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STATUS AND TRENDS ASSOCIATED WITH INDIGENOUS COMMUNITIES INLAND WATER AND THE DEVELOPMENT OF RELEVANT INTERNATIONAL LAW

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JESS PETERSSON

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Abstract

This thesis is written at a time when the world faces many challenges.

Gross violation of human rights persists, discrimination against and alienation of marginalized groups continues, the gulf between rich and poor yawns ever wider, and the rapid degradation of the environment continues to gain momentum. One area upon which environmental degradation impacts most crucially is water. In terms of vulnerability and scarcity as a commodity, water has come to be called by some ‘the new oil’. Already, water has influenced political strategies and been the cause of wars.

The aim of this thesis has been, firstly, to identify the status and trends in inland water ecosystems and the link between them, and, secondly, to examine the development of international law instruments relating to inland water ecosystems and their immediate dependents, with particular reference to indigenous communities living close to the water source, and hence more directly affected.

If the destruction of inland water ecosystems is allowed to continue unchecked, it will inevitably have disastrous universal consequences.

The thesis also discusses the protection of indigenous knowledge and innovations, provided by intellectual property and other instruments, and attempts to analyse developments in international law, which have relevance for indigenous peoples in connection with the conservation, management and sustainable use of inland water systems.

The aim is to identify shared concerns about the world’s inland water systems and indigenous peoples, and to assess developments within international law, which may impact on, mitigate or even halt the negative trends, which currently threaten the future of both inland water systems and indigenous peoples.

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Thanks to family and friends that came through for me in a time of difficulty and disappointment.

Contents.

Part III

CHAPTER 1

INTRODUCTION

1.1 Research Statement

This thesis reviews the status and trends associated with indigenous communities, inland water (IW), and the development of relevant international law. This discussion highlights the approach to the status/trends of indigenous peoples (IP) and inland water employed in international law. The emphasis is on international agreements that have established standards for and contain clauses associated with the protection of indigenous peoples' access to water.

1.2 Research Purpose

Indigenous rights and the protection of biodiversity and inland water are grave issues confronting the international community. This study seeks to provide information that will raise awareness about the rights of indigenous people, and the need to protect biodiversity and inland water. Although there are positive signs of international cooperation to ensure the rights of indigenous people, protect biodiversity, and promote the sustainable use of inland water, this study also examines the obstacles to the implementation principles that will enable the transformation of a theoretical vision into reality.

1.3 Introduction to Research Topic

Water is essential to human life; degradation of this vital resource has forced the international community to address the problem of global water management. Water

is recognised as part of a world ecosystem in urgent need of attention. Not only is proper water management important in the industrialised world, it is essential to the well-being of indigenous peoples, who often live close to many sources of inland water. Therefore, the rights of indigenous people and the need for the appropriate management of inland water supplies have been chosen as the topic of this study, with the aim of providing information that may help counteract the deleterious effects of the modern world on indigenous peoples.

According to the Convention on Biodiversity[1] (CBD), the health of ecosystems such as forests, grasslands, and coastal areas is under threat; the CBD identifies inland water as the most threatened ecosystem on Earth.[2] Consequently, the international community has begun to discuss the need for the appropriate management of water supplies and to develop methods for the accurate monitoring of the status of inland water worldwide.

The study discussed in this thesis adopts a holistic approach to the question of the appropriate management of inland water, and links efforts to manage inland water supplies with the health of biodiversity and human well-being. Human activity is destroying the quality and quantity of inland water; not only does inland water provide a habitat for many plants and animals, it is essential to human health and well-being. Many people do not have a direct relationship with inland water and remain as yet unaffected by the depletion of this vital resource; however, damage to inland water supplies impacts directly upon many indigenous communities. The

1 The Convention Biological Diversity 1992

2 Alcamo J and Hassan R., (2003). Eds. Ecosystems and Human Well-Being: A Framework for Assessment. Washington, DC: Island Press, p553.

study examined the relationship between inland water and one indigenous community.

Indigenous people, who live closest to inland water supplies, are often the first people to suffer the ill effects of the degradation of this resource. Yet although indigenous people are often the first to bear the brunt of damaged inland water supplies, the source of the problem is usually outside their control. Despite the importance of these water supplies to the health and well-being of particular communities, these communities rarely share in the benefits derived from this resource, and rarely receive compensation when it is damaged. This situation highlights the struggle many indigenous communities have to obtain recognition of their rights by the non-indigenous people who are responsible for the damage to their environment.

The environmental damage that has occurred worldwide is currently attracting increased international attention. Frequently, environmental damage is caused by the activities of a multinational corporation or a business established overseas. In many cases, these international businesses exploit resources in countries that have few environmental laws or in countries that place economic considerations above environmental protection. In many countries, it is difficult for indigenous people to voice their concern about environmental damage because they are minorities with little political influence. Although there are international provisions designed to help indigenous people, it is necessary to enforce them if indigenous people's concerns about environmental damage are to be effectively addressed. In order to meet the needs of indigenous people and protect fragile ecosystems, the international community needs to recognise not only the general rights of indigenous people, but also the specific rights of indigenous communities. This effort will

require a greater level of awareness of the problem, better communication between indigenous communities and international legal and political bodies, and an acknowledgement of the fact that these communities need a helping hand to start the process.

International recognition of, and pressure to follow, agreed best practices bring a degree of accountability, responsibility, and transparency to the issue of indigenous rights and environmental protection. In addition, international recognition and pressure make it less acceptable to carelessly damage the environment and abuse the human rights of indigenous communities.

As the twenty-first century progresses, it has become apparent that environmental degradation, especially damage to inland water supplies, needs to be addressed in order to ensure the survival of the Earth's ecosystem and, in particular, the survival of the human race. Although most people are protected from the immediate effects of degraded inland water systems by technology or culture, the continued damage to the environment will eventually affect everyone.

Official decisions associated with human interaction with inland water ecosystems are generally decided at three organisational levels:[3] (1) the local level, (2) the municipal and national level, and (3) the international level (i.e., through international conventions and multilateral agreements).[4] Too often, decision makers at all three levels have not understood the need to adopt an holistic approach when it comes to finding solutions to the problem of environmental damage. According to

3 For a discussion of a variety of governmental tiers please see Teaford, J. C. 1997 Post-Suburbia: Government and Politics in the Edge Cities. Baltimore: Johns Hopkins University Press.

4 Alcamo and Hassan, Ecosystems and Human Well-Being: p15. This report is the first product of the Millennium Ecosystem Assessment, a 4-year international project.

Ramsar,[5] "biodiversity cannot be sustainably managed in isolation from the functions and services of ecosystems; components of biodiversity maintain these functions and services." This conceptual understanding touches on a fundamental problem: issues concerning ecosystems have traditionally been dealt with in a manner that isolated the problem under review from other ecosystems. The failure to identify patterns and similarities in the health problems common to all ecosystems or to appreciate that attempts to salvage a threatened species or specific ecosystem require a holistic approach has resulted in short-sighted policies that have destroyed ecosystems and often compromised the welfare of many people.

Today, there is a move towards a more holistic approach to environmental issues. Although analysis may be divided into specific sectors, there is an awareness of crosscutting issues and effects and a recognition that one decision may have a serious impact on the environment as a whole. There is now recognition that a number of issues overlap and this has led to a better understanding of ecosystems, how they are related, and how they impact upon people.[6]

1.4 Thesis Outline

Chapters 2 to 5 contain a discussion about the status and trends associated with the rights of indigenous people and the state of inland water supplies worldwide. In

5 Biodiversity of Inland Waters' Workshop. This was a preparatory workshop for the 8th Global Biodiversity Forum (GBF8) and 3rd meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA3) organized by The IUCN Commission on Ecosystem Management (CEM), The Ramsar Bureau, and Wetlands International. Report on the workshop available at Dr L. Safford, Ramsar Convention Bureau, 15 August 1997, Report on the Biodiversity of Inland Waters Workshop [Online] http://www.ramsar.org/wn/w.n.inland_workshop_safford.htm

6 The CBD serves as a prime example for this realisation of this symbiotic relationship between biological diversity, ecosystem and human wellbeing.

addition, these trends are discussed in the light of international laws relevant to these issues. This thesis is structured as follows:

- Chapter 2 contains a discussion about the present state of inland water supplies and its effect on indigenous people.
- Chapter 3 contains a discussion about the legal instruments and political initiatives designed to protect inland water supplies.
- Chapter 4 contains a discussion about indigenous people's problems associated with protecting the environment.
- Chapter 5 contains a discussion about the institutions created to protect indigenous people's rights and the legal and political documents designed to ensure these rights.
- Chapter 6 contains some conclusions and recommendations for future research.

CHAPTER TWO

INLAND WATER COMPOSITION, IMPORTANCE, STATUS, AND TRENDS

2.1 Introduction

All life on Earth depends on water for survival.[7] Water links and sustains the planet's ecosystems. Freshwater is essential for plants and provides habitats for a large variety of animals, including 10,000 species of freshwater fish. It also provides a breeding ground or temporary home for a large proportion of the Earth's 4,200 species of amphibians and reptiles.[8] In addition, inland water provides people with potable water, energy, transportation routes, and recreation and tourism. Inland water also maintains the world's hydrological balance and is a repository of sediments and nutrients.[9]

The integrity of inland waters, especially in developed areas, has been seriously compromised as a direct result of long-term over-exploitation. Although water is a major repository for sediments and nutrients, it is also a source of anthropogenic contaminants. In addition, inland water plays a major role in the interchange of energy between the earth and the atmosphere (i.e.,

7 Willmer P. and Johnston I., 2000. Environmental Physiology of Animals. Boston, MA: Blackwell Publishing, p122.

8 Revenga C., Brunner J., Henninger N., Kassem K., and Payne R., 2000-2001. Pilot Analysis of Global Ecosystems: Freshwater Systems 2000. New York, World Resources Institute, United Nations Publication.

9 This website is the property of the Secretariat of the Convention on Biological Diversity. Updated on November 30, 2007. The Importance of Inland Waters and Inland Waters Biodiversity [Online] http://www.cbd.int/waters/importance.shtml Last Accessed January 2nd 2008.

evapotranspiration), and changes to the supply of inland water can have a major impact on climate.[10] As a result, all organisms, including humans, that depend on freshwater are faced with a serious problem that could affect their survival,[11] and today, many countries are finding it difficult to ensure and maintain supplies of clean water.[12]

The Industrial Revolution, rapid economic growth, and increased population have brought about drastic changes to inland water ecosystems. Today, it is estimated that 41% of the world's population inhabit river basins, and this has put inland water under tremendous "stress."[13] For example, in recent decades, more than 20% of the world's 10,000 freshwater fish species have become threatened, endangered, or extinct.[14] In addition, the increase in population has created higher levels of freshwater consumption.[15] Although people need water to live, the reckless overuse of water often degrades a system to the point where it can no longer meet people's needs. This over consumption also causes changes in the nitrogen, phosphorous, sulphur, and carbon cycles, which has resulted in algal blooms and species loss.[16]

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10 Ramsar Convention on Wetlands, 1997. Biodiversity in Inland Water Ecosystems Project Proposal.

11 Groombridge B., and Jenkins M. D., 2002. World Atlas of Biodiversity. California: University of California Press, p186.

12 Secretariat of the Convention on Biological Diversity, 2001.Handbook of the Convention on Biological Diversity. London, UK : James and James/ Earthscan, p235.

13 Water stress occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use. Water stress causes deterioration of fresh water resources in terms of quantity (e.g., aquifer overexploitation and dry rivers) and quality (e.g., eutrophication, organic matter pollution, and saline intrusion). See UNEP/DEWA/GRID-Europe 1998-2007, accessed 17 Jan 2005, Freshwater glossary [Online] http://www.grid.unep.ch/product/publication/freshwater_europe/glos.php. Accessed 5 March 2005.

