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.

"*Country of origin of genetic resources*" means the country which possesses those genetic resources in *in-situ* conditions.

"*Country providing genetic resources*" means the country supplying genetic resources collected from *in-situ* sources, including populations of both wild and domesticated species, or taken from *ex-situ* sources, which may or may not have originated in that country.

"*Domesticated or cultivated species*" means species in which the evolutionary process has been influenced by humans to meet their needs.

"*Ecosystem*" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

"*Ex-situ conservation*" means the conservation of components of biological diversity outside their natural habitats.

"*Genetic material*" means any material of plant, animal, microbial or other origin containing functional units of heredity.

"*Genetic resources*" means genetic material of actual or potential value.

"*Habitat*" means the place or type of site where an organism or population naturally occurs.

"*In-situ conditions*" means conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

"*In-situ conservation*" means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

"*Protected area*" means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

"*Regional economic integration organization*" means an organization constituted by sovereign States of a given region, to which its member States have transferred competence in respect of matters governed by this Convention and which has been duly authorized, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to it.

"*Sustainable use*" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

"*Technology*" includes biotechnology.

Article 3. Principle

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the

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responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Article 4. Jurisdictional Scope

Subject to the rights of other States, and except as otherwise expressly provided in this Convention, the provisions of this Convention apply, in relation to each Contracting Party:

(a) In the case of components of biological diversity, in areas within the limits of its national jurisdiction; and

(b) In the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.

Article 5. Cooperation

Each Contracting Party shall, as far as possible and as appropriate, cooperate with other Contracting Parties, directly or, where appropriate, through competent international organizations, in respect of areas beyond national jurisdiction and on other matters of mutual interest, for the conservation and sustainable use of biological diversity.

Article 6. General Measures for Conservation and Sustainable Use

Each Contracting Party shall, in accordance with its particular conditions and capabilities:

(a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned; and

(b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Article 7. Identification and Monitoring

Each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:

(a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;

(b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;

(c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and

/...

(d) Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

Article 8. *In-situ Conservation*

Each Contracting Party shall, as far as possible and as appropriate:

- (a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- (b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
- (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
- (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- (f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies;
- (g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;
- (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
- (i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;
- (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;
- (k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations;
- (l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and
- (m) Cooperate in providing financial and other support for *in-situ* conservation outlined in subparagraphs (a) to (l) above, particularly to developing countries.

/...

Article 9. Ex-situ Conservation

Each Contracting Party shall, as far as possible and as appropriate, and predominantly for the purpose of complementing *in-situ* measures:

- (a) Adopt measures for the *ex-situ* conservation of components of biological diversity, preferably in the country of origin of such components;
- (b) Establish and maintain facilities for *ex-situ* conservation of and research on plants, animals and micro-organisms, preferably in the country of origin of genetic resources;
- (c) Adopt measures for the recovery and rehabilitation of threatened species and for their reintroduction into their natural habitats under appropriate conditions;
- (d) Regulate and manage collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species, except where special temporary *ex-situ* measures are required under subparagraph (c) above; and
- (e) Cooperate in providing financial and other support for *ex-situ* conservation outlined in subparagraphs (a) to (d) above and in the establishment and maintenance of *ex-situ* conservation facilities in developing countries.

Article 10. Sustainable Use of Components of Biological Diversity

Each Contracting Party shall, as far as possible and as appropriate:

- (a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;
- (b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;
- (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;
- (d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and
- (e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.

Article 11. Incentive Measures

Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

Article 12. Research and Training

The Contracting Parties, taking into account the special needs of developing countries, shall:

- (a) Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components and provide

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support for such education and training for the specific needs of developing countries;

(b) Promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, *inter alia*, in accordance with decisions of the Conference of the Parties taken in consequence of recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice; and

(c) In keeping with the provisions of Articles 16, 18 and 20, promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.

Article 13. Public Education and Awareness

The Contracting Parties shall:

(a) Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and

(b) Cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity.