14 UNEP SCBD, Nov 2002. Biological Diversity water programmes (Online) See http://www.biodiv.org/programmes/areas/water. Accessed March 2005,

15 UNESCO Staff, 2003. Water for People Water for Life: World Water Assessment Programme, Executive Summary. Oxford, New York:Berghahn Books, UNESCO, p24. Salman M., and McInerney S., 2004. The Human Right to Water: Legal and Policy Dimensions. Washington, DC: Lankford,The World Bank Publication, p158.

16 Alcamo and Hassan, Ecosystems and Human Well-Being p10. Marselek J., 2000. Flood Issues in Contemporary Water Management. Berlin, Germany: Springer, p114.

It must be admitted at the outset of this discussion that relevant information about the state of inland water is frequently incomplete and provides at best a "confused picture."[17] This confusion is caused, at least in part, by the close interrelationship between ecosystems and biodiversity.[18] As a result of this confusion, in the past decade, a number of international projects have addressed this gap in scientific data in order to determine the status of the world's ecosystems.[19] One of the best-known programmes is the Millennium Ecosystem Assessment (MEA), which set out to map the health of the planet. This initiative constituted a major breakthrough in international co-operation and funding. The programme started in 2001, and was the first project designed to determine not only the health of global ecosystems, but also the "development and realization of measures needed to preserve the ecosystems on the planet at a time when the human need for natural resources was growing."[20] In addition to MEA, a collaborative study[21] has been conducted to obtain a clearer picture about the state of the world's watersheds.

Major world conferences, such as those organised by the World Water Forum, are providing a stage for the discussion of water-related problems.[22] These

17 Revenga, Brunner, Henninger, Kassem, and Payne, Pilot Analysis of Global Ecosystems. Dooge J. C. I., Young G. J., and Rodda J. C., 2004. Global Water Resource Issues. Cambridge, UK: Cambridge University Press, p65.

18 For further information about the economic value of the environment, see SBSTTA 2 Recommendations, Recommendation II/9 Agenda item 3.11: Economic Valuation of Biological Diversity.

19 National Research Council, 2005. Valuing Ecosystem Services: Toward Better Environmental Decision-Making. Washington, DC: National Academies Press, p92. Alcamo and Hassan, Ecosystems and Human Well-Being.

20 Kondratyev K. Y. A., Krapivin V. F., Varotsos C. A., and Ia Kondrat'ev K., 2003. Global Carbon Cycle and Climate Change. Berlin, Germany: Springer, p121.

21 The four participating organisations are IUCN, The world Conservation Union; the International Water Management Institute, the Ramsar Convention Bureau, and the World Resources Institute.

22 The following are some key conferences: The Mar del Plata Conference, 1977, initiated a series of global activities on water, including the International Drinking Water and Sanitation Decade (1981–1990); the International Conference on Water and the Environment, Dublin, 1992, established the Four Dublin Principles, highlighting the importance of water, including economic and participatory management, and the role of women; the UN Conference on the Environment and Development (UNCED) 1992 produced Agenda 21, which led to the establishment of seven programme areas for action on freshwater; and the World Summit on Sustainable Development (WSSD) 2002. UN Secretary-General Kofi Annan

conferences have tried to produce an accurate assessment of the status and trends of the world's water resources, and to devise an appropriate response to the situation.[23] It has been noted that it is necessary to continually monitor the status and trends of inland water:

> Each year new surprises occur: an amphibious population declines, a waterbird species experiences birth defects, an exotic mollusk invades in new waters, a fish disease spreads, an insect disease vector adapts to control methods. With sufficient time, the surprise is recognised, management alternatives are formulated, and actions are taken.[24]

The international community has begun to recognise the importance of inland water resources. For example, UNESCO's 2002-2003 Natural Sciences Sector report made water resources and ecosystems a priority, and the UN's emphasis on inland water reflects the widely-held view that water resources and their integrated management will constitute one of the most critical environment and development issues in the coming decades.[25] In addition, many UN documents have highlighted the need to deal with the inland water situation, and the UN proclaimed 2003 the International Year of Freshwater in an effort to resolve the freshwater crisis.[26]

The concerns most commonly raised by indigenous communities relate to land and resources such as water; issues include disputed ownership and the right to

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identified water, sanitation, energy, health, agriculture, and biodiversity as a complete package requiring consideration in the endeavour to achieve sustainable development.

23 UNESCO Staff, Water for People, Water for Life. The second and third world fora held in The Hague and Japan, respectively, and the International Conference on Freshwater, Bonn, 2001, continued the progress initiated by UNCED and Agenda 21 with set goals and targets. The most influential goal-setting conference was the UN Summit of 2000, which established the Millennium Development Goals for 2015.

24 Wescoat J. L. and White G. E., 2003. Water for Life: Water Management and Environmental Policy. Cambridge, UK: Cambridge University Press, p26.

25 Dooge, Young, and Rodda, Global Water Resource Issues, pxv. See http://portal.unesco.org/en/ev.php@URL_ID=2483&URL_DO=DO_TOPIC&URL_SECTION=201.html

26 UNEP, 2004. UNEP Annual Report 2003. New York: UNEP/Earthprint, p6. Brady J., 2005. Environmental Management in Organizations: The Iema Handbook. London, UK: James & James/Earthscan, p20. Toepherr K., 2003. UNEP Water for the Future: An Annotated Bibliography for World Water Day and the International Year of Freshwater. New York: UNEP.

participate in management and decision making processes.[27] The spiritual role played by water and the environment in general has been well documented, yet this has not always been recognised or respected at local level; resource ownership and involvement in decision making and resource management have been similarly disregarded. Indigenous communities often live in close proximity to water resources and are crucially dependent upon them for their survival; hence such communities are immediately and acutely affected by changes in water quality and quantity. Direct food harvest from inland water through activities such as fishing play a vital role in the lives of remote indigenous communities,[28] especially where location and skills levels render alternative means of subsistence limited or impracticable. Water consumption and contamination as a result of agriculture, combined with increased urban demands upon inland water ecosystems in particular, are not expected to decrease; lacking viable alternatives; the survival of many indigenous communities will become increasingly complex and precarious owing to the degradation of inland water resources through outside forces beyond the communities' control.

The importance of indigenous peoples and of inland water as a source of benefit to human life have far wider implications than envisaged in the traditional occidocentric value system Not infrequently, economic values clash with spiritual and cultural interests of indigenous communities, for example the harvesting of natural resources on sacred sites. While the acknowledgement of the technical and traditional expertise of indigenous peoples is important, a knowledge of and respect for such expertise would promote dialogue on the preservation and management of

27 Alfreðsson G. S., Stavropoulou M., Daes E-I. A., 2002. Justice Pending: Indigenous Peoples and Other Good Causes : Essays in Honour of Erica-Irene A. Daes. The Hague, Martinus Nijhoff Publishers, p363.

28 Unesco, 2006. Water, a Shared Responsibility: A Shared Responsibility. New York: United Nations Publications, p248.

inland water, as well as encouraging the more effective involvement of indigenous communities.

The Indigenous Peoples Kyoto Water Declaration[29] illuminates the relationship of indigenous people with water. The first article of the declaration outlines a stewardship or trustee relationship, with the responsibility of maintaining and preserving the resource for future generations. Article two recognises the place of human beings as a link in the biodiversity chain, and their dependence upon water for survival. Article three recognises that the value of water for indigenous people may be cultural and spiritual as well as physical. The declaration voices a concern that because of commercial trade agreements which reduce the status of water to that of a mere commodity, the human race is distancing itself intellectually from the reality that water is a basic prerequisite for life.

2.2 Inland Water Definitions, Extent, and Scope: Definitions

Inland water has been defined in a variety of ways; the definition is usually determined according to the needs of a research project or an organization.[30] Some people define *inland water* as "water located within a certain area of land." Conversely, the Ramsar Convention Bureau includes some coastal water in its definition.[31] Other definitions tend to focus exclusively on fresh water.[32] Although

29 The Indigenous Peoples Kyoto Water Declaration, March 2003. Third World Water Forum, Kyoto, Japan. Report available at [Online] http://www.indigenouswater.org/user/IPKyotoWaterDeclarationFINAL.pdf. Accessed March 2005.

30 World Bank, 2004. World Development Indicators 2004. Washington DC: World Bank Publications, p19. World Bank, 2004. Little Green Data Book 2003. Washington DC: World Bank Publications, p237.

31 Wescoat and White, Water for Life p133. Haslam S. M., 2003. Understanding Wetlands. London, UK: Taylor & Francis, p29. Alcamo and Hassan, Ecosystems and Human Well-Being, p54.

most definitions agree that inland water systems are situated within island and continental boundaries,[33] the crucial factor in defining inland water would appear to be determining whether inland water includes both freshwater and saline water.

MEA defines *inland waters* as "permanent water bodies inland from the coastal zone, and areas whose ecology and use are dominated by the permanent, seasonal, or intermittent occurrence of flooded conditions."[34] In its guidelines for boundary limitations for mapping purposes, MEA states that inland water comprises "rivers, lakes, floodplains, reservoirs and wetlands." It also refers to the Ramsar Convention Bureau's definition of wetlands and includes inland waters and some coastal categories.[35]

There are 50 definitions for wetland.[36] Of these, the Ramsar Convention Bureau's definition is among the least restrictive, avoiding undue exclusivity, and permitting the inclusion of the broadest possible spectrum of environments.[37]

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32 Kaye B. H., and Kay B. H., 1998. Water Resources: Health Environment and Development. London, UK: Spon Press, p10. Guerquin F., Ahmed T., Hua M., Ikeda T., Ozbilen V., and Schuttelaar M., 2004. World Water Actions: Making Water Flow for All. London, UK: James & James/Earthscan, p43. Holland M. M., Blood E. R., and Shaffer L. R., 2003. Achieving Sustainable Freshwater Systems: A Web of Connections. Washington. DC: Island Press, p314.

33 Fageria N. K., 1997. Growth and Mineral Nutrition of Field Crops. London, UK: Marcel Dekker/CRC Press, p136. World Bank, 2004. World Development Indicators 2004. Washington DC: World Bank Publications, p119. Kennish M. J., 2000. Practical Handbook of Marine Science. London, UK: CRC Press , p520. Miller D. C., and Salkind N. J., 2002. Handbook of Research Design and Social Measurement. Newbury Park, CA: Sage, p484.

34 Alcamo and Hassan, Ecosystems and Human Well-Being p10. MEA was established with the cooperation of government, the private sector, nongovernmental organizations, and scientists to provide an integrated assessment of the consequences of ecosystem change for human wellbeing and analyze options available to enhance the conservation of ecosystems and their contributions to meeting human needs. The Convention on Biodiversity, the Convention to Combat Desertification, the Convention on Migratory Species, and the Ramsar Convention on Wetlands plan to use the findings of the MEA. These findings will also help meet the needs of others in government, the private sector, and civil society. The MEA should contribute to the attainment of the United Nations Millennium Development Goals and the implementation of the 2002 World Summit on Sustainable Development. Ecosystems and Human Well-being: A Framework for Assessment, 2.

35 Alcamo and Hassan, Ecosystems and Human Well-Being p54. Cronk J. and Fennessy M. S., 2001. Wetland Plants. London, UK: CRC Press, p31. White and Wescoat, Water for Life. p312.

36 Kent D. A., O'Connor G. A., and Schelske C. L., 2000. Applied Wetlands Science and Technology. London, UK: CRC Press, p379.