Article 14. Impact Assessment and Minimizing Adverse Impacts

1. Each Contracting Party, as far as possible and as appropriate, shall:

(a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;

(b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account;

(c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate;

(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and

(e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.

/...

2. The Conference of the Parties shall examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.

Article 15. Access to Genetic Resources

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.

2. Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.

3. For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in accordance with this Convention.

4. Access, where granted, shall be on mutually agreed terms and subject to the provisions of this Article.

5. Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party.

6. Each Contracting Party shall endeavour to develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and where possible in, such Contracting Parties.

7. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.

Article 16. Access to and Transfer of Technology

1. Each Contracting Party, recognizing that technology includes biotechnology, and that both access to and transfer of technology among Contracting Parties are essential elements for the attainment of the objectives of this Convention, undertakes subject to the provisions of this Article to provide and/or facilitate access for and transfer to other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment.

2. Access to and transfer of technology referred to in paragraph 1 above to developing countries shall be provided and/or facilitated under fair and most favourable terms, including on concessional and preferential terms where mutually agreed, and, where necessary, in accordance with the financial mechanism established by Articles 20 and 21. In the case of technology subject to patents and other intellectual property rights, such

access and transfer shall be provided on terms which recognize and are consistent with the adequate and effective protection of intellectual property rights. The application of this paragraph shall be consistent with paragraphs 3, 4 and 5 below.

3. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that Contracting Parties, in particular those that are developing countries, which provide genetic resources are provided access to and transfer of technology which makes use of those resources, on mutually agreed terms, including technology protected by patents and other intellectual property rights, where necessary, through the provisions of Articles 20 and 21 and in accordance with international law and consistent with paragraphs 4 and 5 below.

4. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that the private sector facilitates access to, joint development and transfer of technology referred to in paragraph 1 above for the benefit of both governmental institutions and the private sector of developing countries and in this regard shall abide by the obligations included in paragraphs 1, 2 and 3 above.

5. The Contracting Parties, recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives.

Article 17. Exchange of Information

1. The Contracting Parties shall facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries.

2. Such exchange of information shall include exchange of results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such and in combination with the technologies referred to in Article 16, paragraph 1. It shall also, where feasible, include repatriation of information.

Article 18. Technical and Scientific Cooperation

1. The Contracting Parties shall promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity, where necessary, through the appropriate international and national institutions.

2. Each Contracting Party shall promote technical and scientific cooperation with other Contracting Parties, in particular developing countries, in implementing this Convention, *inter alia*, through the development and implementation of national policies. In promoting such cooperation, special attention should be given to the development and strengthening of national capabilities, by means of human resources development and institution building.

3. The Conference of the Parties, at its first meeting, shall determine how to establish a clearing-house mechanism to promote and facilitate technical and scientific cooperation.

4. The Contracting Parties shall, in accordance with national legislation and policies, encourage and develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention. For this purpose, the Contracting Parties shall also promote cooperation in the training of personnel and exchange of experts.

5. The Contracting Parties shall, subject to mutual agreement, promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention.

Article 19. Handling of Biotechnology and Distribution of its Benefits

1. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, to provide for the effective participation in biotechnological research activities by those Contracting Parties, especially developing countries, which provide the genetic resources for such research, and where feasible in such Contracting Parties.

2. Each Contracting Party shall take all practicable measures to promote and advance priority access on a fair and equitable basis by Contracting Parties, especially developing countries, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties. Such access shall be on mutually agreed terms.

3. The Parties shall consider the need for and modalities of a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity.

4. Each Contracting Party shall, directly or by requiring any natural or legal person under its jurisdiction providing the organisms referred to in paragraph 3 above, provide any available information about the use and safety regulations required by that Contracting Party in handling such organisms, as well as any available information on the potential adverse impact of the specific organisms concerned to the Contracting Party into which those organisms are to be introduced.

Article 20. Financial Resources

1. Each Contracting Party undertakes to provide, in accordance with its capabilities, financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes.