37 Dugan P. J., 1990. Ed., Wetland Conservation: A Review of Current Issues and Required Action. Washington, DC: IUCN, p9. The Director General of IUCN, in his keynote address at the Fourth Conference of the Parties in Montreux, Switzerland, suggested that the definition was so broad that one would need only two conventions to cover all habitation on the planet: "the Ramsar Convention dealing with any land that can generally be termed 'wet', and a 'dry lands' Convention dealing with everything else."

2.2.1 Ramsar Convention Bureau: Definition of Inland Water

For the purposes of the present study, the definition advanced by CBD and the Ramsar Convention Bureau for inland water will be adopted, as it is used in many international instruments. Inland water systems may be fresh or saline and occur within continental and island boundaries. These systems include lakes, rivers, ponds, streams, groundwater, springs, cave waters, floodplains, bogs, marshes, swamps, and human-made reservoirs.[38] The Ramsar Convention Bureau's definition of wetland includes fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and areas of marine water that is less than six meters deep at low tide.[39] Many international instruments actively embrace the Ramsar Convention Bureau's definition. In addition, these instruments state that wetlands "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands."[40] The Ramsar Convention promotes international co-operation for the conservation of wetland habitat, reaching consensus about the precise definition for the term *wetland* is a prerequisite for such co-operation.[41]

2.3 Inland Water Ecosystems

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38 See http://www.biodiv.org/programmes/areas/water/. Updated 5 September 2002. See also discussion of the development of a standardised definition by Ambasht R. S., 2003. Modern Trends in Applied Aquatic Ecology. Berlin, Germany: Springer, p270. Rao P. K., 2001. International Environmental Law and Economics. Boston, MA: Blackwell, p181.

39 Ramsar Convention on Wetlands Article One. The Convention on Wetlands, as amended in 1982 and 1987. Keddy P. A., 2000. Wetland Ecology: Principles and Conservation. Cambridge, UK: Cambridge University Press, p6.

40 The Ramsar Convention Manual, 1971. A Guide to the Convention on Wetlands. Ramsar, Iran, Gland, Switzerland .

41 Ambasht R. S., Modern Trends in Applied Aquatic Ecology, p270. Groombridge B., and Jenkins M. D., World Atlas of Biodiversity. p216. United Nations Environment Programme, 2002. Global Environment Outlook 3. London, UK : James & James/Earthscan, p141.

Whether or not people truly appreciate their access to it, inland water is essential for the survival of the human race. However, 20% of the world's population currently lack access to safe drinking water, and 50% lack access to a safe sanitation system.[42] Millions die every year as a result of inadequate water supplies.[43] For example, in 2000, it was estimated that 2,213,000 people died from water sanitation-associated diseases, such as schistomiasis and trachoma.[44] In addition to the many deaths, a significant number of health problems are related to the inadequate quality or quantity of water. The situation will only be exacerbated as the world becomes increasingly industrialized and urbanized, and agricultural activity becomes more intense. In particular, the increase in water-intensive lifestyles is creating a global water crisis that has attracted attention in the international arena, and many of the world's governments have agreed to the UN's millennium development goal, the reduction by 50% of the number of people without sustainable access to safe drinking water and basic sanitation by 2015.[45]

2.4 Evaluation

The accurate assessment of the importance and value of inland ecosystems is not without its complications, and there are several different schools of thought about

42 UNEP, 1999. Global Environment Outlook 2000. London, UK Earthscan.

43 Toepfer K., Water for the Future, iii.

44 UNESCO Staff, 2003. Water for People, Water for Life, p11. United Nations Human Settlements Programme, 2003. Water and Sanitation in the World's Cities: Local Action for Global Goals. New York: IIED, UN-HABITAT, p60. World Bank, 2003. World Development Report 2004: Making Services Work for Poor People. Washington, DC: World Bank Publications, p159. Wood-Black F. K., Masciangioli T. M., Norling P., 2004. Water And Sustainable Development: Opportunities for the Chemical Sciences: A Workshop. Washington, DC: National Academies Press, p7.

45 United Nations Human Settlements Programme, 2003. Water and Sanitation in the World's Cities: Local Action for Global Goals. New York: IIED, UN-HABITAT. See also UN Summit 2000, which sets out the millennium development goals for 2015. For other international targets related to water, see The Hague Ministerial Declaration of March 2000, which established seven goals to encourage action. These goals were adopted by UN World Water Development Report as a way to provide a method for measuring progress.

how such an assessment may best be achieved.[46] The utilitarian[47] (i.e., anthropocentric) position asserts that the satisfaction of human needs is the principal priority; it evaluates ecosystems in terms of their usefulness and their potential benefit to humankind. According to Rapporteur Juma, water is "a social and economic good with a vital role in the satisfaction of basic human needs, food security, poverty alleviation and the protection of ecosystems."[48] This idea is echoed in the CBD[49]:

> In addition to the direct benefits (food, income and livelihoods) that are derived from the biological diversity of inland waters, human societies also enjoy many other economic, social and cultural benefits from inland water ecosystems, such as water supply, energy production, transport, recreation and tourism. The essential ecological functions performed by inland water ecosystems include, *inter alia*, maintenance of the hydrological balance, retention of sediments and nutrients, and provision of habitats for various animals, including migratory birds and mammals. Other ecosystem functions are the breakdown of anthropogenic pollutants and the sequestering of excess nutrients.[50]

The utilitarian concept successfully accommodates the non-use value of ecosystems. For example, this concept identifies the value that people may derive from an

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46 For a discussion about the economic value of biodiversity, see Alcamo and Hassan, Ecosystems and Human Well-Being, p132. National Research Council, 2005. Valuing Ecosystem Services: Toward Better Environmental Decision-Making. Washington, DC: National Academies Press, p5.

47 Utilitarianism holds that the aim of moral action should be to promote the greatest possible happiness for the greatest number of people. Utilitarianism defines morality in terms of consequences rather than principles or motives. Its focus on happiness as the only valuable objective makes it a hedonistic theory. A non-hedonistic version of utilitarianism, known as ideal utilitarianism, states that a person should choose actions that produce the most good. Leading proponents of utilitarianism were Jeremy Bentham (1748–1832) and John Stuart Mill (1806–1873). Although ethical discussions about science and technology have often stressed the rights of people (including clients, students, research participants, and the general public), they belong to another branch of ethics, namely, deontology. Professional codes of ethics generally call for a choice of actions based on a judicious weighing up of possible good and bad consequences. For example, research involving deception may be permitted if the potential harm to participants is outweighed by the benefits of the research. This evaluation of consequences is utilitarian in spirit. Spier R., 2003. Science and Technology Ethics. London, UK: Routledge (UK), p230.

48 Secretariat to the CBD, 2002. Handbook of the Convention on Biological Diversity. London, UK: James & James/Earthscan, p452. See specifically, Decision IV/4: Status and trends of the biological diversity of inland water ecosystems and options for conservation and sustainable use and technical and technological advice contained in document UNEP/CBD/COP/4/2.

49 See UNEP CBD 11 Feb 1998. Status and Trends of Biological Diversity of Inland Water Ecosystems and Options for Conservation and sustainable use [Online] URL http://www.biodiv.org/doc/meetings/cop/cop-04/official/cop-04-04-en.pdf Accessed May 2005.

50 For further discussion about the spiritual values of biodiversity, see Posey D. A., 1999. Cultural and Spiritual Values of Biodiversity. New York: Intermediate Technology Publication, UNEP, pp3–18, 347–358. National Research Council, 2005. Valuing Ecosystem Services: Toward Better Environmental Decision-Making. Washington, DC: National Academies Press, p5.

awareness of an ecosystem, such as religious or spiritual value.[51] Ecosystems provide direct and indirect services; however, the indirect benefits of an ecosystem are usually ignored, the focus being exclusively on the immediate potential for exploitation.

A non-utilitarian philosophy, such as deep ecology, suggests that inland water ecosystems possess an intrinsic value, irrespective of their benefit to humans.[52] The Ramsar Convention Bureau refers to the hidden values of inland water ecosystems in the following way:

> Inland water ecosystems provide food, water, and fuel, and in addition perform important hydrological services, such as control of floods, cleaning water, recycling waste products and regulation of local and global climates. The value of these services is often only appreciated when they are lost. The most accurate *economic* assessment of the impacts of different management regimes on inland water ecosystems are those which take into account the economic and social value of these functions, services, and biodiversity of inland water ecosystems.[53]

Reports compiled on behalf of UNEP include discussions about how to "value what we have." They offer cogent arguments that are designed to encourage a move away from cost-benefit analysis as the overriding principle of evaluation because it has

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51 For further discussion about the spiritual values of biodiversity, see Posey, Cultural and Spiritual Values of Biodiversity, pp3–18, 347–358.

52 Gudorf C. E.,and Huchingson J. E., 2003. Boundaries: A Casebook in Environmental Ethics. Georgetown: Georgetown University Press, p12. The deep ecology approach to ethics is inspired by the environmentalist movement. Instead of assuming that the moral of human individuals is the central issue in ethics, this approach is based on the concept of the intrinsic moral value of ecosystems. According to this perspective, pollution is not wrong because of its potential for damaging the health of human beings but because it threatens the survival of nonhuman species by destroying their habitat. Deep ecologists argue that anthropocentric ethics cannot begin to address problems that are larger than our species, such as the threat of industrial development to ecosystems. They focus on values in nature that are independent of human needs and rights. Barber N., 2002. "Moral Philosophy," in Encyclopedia of Ethics in Science and Technology. Facts on File, Science Online. Accessed June 2005.

53 Biodiversity of Inland Waters Workshop. A preparatory workshop for the 8th Global Biodiversity Forum (GBF8) and 3rd meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA3). Organized by the IUCN Commission on Ecosystem Management (CEM), the Ramsar Convention Bureau, and Wetlands International, with the generous support of the Dutch Government and held at Wetlands International Headquarters, Wageningen, the Netherlands, on 10-12 July 1997.

been suggested that this method does not adequately reflect the "true environmental and socio-economic values of natural resources and ecosystems."[54]

The Hague Ministerial Declaration of March 2000 promotes the "valuing of water" and recognises that there are different values that are economic, social, environmental, and cultural'; it recommends a "move towards pricing water to recover the costs of service provision, taking account of equity and the needs of the poor and vulnerable."[55] Cultural services have been identified as nonmaterial benefits such as spiritual or religious enrichment, cognitive development, reflection, recreation, and aesthetic experiences.[56]

2.5 Water for Biodiversity

A substantial proportion of the Earth's biological diversity relies on inland water ecosystems[57]: "Water provides the habitat for a myriad of living animal, plant and microbial species."[58] CBD (Article Two) defines *biodiversity* as "the variability among living organisms from all sources, *inter alia* terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they form part, including diversity within species, between species and of ecosystems."[59]

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54 Heywood V. H., and Watson R. T., 1995. Global Biodiversity Assessment. Cambridge, UK: Cambridge University Press. Ten Kate K., and Laird S. A., 2003. The Commercial Use of Biodiversity: Access to Genetic Resources and Benefit-Sharing. London, UK: James & James/Earthscan, p17.

55 Hague Ministerial Declaration of March 2000, 2005. Targets adopted by the WWDR Duncan French, International Law and Policy of Sustainable Development. Manchester, UK: Manchester University Press, p139.

56 Alcamo and Hassan, Ecosystems and Human Well-Being.

57 Juma acknowledges some benefits of inland water besides those that directly affect humans: "Besides providing direct benefits to man, such as food, income and livelihoods, freshwater ecosystems perform essential ecological functions, including the maintenance of the hydrological balance, retention of sediments and nutrients, and provision of habitats for various animals, including migratory birds and mammals."

58 Secretariat to the CBD, Handbook of the Convention on Biological Diversity.

59 The Convention Biological Diversity 1992, Article Two, 2002. Edited by Organisation for Economic Co-operation, Handbook of Biodiversity Valuation: A Guide for Policy Makers. Washington, DC: Organisation for Economic Co-operation and Development, p24.