2. The developed country Parties shall provide new and additional financial resources to enable developing country Parties to meet the agreed full incremental costs to them of implementing measures which fulfil the obligations of this Convention and to benefit from its provisions and which costs are agreed between a developing country Party and the institutional structure referred to in Article 21, in accordance with policy, strategy, programme priorities and eligibility criteria and an indicative list of incremental costs established by the Conference of the Parties. Other Parties, including countries undergoing the process of transition to a market economy, may voluntarily assume the obligations of the developed country Parties. For the purpose of this Article, the Conference of the Parties, shall at its first meeting establish a list of developed country Parties and other Parties which voluntarily assume the obligations of the developed country Parties. The Conference of the Parties shall periodically review and if necessary amend the list. Contributions from other countries

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and sources on a voluntary basis would also be encouraged. The implementation of these commitments shall take into account the need for adequacy, predictability and timely flow of funds and the importance of burden-sharing among the contributing Parties included in the list.

3. The developed country Parties may also provide, and developing country Parties avail themselves of, financial resources related to the implementation of this Convention through bilateral, regional and other multilateral channels.

4. The extent to which developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention related to financial resources and transfer of technology and will take fully into account the fact that economic and social development and eradication of poverty are the first and overriding priorities of the developing country Parties.

5. The Parties shall take full account of the specific needs and special situation of least developed countries in their actions with regard to funding and transfer of technology.

6. The Contracting Parties shall also take into consideration the special conditions resulting from the dependence on, distribution and location of, biological diversity within developing country Parties, in particular small island States.

7. Consideration shall also be given to the special situation of developing countries, including those that are most environmentally vulnerable, such as those with arid and semi-arid zones, coastal and mountainous areas.

Article 21. Financial Mechanism

1. There shall be a mechanism for the provision of financial resources to developing country Parties for purposes of this Convention on a grant or concessional basis the essential elements of which are described in this Article. The mechanism shall function under the authority and guidance of, and be accountable to, the Conference of the Parties for purposes of this Convention. The operations of the mechanism shall be carried out by such institutional structure as may be decided upon by the Conference of the Parties at its first meeting. For purposes of this Convention, the Conference of the Parties shall determine the policy, strategy, programme priorities and eligibility criteria relating to the access to and utilization of such resources. The contributions shall be such as to take into account the need for predictability, adequacy and timely flow of funds referred to in Article 20 in accordance with the amount of resources needed to be decided periodically by the Conference of the Parties and the importance of burden-sharing among the contributing Parties included in the list referred to in Article 20, paragraph 2. Voluntary contributions may also be made by the developed country Parties and by other countries and sources. The mechanism shall operate within a democratic and transparent system of governance.

2. Pursuant to the objectives of this Convention, the Conference of the Parties shall at its first meeting determine the policy, strategy and programme priorities, as well as detailed criteria and guidelines for eligibility for access to and utilization of the financial resources including monitoring and evaluation on a regular basis of such utilization. The Conference of the Parties shall decide on the arrangements to give effect to paragraph 1 above after consultation with the institutional structure entrusted with the operation of the financial mechanism.

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3. The Conference of the Parties shall review the effectiveness of the mechanism established under this Article, including the criteria and guidelines referred to in paragraph 2 above, not less than two years after the entry into force of this Convention and thereafter on a regular basis. Based on such review, it shall take appropriate action to improve the effectiveness of the mechanism if necessary.

4. The Contracting Parties shall consider strengthening existing financial institutions to provide financial resources for the conservation and sustainable use of biological diversity.

Article 22. Relationship with Other International Conventions

1. The provisions of this Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity.

2. Contracting Parties shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea.

Article 23. Conference of the Parties

1. A Conference of the Parties is hereby established. The first meeting of the Conference of the Parties shall be convened by the Executive Director of the United Nations Environment Programme not later than one year after the entry into force of this Convention. Thereafter, ordinary meetings of the Conference of the Parties shall be held at regular intervals to be determined by the Conference at its first meeting.

2. Extraordinary meetings of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to them by the Secretariat, it is supported by at least one third of the Parties.

3. The Conference of the Parties shall by consensus agree upon and adopt rules of procedure for itself and for any subsidiary body it may establish, as well as financial rules governing the funding of the Secretariat. At each ordinary meeting, it shall adopt a budget for the financial period until the next ordinary meeting.

4. The Conference of the Parties shall keep under review the implementation of this Convention, and, for this purpose, shall:

(a) Establish the form and the intervals for transmitting the information to be submitted in accordance with Article 26 and consider such information as well as reports submitted by any subsidiary body;

(b) Review scientific, technical and technological advice on biological diversity provided in accordance with Article 25;

(c) Consider and adopt, as required, protocols in accordance with Article 28;

(d) Consider and adopt, as required, in accordance with Articles 29 and 30, amendments to this Convention and its annexes;

(e) Consider amendments to any protocol, as well as to any annexes thereto, and, if so decided, recommend their adoption to the parties to the protocol concerned;

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(f) Consider and adopt, as required, in accordance with Article 30, additional annexes to this Convention;

(g) Establish such subsidiary bodies, particularly to provide scientific and technical advice, as are deemed necessary for the implementation of this Convention;

(h) Contact, through the Secretariat, the executive bodies of conventions dealing with matters covered by this Convention with a view to establishing appropriate forms of cooperation with them; and

(i) Consider and undertake any additional action that may be required for the achievement of the purposes of this Convention in the light of experience gained in its operation.

5. The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State not Party to this Convention, may be represented as observers at meetings of the Conference of the Parties. Any other body or agency, whether governmental or non-governmental, qualified in fields relating to conservation and sustainable use of biological diversity, which has informed the Secretariat of its wish to be represented as an observer at a meeting of the Conference of the Parties, may be admitted unless at least one third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Conference of the Parties.

Article 24. Secretariat

1. A secretariat is hereby established. Its functions shall be:

(a) To arrange for and service meetings of the Conference of the Parties provided for in Article 23;

(b) To perform the functions assigned to it by any protocol;

(c) To prepare reports on the execution of its functions under this Convention and present them to the Conference of the Parties;

(d) To coordinate with other relevant international bodies and, in particular to enter into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and

(e) To perform such other functions as may be determined by the Conference of the Parties.

2. At its first ordinary meeting, the Conference of the Parties shall designate the secretariat from amongst those existing competent international organizations which have signified their willingness to carry out the secretariat functions under this Convention.

Article 25. Subsidiary Body on Scientific, Technical and Technological Advice

1. A subsidiary body for the provision of scientific, technical and technological advice is hereby established to provide the Conference of the Parties and, as appropriate, its other subsidiary bodies with timely advice relating to the implementation of this Convention. This body shall be open to participation by all Parties and shall be multidisciplinary. It shall comprise government representatives competent in the relevant field of expertise. It shall report regularly to the Conference of the Parties on all aspects of its work.

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2. Under the authority of and in accordance with guidelines laid down by the Conference of the Parties, and upon its request, this body shall:

(a) Provide scientific and technical assessments of the status of biological diversity;

(b) Prepare scientific and technical assessments of the effects of types of measures taken in accordance with the provisions of this Convention;

(c) Identify innovative, efficient and state-of-the-art technologies and know-how relating to the conservation and sustainable use of biological diversity and advise on the ways and means of promoting development and/or transferring such technologies;

(d) Provide advice on scientific programmes and international cooperation in research and development related to conservation and sustainable use of biological diversity; and

(e) Respond to scientific, technical, technological and methodological questions that the Conference of the Parties and its subsidiary bodies may put to the body.

3. The functions, terms of reference, organization and operation of this body may be further elaborated by the Conference of the Parties.

Article 26. Reports

Each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention.

Article 27. Settlement of Disputes

1. In the event of a dispute between Contracting Parties concerning the interpretation or application of this Convention, the parties concerned shall seek solution by negotiation.

2. If the parties concerned cannot reach agreement by negotiation, they may jointly seek the good offices of, or request mediation by, a third party.