Biodiversity denotes the variability of all life in all forms and combinations; it does not, as is sometimes implied, denote the sum of all ecosystems.[60] The IUCN's guide to CBD refers to biodiversity as "the variability within and among them and is therefore an attribute of life in contrast to 'biological resources' which are tangible biotic components of ecosystems."[61]

2.6 Wetlands

Wetlands act as a filtering system and fulfil a number of functions essential for plant and animal life and for maintaining the quality of the environment. Wetlands retain sediments and nutrients, neutralise anthropogenic contaminants, aid the food chain, act to control floods, and stabilise shorelines.[62]

Two thirds of the fish consumed by humans depend upon wetlands for feeding and spawning; wetlands provide nursery areas and habitats for adult fish at various stages in their life cycle.[63] Researchers estimate that in recent decades at least 20% of the world's 10,000 freshwater fish species have become endangered, threatened with extinction, or extinct.[64] Fish are a significant source of income for many people, and artisanal fisheries still represent a vital element in meeting the subsistence needs of indigenous and local communities.[65] Thus the destruction of wetlands means that a critical source of food and income is also destroyed.

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60 Harris, Global Environmental Issues, p95.

61 Glowka et al., Guide to the CBD in 1992, 2005. pp2, 16–24. Thiele F., and Ashcroft R. E., 2005. Bioethics In A Small World. Berlin, Germany: Springer, p48. For IUCN work with biodiversity protection and protected areas, see Brown, Mitchell, and Beresford, The Protected Landscape Approach: Linking Nature, Culture and Community, p22.

62 Holland, Blood, and Shaffer, Achieving Sustainable Freshwater Systems, p187; Kerry Turner R., Van den Bergh J. C. J. M., Brouwer R., 2003. Managing Wetlands: An Ecological Economics Approach. Washington, DC: Island Press, p112.

63 Chiras D. D., 2004. Environmental Science: Creating a Sustainable Future. London: Jones and Bartlett, p295.

64 Postel S.,and Richterr B., 2003. Rivers for Life: Managing Water for People and Nature. Washington, DC: Island Press, p27.

65 Secretariat to the CBD, Handbook of the Convention on Biological Diversity, p452.

Wetlands conserve the quality and quantity of inland water. They serve as a mechanism for flood control through their capacity to absorb surplus water and provide an important source of water supply for human consumption and agricultural or industrial purposes.[66] In addition, peat lands are believed to store nearly 20% of the earth's soil carbon, which might otherwise be released and contribute to the "greenhouse effect."[67]

The management of water, the key component of wetlands, is an issue of crucial importance that affects the daily lives of millions of people.[68] Many wetlands are under threat from a variety of human-induced activities and technological developments, such as hydraulic installations, tourism facilities and leisure activities, pollution, and other forms of human intervention.[69] One of the Ramsar Convention Bureau's key objectives is to raise awareness about the value and functions of wetlands. To this end, various methods and strategies have been adopted. For example, wetlands centres, zoos, and museums have begun to operate educational programmes and to distribute newsletters and publications to the public as a way of increasing awareness about the importance of wetlands.[70] Educating the public to appreciate the value of wetlands and recognise their role and functions will, it is hoped, lead to greater involvement and an increased commitment to protect these important assets.

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66 Elgar E., 2003. Managing Wetlands: An Ecological Economics Approach. Washington, DC: Island Press, p12. Ward B., 2003. Reporting on Climate Change: Understanding the Science. Washington, DC Environmental Law Institute United States Dept. of Energy. Office of Science, p24.

67 Field C. B., and Raupach M. R., 2004. The Global Carbon Cycle: Integrating Humans, Climate, and the Natural World. Washington, DC Island Press, p59.

68 Pollack H., 2003. Uncertain Science…..Uncertain World. Cambridge, UK: Cambridge University Press, p193.

69 Kvet J., Jeník J., and Soukupová L., 2002. Freshwater Wetlands and Their Sustainable Future: A Case Study of Trebon Basin Biosphere Reserve, Czech Republic. New York: Informa Healthcare Publishing, p495.

70 Resolution VII.9 programmes to raise awareness through the Outreach Programme.

2.7 Inland Waterways and Biodiversity

Inland waterways are especially rich in biodiversity. More than 100,000 species of animals and plants live in freshwater: insects, arachnids, crustaceans, mollusks, nematodes, plants, algae, protozoans, fungi, bacteria, and viruses.[71] These animals and plants depend upon each other and the inland water in which they live. The Ramsar Convention Bureau has joined ranks with the CBD in its efforts to highlight the importance of embracing biodiversity as a factor interlinked with the welfare of inland water ecosystems. The necessity of conserving a healthy biodiversity in order to maintain an ecosystem is emphasized. Inland water ecosystems with impoverished biodiversity may lack the ability to adjust.[72] As has been pointed out, "biodiversity is important to an ecosystem's ability to maintain its regenerative abilities in spite of external interference or stress; its capacity for developmental options; and its ability to develop naturally, unconstrained by human activities."[73]

2.8 Freshwater and Inland Water: Importance, Values, and Functions

The principal use of freshwater species, apart from the properties of aquatic systems per se, is as food. Subsidiary uses include the aquarium trade, materials for medicinal or ornamental purposes, and as fertilizer.[74] Relatively few plants associated with inland waters are heavily exploited because most are marginal or wetland species. Rice is the major cultivated wetland plant and provides the staple food for half the

71 Ten Kate and Laird, The Commercial Use of Biodiversity, p17. Alcamo and Hassan, Ecosystems and Human Well-Being, p 51.

72 Groves C. R., 2003. Drafting a Conservation Blueprint: A Practitioner's Guide to Planning for Biodiversity. Washington, DC: Island Press, p299.

73 Biodiversity of Inland Waters' Workshop.

74 WCMC Biodiversity Series No. 8.

world's people.[75] Other cultivated inland water plants, such as taro, sago palms, and watercress, may be of less importance globally, but many people depend on these wetland plants for food.[76] In addition, 20% of the paper made in China is produced from reeds that grow in freshwater wetlands. In some parts of the world, some species of reed are also used as building material (e.g., thatch).[77]

Humans rely heavily on biological resources in freshwater and use freshwater systems for a wide range of purposes. A large river provides a means of transport, water supply, waste disposal, food, and hydroelectric energy.[78] Unfortunately, inland water, including wetlands, is under extreme pressure, and this is affecting the freshwater animals and plants. The World Conservation Union (IUCN) has gathered data about threatened and extinct species and divided these plants and animals into major organism types (i.e. vertebrates, invertebrates, and plants), and it notes that eight categories are near extinction.[79,80] Of the 56,586 known species of vertebrates, 3,524 were classified as threatened species in 2003.[81] It was estimated that almost 50% of freshwater fish species were threatened.[82] The impact on invertebrates and plants was even greater, and 58% and 69%, respectively, of these species were classified as threatened in 2003.[83]

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75 WCMC Biodiversity Series No. 8.

76 Groombridge and Jenkins, World Atlas of Biodiversity, pp182–184.

77 ibid.

78 WCMC Biodiversity Series No. 8. See also Chiras, Environmental Science: Creating a Sustainable Future, p273.

79 Adams W. A., 2004. Against Extinction: The Story of Conservation. London, UK: James & James/Earthscan, p131.

80 ibid., p26. The International Union for Conservation of Nature and Natural Resources should be considered in the context of the IUCN notes provided at IUCN SSC (Nov 2006) IUCN Red List of Threatened Species (Online) http://www.redlist.org/info/tables/table1.html. Accessed Feb 2007

81 Groves, Drafting a Conservation Blueprint, p4.

82 Chouicha E. A., 2003. Review of Fisheries in OECD Countries: Policies and Summary Statistics 2002. Washington, DC: Organisation for Economic Co-operation and Development, p10.

83 Adams, Against Extinction, p26. For information about IUCN statistics that complement or contradict CBD developments, see IUCN Meeting Reports Oct 2001 (Online) http://www.iucn-uk.org/meetingreports/October%202001%20report.pdf. Accessed Nov 13 2004. See CBD Article 7 Identification and Monitoring at UNEP CBD (Nov 2 2006) CBD Article 7 (online) http://www.biodiv.org/convention/articles.asp?a=cbd-

2.9 Key Pressures and Threats to Inland and Freshwater Ecosystems

Inland water quality and quantity are crucial for the maintenance of a healthy habitat for fisheries and waterfowl, natural flood control, and food. The products derived from inland fisheries are far more likely to be used directly for human consumption than for the production of cooking oil or livestock feed. This would appear to be the case in less industrialised countries, such as West Africa and parts of East Africa, where these fisheries provide the staple diet for the human population.[84] Therefore, any degradation that affects these fisheries would have a direct effect on the human inhabitants of the area.

Inland water and freshwater ecosystems are under pressure from human activities such as infrastructure development, overexploitation, and the release of contaminants: "Many inland pollutants are washed from the land or dumped into rivers, in which they are transported to the world's oceans."[85]

Population and consumption aggravate the situation by increasing demands on agriculture and domestic water supplies, industry, hydropower generation, and recreation. This depletes the supply of water and increases the amount of

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07&inf=1#inf.Accessed Feb 2007)The CBD refers to the findings of the IUCN at CBD Secretariat, (Dec 2003) Status and Trends of Biodiversity of Inland Water (online) http://www.biodiv.org/doc/publications/cbd-ts-11.pdf, 42. Accessed Feb 2005

84 Groombridge and Jenkins, World Atlas of Biodiversity, p179.

85 Chiras, Environmental Science, p515

contaminants, which threatens the biodiversity in these habitats.[86] Unfortunately, the changes to water systems caused by human activity are sometimes irreversible.

2.10 Population and Consumption Growth

The Global Water Outlook to 2025 illustrates how current trends in water use may lead to a water crisis (see Table 1).[87]

Table 1. Global Water Consumption Forecast

Country	Total Water Consumption (km^3)		
	1995	2010	2025
United States	185.1	188.3	191.2
China	290.7	303.2	328.8
India	352.8	372.9	396.3
European Union, Eastern Europe, and former Soviet Union countries	184.1	199.9	211.2

Globally, water consumption was 1,798.6 in 1995. It is predicted that consumption will be 2,080.5 in 2025[88] as a result of an increase in population.[89]

Although population growth puts increased pressure on inland water supplies, recent population growth has occurred primarily in poorer countries, which use less

86 For further information about the chemistry of environmental change in inland and freshwater systems as a result of metalbloids, inorganic chemistry, and heavy metals, see Manahan, S. E., 2004. Environmental Chemistry. London, UK: CRC Press, p171 and National Research Council, 2004. Confronting The Nation's Water Problems: The Role of Research. Washington, DC: National Academies Press, p81.

87 Global Water Outlook, 2004. Averting an Impending Crisis , Global Water Outlook to 2025. Washington, DC: IFPRI. For water consumption graphs and illustrations, see International Food Policy Research Institute (2007) Graphs on Water Assessement (Online) http://www.ifpri.org/media/water_graphs.htm. Accessed May 2007.

88 Global Water Outlook. Averting an Impending Crisis.

89 For further discussion about the population issue, see Worldwatch Institute, 2006. State of the World 2006: A Worldwatch Institute Report on Progress Toward a Sustainable Society. New York: W. W. Norton & Company, Worldwatch Institute, and Steele P., 2004. Population Growth. New York: Black Rabbit Books, p5.

water than richer countries.[90] Therefore, consumption varies between nations and does not always reflect population size,[91] and the higher consumption rates of richer countries may have more impact on the health of inland water than the consumption rates of poor countries.