3. When ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, a State or regional economic integration organization may declare in writing to the Depositary that for a dispute not resolved in accordance with paragraph 1 or paragraph 2 above, it accepts one or both of the following means of dispute settlement as compulsory:

(a) Arbitration in accordance with the procedure laid down in Part 1 of Annex II;

(b) Submission of the dispute to the International Court of Justice.

4. If the parties to the dispute have not, in accordance with paragraph 3 above, accepted the same or any procedure, the dispute shall be submitted to conciliation in accordance with Part 2 of Annex II unless the parties otherwise agree.

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5. The provisions of this Article shall apply with respect to any protocol except as otherwise provided in the protocol concerned.

Article 28. Adoption of Protocols

1. The Contracting Parties shall cooperate in the formulation and adoption of protocols to this Convention.
2. Protocols shall be adopted at a meeting of the Conference of the Parties.
3. The text of any proposed protocol shall be communicated to the Contracting Parties by the Secretariat at least six months before such a meeting.

Article 29. Amendment of the Convention or Protocols

1. Amendments to this Convention may be proposed by any Contracting Party. Amendments to any protocol may be proposed by any Party to that protocol.
2. Amendments to this Convention shall be adopted at a meeting of the Conference of the Parties. Amendments to any protocol shall be adopted at a meeting of the Parties to the Protocol in question. The text of any proposed amendment to this Convention or to any protocol, except as may otherwise be provided in such protocol, shall be communicated to the Parties to the instrument in question by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate proposed amendments to the signatories to this Convention for information.
3. The Parties shall make every effort to reach agreement on any proposed amendment to this Convention or to any protocol by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a two-third majority vote of the Parties to the instrument in question present and voting at the meeting, and shall be submitted by the Depositary to all Parties for ratification, acceptance or approval.
4. Ratification, acceptance or approval of amendments shall be notified to the Depositary in writing. Amendments adopted in accordance with paragraph 3 above shall enter into force among Parties having accepted them on the ninetieth day after the deposit of instruments of ratification, acceptance or approval by at least two thirds of the Contracting Parties to this Convention or of the Parties to the protocol concerned, except as may otherwise be provided in such protocol. Thereafter the amendments shall enter into force for any other Party on the ninetieth day after that Party deposits its instrument of ratification, acceptance or approval of the amendments.
5. For the purposes of this Article, "Parties present and voting" means Parties present and casting an affirmative or negative vote.

Article 30. Adoption and Amendment of Annexes

1. The annexes to this Convention or to any protocol shall form an integral part of the Convention or of such protocol, as the case may be, and, unless expressly provided otherwise, a reference to this Convention or its protocols constitutes at the same time a reference to any annexes thereto. Such annexes shall be restricted to procedural, scientific, technical and administrative matters.

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2. Except as may be otherwise provided in any protocol with respect to its annexes, the following procedure shall apply to the proposal, adoption and entry into force of additional annexes to this Convention or of annexes to any protocol:

(a) Annexes to this Convention or to any protocol shall be proposed and adopted according to the procedure laid down in Article 29;

(b) Any Party that is unable to approve an additional annex to this Convention or an annex to any protocol to which it is Party shall so notify the Depositary, in writing, within one year from the date of the communication of the adoption by the Depositary. The Depositary shall without delay notify all Parties of any such notification received. A Party may at any time withdraw a previous declaration of objection and the annexes shall thereupon enter into force for that Party subject to subparagraph (c) below;

(c) On the expiry of one year from the date of the communication of the adoption by the Depositary, the annex shall enter into force for all Parties to this Convention or to any protocol concerned which have not submitted a notification in accordance with the provisions of subparagraph (b) above.

3. The proposal, adoption and entry into force of amendments to annexes to this Convention or to any protocol shall be subject to the same procedure as for the proposal, adoption and entry into force of annexes to the Convention or annexes to any protocol.

4. If an additional annex or an amendment to an annex is related to an amendment to this Convention or to any protocol, the additional annex or amendment shall not enter into force until such time as the amendment to the Convention or to the protocol concerned enters into force.

Article 31. Right to Vote

1. Except as provided for in paragraph 2 below, each Contracting Party to this Convention or to any protocol shall have one vote.

2. Regional economic integration organizations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States which are Contracting Parties to this Convention or the relevant protocol. Such organizations shall not exercise their right to vote if their member States exercise theirs, and vice versa.

Article 32. Relationship between this Convention and Its Protocols

1. A State or a regional economic integration organization may not become a Party to a protocol unless it is, or becomes at the same time, a Contracting Party to this Convention.

2. Decisions under any protocol shall be taken only by the Parties to the protocol concerned. Any Contracting Party that has not ratified, accepted or approved a protocol may participate as an observer in any meeting of the parties to that protocol.

Article 33. Signature

This Convention shall be open for signature at Rio de Janeiro by all States and any regional economic integration organization from 5 June 1992 until 14 June 1992, and at the United Nations Headquarters in New York from 15 June 1992 to 4 June 1993.

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Article 34. Ratification, Acceptance or Approval

1. This Convention and any protocol shall be subject to ratification, acceptance or approval by States and by regional economic integration organizations. Instruments of ratification, acceptance or approval shall be deposited with the Depositary.
2. Any organization referred to in paragraph 1 above which becomes a Contracting Party to this Convention or any protocol without any of its member States being a Contracting Party shall be bound by all the obligations under the Convention or the protocol, as the case may be. In the case of such organizations, one or more of whose member States is a Contracting Party to this Convention or relevant protocol, the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under the Convention or protocol, as the case may be. In such cases, the organization and the member States shall not be entitled to exercise rights under the Convention or relevant protocol concurrently.
3. In their instruments of ratification, acceptance or approval, the organizations referred to in paragraph 1 above shall declare the extent of their competence with respect to the matters governed by the Convention or the relevant protocol. These organizations shall also inform the Depositary of any relevant modification in the extent of their competence.

Article 35. Accession

1. This Convention and any protocol shall be open for accession by States and by regional economic integration organizations from the date on which the Convention or the protocol concerned is closed for signature. The instruments of accession shall be deposited with the Depositary.
2. In their instruments of accession, the organizations referred to in paragraph 1 above shall declare the extent of their competence with respect to the matters governed by the Convention or the relevant protocol. These organizations shall also inform the Depositary of any relevant modification in the extent of their competence.
3. The provisions of Article 34, paragraph 2, shall apply to regional economic integration organizations which accede to this Convention or any protocol.

Article 36. Entry Into Force

1. This Convention shall enter into force on the ninetieth day after the date of deposit of the thirtieth instrument of ratification, acceptance, approval or accession.
2. Any protocol shall enter into force on the ninetieth day after the date of deposit of the number of instruments of ratification, acceptance, approval or accession, specified in that protocol, has been deposited.
3. For each Contracting Party which ratifies, accepts or approves this Convention or accedes thereto after the deposit of the thirtieth instrument of ratification, acceptance, approval or accession, it shall enter into force on the ninetieth day after the date of deposit by such Contracting Party of its instrument of ratification, acceptance, approval or accession.
4. Any protocol, except as otherwise provided in such protocol, shall enter into force for a Contracting Party that ratifies, accepts or approves that protocol or accedes thereto after its entry into force pursuant to paragraph 2 above, on the ninetieth day after the date on which that

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Contracting Party deposits its instrument of ratification, acceptance, approval or accession, or on the date on which this Convention enters into force for that Contracting Party, whichever shall be the later.

5. For the purposes of paragraphs 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such organization.

Article 37. Reservations

No reservations may be made to this Convention.

Article 38. Withdrawals

1. At any time after two years from the date on which this Convention has entered into force for a Contracting Party, that Contracting Party may withdraw from the Convention by giving written notification to the Depositary.

2. Any such withdrawal shall take place upon expiry of one year after the date of its receipt by the Depositary, or on such later date as may be specified in the notification of the withdrawal.