In 2002, the World Summit on Sustainable Development (WSSD) and the Commission for Sustainable Development (CSD) claimed that equalising the distribution of wealth is an essential stepping-stone towards attaining the goal of sustainable development, which is a major objective of the CBD. WSSD commitment included international target-setting in the areas of chemicals management, water, and sanitation, and it called for measures designed to maintain or restore fish stocks, ideally by 2015, and achieve a significant reduction in the current rate of biodiversity loss by 2010.

Governments agreed to negotiate international instruments "under the auspices of the CBD, on sharing the benefits arising from the use of biological resources." In addition, they established a World Solidarity Fund to help eradicate poverty.[92] The Johannesburg Plan notes "poverty eradication, changing unsustainable patterns of production and consumption and protection and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for, sustainable development."[93]

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90 Bigg T., 2004. Survival for a Small Planet: The Sustainable Development Agenda. London, UK: James & James/Earthscan, p276.

91 Additional data about water consumption is available from several sources, including The Worlds Water – Pacific Institute (2005) Water data from the World's Water (Online) http://www.worldwater.org/waterData.htm. Accessed May 2007. United Nations, 2005. Strengthening Co-operation for Rational and Efficient Use of Water and Energy Resources in Central Asia. New York: United Nations Publications, p35.

92 Strachan J. R., Ayre G., McHarry J., and Callway R., 2005. The WSSD: The Plain Language Version of the Johannesburg Plan of Implementation. London, UK: James & James/Earthscan, pxx.

93 Purvis M.,and Grainger A.,, 2004. Exploring Sustainable Development: Geographical Perspectives. London, UK: James & James/Earthscan p9. Ruben V., and Wolfrum R., 2005. Developments of International Law in Treaty Making. Berlin, Germany: Springer, p534. French D., 2005. International Law and Policy of Sustainable Development. Manchester, UK: Manchester University Press, p23. United Nations, 2004.

Although many areas have been recognised as important to sustainable development, water ecosystems have been identified as essential for the environment, food production, and sustainable development.[94] It has been suggested that we are

> 'a long way from fully understanding the connections between human population growth and aspects of consumption such as subsistence demand, commercial production, and international markets. We are even farther from a clear understanding of how the resource use and the indirect impacts on the environment related to these changes in population and consumption affect environmental health and the ability of ecosystems to provide goods and services.'[95]

2.11 Human Intervention and Structures

Human intervention, the creation of structures designed to exploit water resources, and the increased use of water has led to a hydraulic culture that has created problems. For example, it is estimated that more than 50% of the world's wetland areas disappeared in the past century, and one fifth of freshwater fish are now extinct or endangered.[96] Wetlands absorb pollution; therefore, the loss of 50% of the world's wetlands represents a major loss in pollution control.[97]

Many wetlands were eliminated through human intervention. For example, wetlands were filled in to create land for agriculture, housing, or industry. In addition, people have been slow to appreciate the invaluable function of wetlands, mistakenly associating these areas with disease-spreading insects. For this reason,

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Johannesburg Summit: Regional Follow-Up to the World Summit on Sustainable Development in Asia and the Pacific. New York: United Nations Publications, piii.

94 United Nations, 2003. Human Development Report 2003—Millennium Development Goals: A Compact Among Nations to End Human Poverty. Oxford, UK: Oxford University Press, p103.

95 Unruh J. D., Krol M. S., and Kliot N., 2005. Environmental Change And Its Implications for Population Migration. Berlin, Germany: Springer, p223.

96 The World Bank, 2004. Responsible Growth For The New Millennium: Integrating Society, Ecology, and the Economy. Washington, DC: World Bank Publications, p11.

97 Hill M. K., 2004. Understanding Environmental Pollution: A Primer. Cambridge, UK: Cambridge University Press, p226.

the annihilation of wetlands has been applauded as a disease-prevention measure. The fact that wetlands act like reservoirs and control floods and erosion had also been ignored. Ironically, wetlands have been destroyed in a misguided attempt to improve flood control.[98]

2.12 Repercussions of Changes in the Health of Ecosystems

Changes in the health of ecosystems are predominantly attributable to human factors. The Millennium Ecosystem Assessment Conceptual Framework[99] examined the degradation of ecosystems in order to understand the implications such changes will have on human wellbeing. In addition, the MEA Conceptual Framework identified elements that have a neutral or positive effect. This recognition can lead to the cessation or at least mitigation of negative trends.[100]

2.13 Inland Water: Status and Trends

2.13.1 General

Inland and freshwater are essential for human survival and the survival of millions of other plants and animals. Meeting these demands without causing damage to the global ecosystem is becoming increasingly difficult.[101] While policy issues in the

98 American Heritage Dictionaries, 2005. The American Heritage Science Dictionary. Boston, MA: Houghton Mifflin, p675.

99 Alcamo and Hassan, Ecosystems and Human Well-Being. Ecosystems and Human well-being is the first product of the Millennium Ecosystem Assessment, a four-year international work programme launched by United Secretary-General Kofi Annan in June 2001.

100 Van der Maarel E., 2004. Vegetation Ecology. Boston, MA: Blackwell, p356.

101 McMichael T., and McMichael A. J., 2001. Human Frontiers, Environments and Disease: Past Patterns, Uncertain Futures. Cambridge: UK Cambridge University Press, p294. See UNEP WCMC World Conservation Monitoring Centre (Online) http://www.unep-wcmc.org. Accessed May 2007 for a global assessment of areas of special importance for freshwater biodiversity. This information contributes to the improvement of planning and management on a global and regional scale. The Cambridge, UK-based World Conservation Monitoring Centre is a joint venture between three partners in the World Conservation Strategy and its successor Caring for the Earth: IUCN (The World Conservation Union), UNEP (United Nations Environment Programme), and WWF (World Wide Fund for Nature). The Centre provides information about the conservation and sustainable use of species and ecosystems and helps other organisations develop their own information systems. UNEP is a UN secretariat

1970s and 1980s focused on the development of water supply infrastructures, in the 1990s there was a recognisable shift in focus towards water resource management. Consequently, recent major policy displays a greater degree of cooperation between stakeholders and promotes equitable sharing of the resource. There is also a widespread recognition of the need for improved data collection and the sharing of information.

Between 1900 and 1995, global freshwater consumption increased by 600%.[102] This increase in consumption is more than twice the rate of population growth. Approximately one third of the world's population already inhabits countries considered to be "water-stressed" (i.e., where consumption exceeds 10% of total supply).[103] If present trends continue, by the year 2025, two thirds of the Earth's population will exist under conditions of water stress.[104]

2.13.2 Freshwater

According to WSSD's POI (Plan of Implementation), much of the degradation of the world's freshwater systems is caused by habitat destruction, the construction of dams and canals, and the introduction of non-native species, pollution, and

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responsible for working with governments to promote environmentally sound forms of development and coordinate global action for development without destruction of the environment.

102 Ehlers E.,and Krafft T., 2001. Understanding the Earth System. Berlin, Germany: Springer, p224. This is different from the 600% noted in the text. Even given the global increase of 7%/15 years and applying it to a 90-year period similar to this quote, it is still only a 42% increase, which is quite different from 600%. This discrepency highlights the need for uniformity in data collection. UNEP, 2000. Water Policy and Strategy. New York: UNEP/Earthprint, White and Wescoat, Water for Life, p21.

103 World Resources Institute, Millennium Assessment Report Section B and Ecosystems & Human Well-being: Health Synthesis Report. Washington, DC Island Press, p9.

104 See UNESCO Unesco Natural Resources (Online).http://www.unesco.org/water/wwap/description/index.shtml. Accessed June 2007. World Water Assessment Programme serves as an umbrella for coordinating existing UN initiatives within the freshwater assessment sphere. In this regard, it will link closely with the data and information systems of UN agencies such as GRID, GEMS-Water, the Global International Waters Assessment (GIWA) of UNEP, the Global Runoff Data Centre (GRDC) of WMO, AQUASTAT of FAO, the International Groundwater Resources Assessment Centre (IGRAC) being established by WMO and UNESCO, the water supply and sanitation databases of WHO and UNICEF, and the databases of the World Bank.

overexploitation. WSSD drafted a Political Plan of Implementation, calling for "action at all levels."[105] The Summit confirmed the principles of sustainable development established at the Rio Earth Summit UNCED in 1992[106] and the UN Millennium Summit in 1999.[107] It recognised several key conditions for sustainable development, including the need to address issues concerned with cultural diversity and patterns of production and consumption.[108] WSSD also advocated the provision of safe drinking water, which would effectively reduce by 50% the number of people currently living with unsafe drinking water by 2015.[109]

Freshwater systems are coming under mounting pressure as flow patterns are disrupted and the level of waste material increases. Inevitably, the amount of water available for human use will decrease, biodiversity will be threatened, and water stress will become increasingly widespread[110]:

> Although the evidence remains, in general, very sparse and patchy in geographic scope, the fact that there are many species in decline or facing extinction in the few countries where reasonable field knowledge is available, justifies real concern for the status of inland water biological diversity.[111]

The World Resource Institute's Pilot Analysis of Global Ecosystems (PAGE) report estimates that dams, diversions, or canals fragment almost 60% of the world's 227 largest rivers.[112] The only remaining large free-flowing rivers in the world are located in the tundra regions of North America and Russia and in parts of Africa and

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105 Strachan, Ayre, McHarry, and Callway, The WSSD: The Plain Language Version of the Johannesburg Plan of Implementation, pxxiii.

106 For further information about the principles of the Rio Earth summit, see Dresner S., 2002. The Principles of Sustainability. London, UK: James & James/Earthscan, p38.

107 Havens K., Maunder M., and Guerrant E. O., 2004. Ex Situ Plant Conservation: Supporting Species Survival in the Wild. Washington, DC: Island Press, p413.

108 See WSSD, Sept 2002. World Summit On Sustainable Development (Online) http:/.worldsummit2002.org/index.htm? Accessed May 2007)

109 ibid

110 Postel and Richter, Rivers for Life, p62.

111 Juma, The CBD and Biological Diversity of Inland Waters.

112 For discussions about this part of the PAGE report, see Ridgeway J., 2004. It's All For Sale: The Control of Global Resources. Durhan; North Carolina: Duke University Press, p2. Postel and Richter, Rivers for Life, p2. Commonwealth Secretariat, 2004. Commonwealth Local Government Handbook 2004: Modernisation, Council Structures, Finance. London, UK: Commonwealth Secretariat, p67.

South America. The fragmentation of rivers is caused by 40,000 large dams that are more than 15 metres in height.[113]

Although developed countries have made progress towards addressing the matter of water quality, developing countries are experiencing a rise in both water demand and water pollution. As a result, an increasing number of countries now confront problems of water stress and quality.[114]

There are three key high-priority areas that must be dealt with by international law in order to effectively address the impending freshwater crisis:

> First it is clear that rules establishing general standards and obligations, including those established by customary law, will be wholly inadequate. There is a need to develop specific international water quality standards… Protecting freshwater resources from pollution and overuse cannot be achieved otherwise than by addressing the root causes of the problem (basically, agricultural practices and industrial activities). Without effective environmental assessment on a broad scale of these practices and activities, both before and after their authorization, it is unlikely that freshwater resources can benefit from anything other than cosmetic protection. In this regard, it will be equally important that the findings of such assessments are fully integrated into decision-making processes. Thirdly, the protection of freshwater resources will not be achieved without effective enforcement mechanisms available to public and private entities which allow cases of non-compliance to be challenged.[115]

The need for the effective management of freshwater is an environmental challenge facing the international community. In some areas, the biodiversity of the entire ecosystem and human populations are succumbing to inadequate and poor quality water. International conventions cannot be expected to resolve all these issues overnight. International agreements can, however, designate targets, identify goals,

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113 See World Resources Institute WRI PAGE (Online) http://www.wri.org/wri/press/page_water_pr.html. Accessed June 2007 and The World Resources Institute Pilot Analysis of Global Ecosystems (PAGE): Freshwater Systems (Online) http://www.wri.org/wri. Accessed June 2007 This is an environmental think- tank that goes beyond research to create practical ways to protect the Earth and improve people's lives. Scudder T., 2005. Future of Large Dams: Dealing with Social, Environmental and Political Costs. London, UK: James & James/Earthscan, p274.