3. Any Contracting Party which withdraws from this Convention shall be considered as also having withdrawn from any protocol to which it is party.

Article 39. Financial Interim Arrangements

Provided that it has been fully restructured in accordance with the requirements of Article 21, the Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall be the institutional structure referred to in Article 21 on an interim basis, for the period between the entry into force of this Convention and the first meeting of the Conference of the Parties or until the Conference of the Parties decides which institutional structure will be designated in accordance with Article 21.

Article 40. Secretariat Interim Arrangements

The secretariat to be provided by the Executive Director of the United Nations Environment Programme shall be the secretariat referred to in Article 24, paragraph 2, on an interim basis for the period between the entry into force of this Convention and the first meeting of the Conference of the Parties.

Article 41. Depositary

The Secretary-General of the United Nations shall assume the functions of Depositary of this Convention and any protocols.

Article 42. Authentic Texts

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

IN WITNESS WHEREOF the undersigned, being duly authorized to that effect, have signed this Convention.

Done at Rio de Janeiro on this fifth day of June, one thousand nine hundred and ninety-two.

The present party shall be composed of representatives of the Government of the United States of America and of the Government of Brazil, who shall be designated by the respective Heads of State of each of the said Governments. The Secretary and the Secretaries shall be designated by the Government of the United States of America.

In disputes between two parties, the arbitrator shall be designated by the two parties, each of whom shall appoint one arbitrator, and the two arbitrators shall appoint a third arbitrator, who shall be the President of the Arbitral Tribunal. The latter shall be a national of one of the parties to the dispute, and shall be selected by mutual agreement of the two parties, or, in the absence of such agreement, by the Secretary-General of the United States of America, or by any other person designated by the Secretary-General of the United States of America.

Any vacancy shall be filled in the manner provided for the appointment of arbitrators.

If the President of the Arbitral Tribunal has not been appointed within two months of the appointment of the arbitrators, the Secretary-General of the United States of America shall, at the request of a party, designate the President within a further two-month period.

If one of the parties to the dispute does not appoint an arbitrator within two months of the request of the other party, the Secretary-General of the United States of America shall designate the arbitrator within a further two-month period.

The Arbitral Tribunal shall render its decisions in accordance with the provisions of this Convention, any protocols, and the applicable international law.

Unless the parties to the dispute shall otherwise agree, the Arbitral Tribunal shall determine the rules of procedure.

The Arbitral Tribunal may, at the request of one of the parties, recommend such measures as it may deem necessary for the settlement of the dispute.

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Annex I

IDENTIFICATION AND MONITORING

1. Ecosystems and habitats: containing high diversity, large numbers of endemic or threatened species, or wilderness; required by migratory species; of social, economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes;
2. Species and communities which are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; or social, scientific or cultural importance; or importance for research into the conservation and sustainable use of biological diversity, such as indicator species; and
3. Described genomes and genes of social, scientific or economic importance.

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Annex II

Part 1

ARBITRATION

Article 1

The claimant party shall notify the secretariat that the parties are referring a dispute to arbitration pursuant to Article 27. The notification shall state the subject-matter of arbitration and include, in particular, the articles of the Convention or the protocol, the interpretation or application of which are at issue. If the parties do not agree on the subject matter of the dispute before the President of the tribunal is designated, the arbitral tribunal shall determine the subject matter. The secretariat shall forward the information thus received to all Contracting Parties to this Convention or to the protocol concerned.

Article 2

1. In disputes between two parties, the arbitral tribunal shall consist of three members. Each of the parties to the dispute shall appoint an arbitrator and the two arbitrators so appointed shall designate by common agreement the third arbitrator who shall be the President of the tribunal. The latter shall not be a national of one of the parties to the dispute, nor have his or her usual place of residence in the territory of one of these parties, nor be employed by any of them, nor have dealt with the case in any other capacity.

2. In disputes between more than two parties, parties in the same interest shall appoint one arbitrator jointly by agreement.