114 United Nations Environment Programme, 2002. Global Environment Outlook 3. London, UK: James & James/Earthscan, p157.

115 Sands P., 2003. Principles of International Environmental Law. Cambridge, UK: Cambridge University Press, p498.

and propose guidelines for their attainment. Freshwater, for example, forms the subject of a global framework convention as well as regional and bilateral agreements. Recently, the focus has shifted from cooperation in controlling the use of water to the consideration of conservation issues. However, much work remains to be done if the overexploitation and pollution of freshwater resources is to be brought to a halt.

2.13.3 Groundwater

Groundwater represents about 40% of global inland water,[116] yet groundwater as an inland water mass has until recently been grossly neglected. The damage to groundwater is generally linked to agriculture, which consumes approximately 70% of all water drawn from the world's rivers, lakes, and groundwater.[117] In some areas, more than half the water diverted or pumped for irrigation purposes does not reach the crop.[118] In addition, problems of waterlogging and salinisation (i.e., deposits of salts left by evaporation of pumped groundwater) are on the increase.[119] However, irrigated agriculture produces nearly 40% of world food and other agricultural commodities on 17% of the total agricultural land area and, therefore, plays a disproportionately important role in global food security.[120]

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116 Lopes R. M., 2001. Copepoda: Developments in Ecology, Biology, and Systematics. Berlin, Germany: Springer, p227.

117 Chiras, Environmental Science, p273.

118 Clay J. W., 2004. World Agriculture and the Environment: A Commodity-By-Commodity Guide to Impacts and Practices. Washington, DC: Island Press, p52.

119 Gonzalez F. J.,and Salman M. A., 2002. Institutional Reform for Irrigation and Drainage: Proceedings of a World Bank Workshop. Washington, DC: World Bank Publications, pix. Ahmad R., and Malik K. A., 2002. Prospects for Saline Agriculture. Berlin, Germany: Springer, p58.

120 See UNEP WCMC Biodiversity (Online) http://www.unep-wcmc.org/. Accessed Feb 2007; WCMC Biodiversity Series No. 8; and Freshwater Biodiversity: A Preliminary Global Assessment Referring to FAO 1996 Data.

Waterlogging dissolves the soil's minerals and results in the formation of alkali on the surface. Prolonged waterlogging can affect plant growth by blocking soil pores, impeding the flow of oxygen, and restricting the respiration of some plants while increasing the respiration of other plants and micro-organisms. This, in turn, raises the water temperature. Therefore, irrigation can render the land infertile, and it frequently requires complex drainage systems to prevent this undesirable effect.[121]

There are other threats to groundwater quality: for example, "waterborne pathogens, nutrients, industrial point source discharges, landfills and waste disposal."[122] In addition, chlorinated solvents and hexa-valent chromium constitute the most serious threats to groundwater.[123]

Groundwater is an important source of drinking water. In some countries, 99.5% of the available drinking water originates from groundwater.[124] There are many examples of the negative effect of poor groundwater on human health; the quality of groundwater is crucial to human well-being.[125]

2.13.4 Wetlands

In the past, it was not uncommon for wetlands to be dismissed out of hand as insect-ridden wastelands that harbour pests responsible for the spread of disease. Wetlands were considered unproductive areas that required radical human intervention if they

121 Karamouz M., Knowlton Zinsser W., Szidarovszky F., and Zahraie B., 2003. Water Resources Systems Analysis. London, UK: CRC Press, p508.

122 Thomson N. R., 2005. Bringing Groundwater Quality Research to the Watershed Scale. Oxfordshire, UK: IAHS Press, p16.

123 Telford T., 2000. Contaminated Soil 2003: Proceedings of the International FZK/TNO Conference. London, UK: Thomas Telford, p943.

124 ibid.

125 Reichard E. G., Hauchmann F. S., and Sancha A. M., 2000. Interdisciplinary Perspectives on Drinking Water Assessment and Management. Oxfordshire, UK: IAHS Press, p49.

were ever to be made useful and beneficial to humankind.[126] After a long tradition of human exploitation, a certain *volte-face* seems to have occurred in the attitude to wetlands. There is a dawning recognition in international policy-making that wetlands are important, and they have been damaged by human actions: for example, "drying, neglect, too many fires, pollution, new excavations, more intensive agriculture and constructions."[127]

In recent years, greater attention has been devoted to the restoration and protection of wetlands. The Ramsar Convention on Wetlands of International Importance has played a central role in promoting the protection of these vital ecosystems.[128] It has provided a framework for preserving wetlands, and numerous efforts are being made at the local and international level to preserve and protect existing wetlands. Although these efforts have resulted in the conservation of many wetlands, the number of wetlands is still declining globally and innumerable wetlands have already been destroyed.[129]

The principal values and functions of wetlands may be summed up as follows: groundwater replenishment; shoreline stabilisation and storm protection; sediment and nutrient retention and export; climate change mitigation; water purification; reservoirs of biodiversity; wetland products; recreation/tourism; and cultural value.[130] More recently, cost-benefit analyses of the cost of replacing a wetland function have shown the economic impact of destroying wetlands. While technological solutions may be capable of performing some of the functions fulfilled

126 In line with Bowman, M., 1995. "NILR 1995 The Ramsar Convention Comes of Age," Netherlands International Law Review, XLII, pp1-52.

127 Haslam M. S., 2003. Understanding Wetlands. London, UK: Taylor & Francis, p238.

128 Kent., O'Connor and Schelske. Applied Wetlands Science and Technology. p378.

129 Chiras, Environmental Science, p295.

130 As part of the Ramsar Convention's contribution to World Wetlands Day 2001, the Ramsar Bureau has prepared an information package entitled Wetland Values and Functions.

by wetlands, technology is powerless to replicate the multifunctionality of this type of ecosystem.[131] Modern studies of wetlands provide a more profound understanding about their functions; these have included the construction of experimental freshwater marsh basins. For example, the Olentangy River Wetland Research Park in Columbus, Ohio, endeavoured to assess the difference between planted and unplanted wetlands by measuring 17 different biotic and abiotic functional indicators of wetland function.[132]

2.14 Global Overview of the State of Water

A comprehensive nation-by-nation overview of water conditions and trends is beyond the scope of this project; however, a brief regional overview is a logical point of departure in a discussion about the worldwide status of water conditions and trends. Although a country-by-country analysis of the state of inland water is necessary to obtain a comprehensive view of its state, as the following overview clearly indicates, while some specific key factors that affect the state of inland water may vary from region to region, the outcome, insofar as it impacts upon water quality and quantity, is in many cases comparable.

The status of inland water is, indisputably, a global issue. In many European countries, 50% of vertebrate species are under threat.[133] More than 50% of all European cities are guilty of overexploitation of their groundwater resources. Among other problems, this abuse may result in land subsidence and the intrusion of

131 For a discussion about cost-benefit analyses of the function of wetlands, see Van Den Bergh, Barendregt, and Gilbert, Spatial Ecological-Economic Analysis for Wetland Management, p73.

132 Mitsch W. J., and Gosselink J. G., 2000. Wetlands. New Jersey: John Wiley and Sons, p255.

133 UNEP, Global Environment Outlook 3.

saltwater into aquifers.[134] In addition to problems with inland water, most stocks of commercial fish in the North Sea have been severely over-fished, which has forced the introduction of measures to reduce the detrimental effects on the fish population, in particular, mature and breeding fish stocks, as well as changes to the ecosystem as a whole.[135]

In Latin America and the Caribbean almost 75% of the population currently live in urban areas. This urbanisation has created vast conurbations where, among other problems, water shortages are not uncommon.[136]

In North America, ecosystems have been changed by the introduction of alien species, which pose a threat to biodiversity.[137] As it has been noted "non-native species now comprise approximately 5% of the total U.S. continental biota and in some states, almost 50% of the total flora."[138] It has been suggested that the modification of landscapes may facilitate invasion by alien species.

Inland water is one of the most pressing issues in West Asia.[139] In this region, the amount of groundwater withdrawn from the system far exceeds the natural

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134 Howard K. W. F., and Israfilov R. G., 2002. Current Problems of Hydrogeology in Urban Areas: Urban Agglomerates and Industrial Centres. Berlin, Germany: Springer, p198.

135 Crossland C. J., Kremer H. H., Lindeboom H. J., LeTissier M. D. A., and Marshall Crossland J. I., 2005. Coastal Fluxes in the Anthropocene. Berlin, Germany: Springer, p23.

136 Edited by United Nations Human Settlements Programme, 2003. Water and Sanitation in the World's Cities: Local Action for Global Goals. New York: UN-HABITAT, p46. Hardoy J. E., Mitlin D., and Satterthwaite D., 2001. Environmental Problems in an Urbanizing World: Finding Solutions in Africa, Asia, and Latin America. London, UK : James & James/Earthscan, p48. UNEP, 2005. Geo Latin America And the Caribbean: Environment Outlook 2003. New York: UNEP/Earthprint, pp133, 136.

137 UNEP, 2003. North America's Environment: A Thirty-Year State of the Environment and Policy Retrospective. Montreal: Commission for Environmental Cooperation, pp2–3.

138 Environmental Law Institute Research, 2003. Planning with Nature: Biodiversity Information in Action. Washington, DC: Staff Environmental Law Institute, p3.

139 UNEP, 2002. International Environmental Technology Centre, Environmentally Sound Technology for Wastewater and Stormwater Management: An International Technology Centre. London, UK: IWA Publishing, p167.

recharge rate,[140] with the implication that this region will face serious problems concerning water quality and quantity in the future.

In Africa, poverty has contributed to environmental degradation and reduction in the amount of inland water. Many parts of Africa are caught in a vicious circle in which depleted resources produce greater poverty that increases the depletion of dwindling resources.[141] Not only is the quality of water deteriorating, but its status as a resource is diminishing. Although many urban parts of Africa are finding it difficult to obtain enough water to meet people's needs,[142] there is a fear that attempts to reverse the damage suffered by the environment will prove far more expensive than preventative measures.[143]

Southern Africa is one of the world's most critical regions in terms of water management. Water has been described as the key natural resource and priority challenge for policy makers in Africa.[144] In the region's new political context, all countries participate in discussions on an equal footing.[145] A recent White Paper on water supply and sanitation in South Africa suggests clear links between poverty, race, and access to water.[146]

Meanwhile, in Asia and the Pacific region, high population densities coupled with rapid economic growth impose an immense strain on the environment. This

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140 UNEP, 2002. Global Environment Outlook 2000. London: Earthscan. GEO/UNEP, 2005. GEO Year Book 2004/5. New York: UNEP/Earthprint, p37.

141 Hollander J. M., 2003. The Real Environmental Crisis: Why Poverty, Not Affluence, Is the Environment's. California: University of California Press, p22.

142 Chaytor B., and Gray K. R., 2003. International Environmental Law and Policy in Africa. Berlin, Germany: Springer, p3. Finger M., and Allouche J., 2003. Water Privatisation: Trans-National Corporations and the Re-Regulation of the Water Industry. UK: Spon Press, p151.

143 For information about the Africa Region Environmental Strategy, especially in relation to lessons from the World Bank experience.

144 UNEP, 2003. The Fair Share Water Strategy for Sustainable Development in Africa. New York: United Nations Publication.

145 Nakayama M., 2003. Ed., International Waters in Southern Africa. New York: UNUP. For a critical analysis of the urban water issues and policy in the new South Africa, see Ehlers and Krafft, Understanding the Earth System, p236.

146 Ehlers and Krafft, Understanding the Earth System, p236.

region supports 60% of the world's population on 30% of the world's land area. The statistics that represent the state of this region's water supply are far from reassuring, and they show that one in three people lacks access to safe drinking water.[147] In addition, water shortages have had a negative impact on food production and, as a result, local, national, and regional economies and trade.[148]

According to current thinking, water issues cannot be considered atomistically, despite the fact that "individual human beings and agglomerations of people living in villages, towns, regions and nation states find themselves in very different circumstances."[149] Although there are local and regional differences in the problems associated with inland water,[150] the threats to inland water in different regions have many common features.[151] The principal threats experienced in most parts of the world are a decline in water quantity and quality, which has a large impact on a region's inland water ecosystem and food-producing capabilities:[152] "The biodiversity and therefore integrity of inland water systems are increasingly threatened by human activity world wide."[153]

The status of and trends in inland water are now a matter of international concern, and this has led to the organisation of a series of conferences with the aim of identifying key targets that must be addressed if a potentially disastrous situation

147 Economic Co-operation and Development, 2005. Regional Integration in the Asia Pacific: Issues And Prospects. Washington. DC: Economic Co-operation and Development , p208. Lo F-C., and Marcotullio P., Globalization and the Sustainability of Cities in the Asia Pacific Region. New York: United Nations University Press, p231.

148 Babu S. C., and Gulati A., 2005. Economic Reforms And Food Security: The Impact of Trade and Technology in South Asia. New York: Haworth Press, p15.

149 Young, Dooge, and Rodda, Global Water Resource Issues, pp2–3.

150 UNEP, 2002. Vital Water Graphics: An Overview of the State of the World's Fresh and Marine Waters. New York: UNEP/Earthprint, p32. UNEP, 2004. UNEP Annual Report 2004, p62.

151 Groombridge and Jenkins, World Atlas of Biodiversity, p187.

152 Nolon J., 2003. Open Ground: Effective Local Strategies for Protecting Natural Resources. Washington, DC : Environmental Law Institute, p195.

153 Biodiversity of Inland Waters' Workshop.

is to be averted. For example, the International Conference on Water and Environment (Dublin, 1992)[154] recommended that water management should be designed to ensure "simultaneous social and economic development with the protection of ecosystems."[155] In 1998, the International Conference on Water and Sustainable Development[156] called for an increase in "knowledge and comprehension of the water resource at all levels,"[157] which is in keeping with the current *Zeitgeist* of extensive communication, cooperation, and sharing of information.

2.15 Measures of Ecosystem Health[158,159]

There has been much debate about the most comprehensive way of assessing the health of ecosystems. The approach favoured by any particular body is likely to comprise several of the methods described below. This section has been included here in order to elucidate some of the endeavours currently being undertaken in an effort to bridge the gaps in knowledge so frequently pointed out in international policy and reports about the global status of and trends in inland water ecosystems.[160] The comparison of ecosystems on a global scale demands a certain degree of uniformity in measuring and calculating indicators as well as in general data collection. This uniformity should be maintained regardless of the approach or

154 For a keynote paper from this conference, see Plate E. J., 1992. Scientific and Technological Challenges. International Conference on Water and the Environment: Development Issues for the 21st Century. Dublin, Ireland , pp. 10, 1-10, 21.

155 Marino M. A.,and Simonovic S. P., 2001. Integrated Water Resources Management. Oxfordshire, UK: IAHS Press, p134.

156 International Conference on Water and Sustainable Development, 19–21 March 1998, Paris.

157 Marino and Simonovic, Integrated Water Resources Management, p134.

158 For a discussion about the appropriateness of using the concept of ecosystem health, see Perrow M. R., and Davy A. J., 2002. Handbook of Ecological Restoration: Volume 1, Principles of Restoration. Cambridge, UK: Cambridge University Press, p32.

159 For a discussion about the term ecosystem health and the wider context of the term environmental health, see Spellerberg I., 2005. Monitoring Ecological Change. Cambridge, UK: Cambridge University Press, p77.

160 For a discussion about the information needed to provide a clear picture of inland water ecosystems, see Ecimovic T., Stuhler E. A., and Vezjak M., 2000. Eds., Anthology I. SEM Institute for Climate Change. Munich:Germany Rainer Hampp Verlag, p31.

approaches used to assess the health of a given ecosystem. Common measures of ecosystem health include water-quality indicators, physicochemical composition, and biological diversity found in a body of water.

An overview of some of the methodologies adopted is offered below; this is not intended as a full analysis of this complex scientific area.

2.15.1 Measure Species Loss

One method of assessing the health of an ecosystem is by determining the loss of species in that ecosystem. Although this information is important, this single factor analysis may be useless if other factors, such as changes in the environment, are not taken into account. However, as a result of the interactive character of ecosystems, the loss of a single species does have an impact on an entire ecosystem.

There are some common signs of ecosystems under stress: "loss of biodiversity, altered primary productivity, altered nutrient cycling, increased dominance of biotic communities by exotic (non-native) species, and the like."[161] The interactive nature of ecosystems means that in order to successfully predict the potential effect of the loss of a given species it is necessary to obtain a thorough understanding of the role of each species within an ecosystem.[162] The use of species loss as a way to measure an ecosystem's health may not reveal the impact of any increase in alien species.[163] Although it has been difficult to obtain the information needed to make accurate assessments of ecosystems' health, the data successfully

161 Rapport D., Lasley B. L., and Rolston D. E., 2002. Managing for Healthy Ecosystems. London, UK: CRC Press, p6.

162 McCarthy J. J., Canziani O. F., Leary N. A., Dokken D. J., 2001. IPPC Climate Change 2001: Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK: Cambridge University Press, p239.

163 WCMC Biodiversity Series No. 8. Note: indicates severe or global or significant regional deterioration; absence of symbol indicates not globally important but of possible local significance. Modified after Chapman, 2003. Freshwater biodiversity: A preliminary global assessment. WCMC Biodiversity Series No. 8. GWP (Global Water Partnership).

collected suggest that inland aquatic ecosystems and the species that inhabit them are threatened. For example, at the global level, 24% of mammals, 10% of fish, and 12% of birds associated with inland waters are currently classified as threatened.[164]

The loss of a species can have a grave impact on an ecosystem. This impact is perhaps most acute when "entire functional effect groups disappear."[165] If the species that is lost

> is responsible for the processing of some resource, two things might happen. First, the remaining species cannot process the resource that was utilized by the lost species. Hence, the loss of a species leads to an irreversible change in ecosystem processes. Second, the remaining species may be capable of compensating for the loss of resource processing by excluding the species, and thus the ecosystem process may be restored to some extent.[166]

It is suggested that more than 25% of biota will be lost failing the immediate implementation of measures to address the issues of population growth and over-consumption of resources.[167] There is a pressing need for the accurate assessment of trends in species loss and the acquisition of a more profound understanding about the relationship between species diversity and ecosystem function.[168] Some studies predict the loss of approximately 50% of all species in inland water ecosystems within a generation, while other authorities believe the correct figure is closer to 0.7% in 50 years. These predictions show the need to collect and disseminate accurate data about the state of inland water ecosystems.[169]

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164 The UN World Water Development Report, 2003. Water for People Water for Life: World Water Assessment Programme, Executive Summary . Oxford, New York:Berghahn Books UNESCO Publishing, p24.

165 Loreau M., Naeem S., and Inchausti P., 2002. Biodiversity and Ecosystem Functioning: Synthesis and Perspectives. Oxford, UK: Oxford University Press, p207.

166 Bucker J., Streffer C., Cansier A., et al., 2003. Environmental Standards: Combined Exposures and Their Effects on Human Beings and Their Environment. Berlin, Germany: Springer, p176.

167 Hunter M. L., 2001. Fundamentals of Conservation Biology. Boston, MA: Blackwell, p127.

168 UNEP, Global Environment Outlook 3, p122.

169 For a discussion about the accuracies and discrepancies between leading groups and documentation, see Lomborg B., 2001. The Skeptical Environmentalist: Measuring the Real State of the World. Cambridge, UK: Cambridge University Press, pp17–18.

2.15.2 Measure Indicator Species[170]

One method for assessing the health of an ecosystem involves the use of indicator species. An indicator species "is an organism whose presence or absence, population density or dispersion, or reproductive success can indicate habitat conditions that are too difficult to measure for other species."[171] The exhaustive monitoring of every species and ecosystem function is not feasible; therefore, the study of indicator species has certain practical advantages. The method is intended to provide valuable information about the effects of contamination, population trends, and habitat quality, and this information may reveal the health of other species in an ecosystem. If this method is to prove genuinely useful, however, the different needs of individual species and their different reactions to ecosystemic change must be taken into account.

Optimal results will not be obtained from monitoring species that are already endangered or in decline because the uncritical application of data derived from the study of species under pressure is likely to produce an unduly pessimistic overall picture. Species that are typically less resilient to change in their ecological surroundings have been selected for particular monitoring to avoid environmental train wrecks, and this type of assessment is sometimes conducted in association with endangered or threatened species legislation;[172] however, the wholesale application of data derived from the study of a few selected species on the assumption that these results constitute a genuine reflection of the status of the world's species runs the

170 For a discussion about the use of indicator species, see Bissonette J. A.,and Storch I., 2002. Landscape Ecology and Resource Management: Linking Theory with Practice. Washington, DC: Island Press, p84.

171 Randolph J., 2003. Environmental Land Use Planning and Management. Washington, DC: Island Press, p565.

172 Knopf F. L.,and Samson F. B., 1996. Ecology and Conservation of Great Plains Vertebrates. Berlin, Germany: Springer, p285.

risk of producing a false impression of an ecosystem's health, especially if the species selected is already endangered. The species may have been selected as a last-ditch "rescue bid," and the use of this type of assessment to draw general conclusions presents a distorted view of ecosystems' health.[173]

Indicator species generally fall into the following categories:

- most sensitive species to change, not already threatened with extinction;
- specific indicator species (i.e., a species that may indicate a specific condition);
- representative species: a species that responds to environmental conditions that correlate to other species in the ecosystem.[174] Indicator species are often fish, birds, or insects.[175] A variety of criteria are employed for selecting an indicator species, such as a well-documented history of the species, ease of identification and surveying, stability (i.e., little fluctuation in populations away from environmental stress), and sensitivity to human impact on the environment.[176]

The use of indicator species as a measure of ecosystem health is not without its problems.[177] In particular, while a single species may provide a reliable indication of one or more aspects of the health of an ecosystem, it cannot reveal every single factor that may be affecting the ecosystem as a whole or other species within that ecosystem.[178] Therefore, while the use of indicator species to monitor ecosystem

173 Lomborg B., The Skeptical Environmentalist, p17.

174 Perrow and Davy, Handbook of Ecological Restoration.pp420–421.

175 ibid.

176 ibid.

177 ibid 420–421.

178 ibid 420–421.

health may appear to be an attractive concept in terms of time and financial resources, there is much to suggest that this method produces mixed results.

2.16 Water Quality

Organic micro pollutants[179] and trace elements (e.g., mercury, arsenic, cadmium, and copper) affect the quality of all water systems. The major pollutant in river systems is pathogens of fecal origin, while one of the most widespread problems affecting lake and reservoir water is eutrophication.[180] This usually occurs as a result of algae growth and is a cause for environmental concern because an increase in toxic cyanobacteria blooms may cause a decline in the population of some species.[181]

There is increasing recognition that "water quality, ecosystem health and the surrounding environment are all intimately connected,"[182] and this recognition has led to more comprehensive management plans for inland water. For example, Australian and New Zealand Guidelines for Fresh and Marine Water Quality suggest that the focus has moved away from a "confrontationist and regulatory mindset" towards cooperative management and a bestpractice approach that acknowledges the role of multiple parties and the importance of a united effort to improve water quality.[183] This effort to address the global problems associated with inland water resulted in the Great Water Quality Data Drive, launched in 2004 by the UN

179 Organochlorine pesticides, polychlorinated biphenyls, industrial solvents, and so forth.

180 Scholten M. C. T., Foekema E. M., Van Dokkum H. P., Kaag N. B. P. M., and Jak R. G., 2005. Eutrophication Management and Ecotoxicology. Berlin, Germany: Springer, p1.