3. Any vacancy shall be filled in the manner prescribed for the initial appointment.

Article 3

1. If the President of the arbitral tribunal has not been designated within two months of the appointment of the second arbitrator, the Secretary-General of the United Nations shall, at the request of a party, designate the President within a further two-month period.

2. If one of the parties to the dispute does not appoint an arbitrator within two months of receipt of the request, the other party may inform the Secretary-General who shall make the designation within a further two-month period.

Article 4

The arbitral tribunal shall render its decisions in accordance with the provisions of this Convention, any protocols concerned, and international law.

Article 5

Unless the parties to the dispute otherwise agree, the arbitral tribunal shall determine its own rules of procedure.

Article 6

The arbitral tribunal may, at the request of one of the parties, recommend essential interim measures of protection.

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Article 7

The parties to the dispute shall facilitate the work of the arbitral tribunal and, in particular, using all means at their disposal, shall:

(a) Provide it with all relevant documents, information and facilities; and

(b) Enable it, when necessary, to call witnesses or experts and receive their evidence.

Article 8

The parties and the arbitrators are under an obligation to protect the confidentiality of any information they receive in confidence during the proceedings of the arbitral tribunal.

Article 9

Unless the arbitral tribunal determines otherwise because of the particular circumstances of the case, the costs of the tribunal shall be borne by the parties to the dispute in equal shares. The tribunal shall keep a record of all its costs, and shall furnish a final statement thereof to the parties.

Article 10

Any Contracting Party that has an interest of a legal nature in the subject-matter of the dispute which may be affected by the decision in the case, may intervene in the proceedings with the consent of the tribunal.

Article 11

The tribunal may hear and determine counterclaims arising directly out of the subject-matter of the dispute.

Article 12

Decisions both on procedure and substance of the arbitral tribunal shall be taken by a majority vote of its members.

Article 13

If one of the parties to the dispute does not appear before the arbitral tribunal or fails to defend its case, the other party may request the tribunal to continue the proceedings and to make its award. Absence of a party or a failure of a party to defend its case shall not constitute a bar to the proceedings. Before rendering its final decision, the arbitral tribunal must satisfy itself that the claim is well founded in fact and law.

Article 14

The tribunal shall render its final decision within five months of the date on which it is fully constituted unless it finds it necessary to extend the time-limit for a period which should not exceed five more months.

Article 15

The final decision of the arbitral tribunal shall be confined to the subject-matter of the dispute and shall state the reasons on which it is

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based. It shall contain the names of the members who have participated and the date of the final decision. Any member of the tribunal may attach a separate or dissenting opinion to the final decision.

Article 16

The award shall be binding on the parties to the dispute. It shall be without appeal unless the parties to the dispute have agreed in advance to an appellate procedure.

Article 17

Any controversy which may arise between the parties to the dispute as regards the interpretation or manner of implementation of the final decision may be submitted by either party for decision to the arbitral tribunal which rendered it.

Part 2

CONCILIATION

Article 1

A conciliation commission shall be created upon the request of one of the parties to the dispute. The commission shall, unless the parties otherwise agree, be composed of five members, two appointed by each Party concerned and a President chosen jointly by those members.

Article 2

In disputes between more than two parties, parties in the same interest shall appoint their members of the commission jointly by agreement. Where two or more parties have separate interests or there is a disagreement as to whether they are of the same interest, they shall appoint their members separately.

Article 3

If any appointments by the parties are not made within two months of the date of the request to create a conciliation commission, the Secretary-General of the United Nations shall, if asked to do so by the party that made the request, make those appointments within a further two-month period.

Article 4

If a President of the conciliation commission has not been chosen within two months of the last of the members of the commission being appointed, the Secretary-General of the United Nations shall, if asked to do so by a party, designate a President within a further two-month period.

Article 5

The conciliation commission shall take its decisions by majority vote of its members. It shall, unless the parties to the dispute otherwise agree, determine its own procedure. It shall render a proposal for resolution of the dispute, which the parties shall consider in good faith.

Article 6

A disagreement as to whether the conciliation commission has competence shall be decided by the commission.

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