181 ibid. .

182 Ball J., 2002. Australia Inland Waters: State of the Environment Report 2001.Canberra: Australia CSIRO Publishing, p77.

183 ibid.

GEMS/Water Programme. This programme is designed to coordinate the worldwide collection and dissemination of data about inland water quality.[184]

2.17 Human Modifications of Inland Water Systems

Human populations have had a significant impact on inland water systems. PAGE[185] uses the following indicators of modification to determine the well-being of an ecosystem:

- In rivers, the key factors are river fragmentation, flow regulation, and sediment and nutrient retention.
- In groundwater resources, the focus is on problems caused by overexploitation and saltwater intrusion.
- In wetland areas, the actual loss of wetlands, especially in the United States and Europe, is central.
- In the case of watershed levels, cropland and urban or industrial land use by a watershed is highlighted.

Many experts point out that people are bringing about climate change as a result of the release of greenhouse gases. The Intergovernmental Panel on Climate Change of the World Meteorological Organisation report suggests that inland aquatic ecosystems will be influenced by climate change, especially by changes in water temperature, flow, and level. In addition, there is likely to be a change in the

184 UNEP, 2004. UNEP Annual Report 2004, p62.

185 Revenga, Brunner, Henninger, Kassem, and Payne, Pilot Analysis of Global Ecosystems.

geographical distribution of wetlands as a result of changes in temperature and precipitation caused by climate change.[186]

People have made changes to many natural landscapes, and such changes are most noticeable in island environments. As a result of their small size, the environmental systems of islands may be particularly vulnerable to the effects of "insensitive resource mismanagement."[187] In the Caribbean islands, the consequences have been "not only land degradation, restricted agricultural production and rural poverty, but increasing levels of vulnerability to flooding in the coastal plains." Another cause for concern in some insular environments is the detrimental effect on the environment of human economic developments such as tourism. In the Caribbean islands, for example, the rapid growth of tourism over the past three decades, while producing a favourable effect on the economy of a community, has unfortunately led to the degradation of the insular ecosystems. The greatest impact has been in coastal zones.[188]

2.18 Chapter Conclusion and Direction

In the present chapter, the broad spectrum of problems associated with inland water and some of the key pressures and resultant negative trends that pose a threat to the status of inland water ecosystems globally have been summarised. The first part of the chapter stressed the importance of reaching agreement about a definition for

186 Draper S. E., 2002. Environmental and Water Resources Institute (U.S.). Laws and Institutions Committee Model Water Sharing Agreements for the Twenty-First Century by Highway Innovative Technology Evaluation Centre.Reston, VA: ASCE Publications, p137.

187 Barker D.,and McGregor D. F. M., 2000. Environment and Development in the Caribbean: Geographical Perspectives. Jamaica: University Press of the West Indies, p8.

188 ibid. p 9.

inland water for use in international instruments and to promote meaningful dialogue about and assessment of the status of and trends in the world's inland water systems. The Ramsar Convention Bureau's definition was considered the most comprehensive definition of inland water.

The current status and trends and future status and condition of various inland water ecosystems were discussed in the light of population growth and the over consumption of resources. Some of the key threats to inland water ecosystem health were reviewed, and various methods for measuring ecosystem health were discussed, such as the use of indicator species. However, the danger of studying species well known to be particularly sensitive to environmental change or to be already in decline was discussed because the selection of this type of species could paint a distorted picture of the situation.

The impact of environmental degradation on people was also discussed, and a link was made between poverty and environmental damage. For example, people living on and trading directly in fish or plants, such as rice or reeds, are the first to suffer the effects of the disappearance or qualitative degradation of fish or plants as a result of pollutants.

Although a consideration of all ecosystems categorised by CBD exceeds the scope of this thesis, the interplay between ecosystems is worth bearing in mind. For example, seepage of agricultural waste, pesticides, and fertiliser into streams and rivers not only damages inland water ecosystems, but also transports undesirable substances along inland waterways and contributes to the pollution of the world's oceans.

After discussing the most critical threats to inland water ecosystems, the values and functions of inland water ecosystems, including wetlands, and

biodiversity as a part of the ecosystem, were reviewed. Information about the value and function of inland water ecosystems is crucial if the international community is to decide on appropriate action needed to protect and preserve these vital resources. The discussion of value and function introduced some of the principal philosophical approaches that inform political conventions and declarations and found that the time-honoured method of calculating value on purely economic grounds may no longer be appropriate.

It is clear that there are many obstacles to maintaining the quantity and quality of inland water ecosystems. Despite the appreciable increase in international cooperation and restoration projects, such as the restoration of the River Rhine,[189] there is no room for complacency. The continued growth of the world's population, the intensification of water consumption and the predicted consequences of climate change make the future quality and quantity of inland water difficult to predict.

The international community has started to recognise the importance of wetlands as ecosystems and that they are threatened by a number of factors, such as drainage and pollution. As a result, 130 countries have signed the Ramsar Convention and agreed to protect more than 1,100 sites covering more than 96 million hectares.[190]

It has been suggested that as a result of the

> different water resources management systems worldwide, a considerable exploration is needed to effectively address the new water resources issues. A lot of work must be done, such as empowerment of water users and security

189 For further information about the rehabilitation studies of the Rhine river, see Nienhuis P. H.and Gulati R., 2002. Ecological Restoration of Aquatic and Semi-Aquatic Ecosystems in the Netherlands. Berlin, Germany: Springer, p53.

190 Bowman M., 2003. Current Issues and Key Themes 61: The Ramsar Convention on Wetlands: Has it Made a Difference? Yearbook of International Co-operation on Environment and Development 2002/2003. London: Earthscan Publications, pp61-68. See RAMSAR, 31 Oct 2002. The Ramsar Convention on Wetlands: Has it made a difference. (Online) http://www.ramsar.org/key_law_bowman2.htm p3. Accessed May 2005.

> of water rights tenure … user/stakeholder participation is fundamental to improving water management.[191]

Initially, the sharing of water resources was only considered at the level of neighbouring states; however, the scope of the discussion has broadened to study the impact of activities taking place over larger areas. In addition, the international community has started to recognise the role of all stakeholders in the management of inland water systems. The International Year of Freshwater sought to raise awareness and promote action "not only by governments but also by civil society, communities, the business sector and individuals all over the world."[192] In short, the focus has shifted towards understanding the threats to inland water systems and devising strategies to protect this essential resource.

191 Figueres C., Tortajada C., and Rockstrom J., 2003. Rethinking Water Management: Innovative Approaches to Contemporary Issues. London, UK: James & James/Earthscan, p234.

192 Annan K., 2004. Every Body Counts, Every Drop Matters: United Nations Classroom Resource Guide on Water. New York: United Nations Publications, p4.

CHAPTER THREE

DEVELOPING TRENDS IN INTERNATIONAL LAW AND WATER CRISIS POLICY

3.1 Introduction

This chapter contains a discussion about how the global water crisis has been addressed in international law. Any discussion of international environmental law must consider international law as the body of established international legal rules and their application to environmental issues rather than a codified collection of legal instruments. Indeed, there is no clear definition of the term *environment*, and no major treaty or declaration has succeeded in defining the concept satisfactorily. Nonetheless, the role of international environmental law remains significant. It provides an avenue through which redress and compensation for environmental damage may be sought, and it also creates a forum for solutions and standard setting in areas such as national laws, pollution levels, and environmental damage. Therefore, this chapter offers a brief discussion about several principles that have already been used by the international community to discuss the status of and trends in inland water.

3.2 The Development of International Water Regulations

The Convention on Biodiversity (CBD) is one of the most important legal instruments dealing with environmental issues at the international level. CBD Article 22 recognises the importance of existing international agreements, and it specifically states that it will not affect the rights and responsibilities described in existing

international agreements unless these rights and responsibilities have a detrimental impact on biodiversity.

International instruments that deal with the use and conservation of water resources have started to include the concept of sustainable use: "An activity may be termed sustainable if it uses renewable resources no faster than their rate of regeneration; uses nonrenewable resources no faster than sustainable renewable substitutes are developed, and pollute no more than the environment can assimilate."[193] For example, Article 5 of the 1997 UN Watercourse Convention proposes, among other goals, "optimal and sustainable utilisation"[194] of water. Article 5 of the International Law Associations 1966 Helsinki Rules lists "the avoidance of unnecessary waste"[195] as an important factor in managing water.

Many of these agreements, however, focus on issues that relate to transboundary watercourses and competing riparian communities, and they focus more on the basic human needs for water (i.e., water for nutritional and sanitational purposes)[196] rather than on the preservation of water as a resource. This is clearly highlighted in the Lac Lanoux arbitration case between France and Spain, addressed in greater detail below.[197] Although there is more focus on water supply than on sustainable use, the discussion about the importance of sustainable use in many

193 Daly H., in Weeks W. W., 1996. Beyond the Ark: Tools for an Ecosystem Approach to Conservation. Washington, DC: Island Press, p100. Wescoat and White, Water for Life, p26.

194 For discussion about the principal of optimal utilization, see Reinisch A., and Hafner G., 1993. An Austrian Perspective. JPIL Austrian Journal of Public and International Law 42, p45.

195 The Helsinki Rules on the Uses of the Waters of International Rivers, 1966. See Subedi S. P., 2005. International Watercourses Law for the 21st Century: The Case of the River Ganges Basin. London, UK: Ashgate, Appendix VI, p283.

196 ILC Commentary, II YbIlc 1994, Pt 2, p110, refers to the provision of "sufficient water to sustain human life, including both drinking water and water required for the production of food in order to prevent starvation." For further discussion, see Salman M., 2004. The Human Right to Water: Legal and Policy Dimensions. Washington, DC: World Bank Publications, p13.

197 Decision of the arbitral tribunal that adjudicated the dispute between France and Spain in the Lac Lanoux case, 24 ILR (1957), p101.

agreements[198] has been linked to legal decisions in cases such as the Gabcikovo-Nagymaros case.[199]

The 1972 United Nations Conference on the Human Environment held in Stockholm,[200] the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio,[201] and the 2002 World Summit on Sustainable Development WSSD held in Johannesburg[202] identified the objectives of sustainable development and the action plans needed to achieve these objectives. Recently, the 2005 World Summit highlighted the key role of the environment in sustainable development.[203] Currently, the Commission for Sustainable Development (CSD) and other international bodies are endeavouring to encourage the political will needed to meet the objectives of sustainable development.[204]

3.3 Developments in International Inland Water Ecosystem Protection

Historically, concern for the environment has been inspired by the destruction of a habitat or when an animal or plant species became extinct. Today, there is a move toward the proactive protection of the environment rather than reacting to an environmental disaster. For example, legal protection for inland water ecosystems

198 Birnie P. W., and Boyle A. E., 2002. International Law and the Environment, 2nd ed. Oxford, UK: Oxford University Press.

199 Gabcikovo-Nagymaros Dam Case, ICJ Rep. (1997), pp140–142.

200 The United Nations Conference on the Human Environment was held in Stockholm and considered the need for a common outlook and common principles to preserve and enhance the human environment, and it produced the Declaration of the UN Conference on Human Environment for this purpose.

201 The 1992 UN Conference on Environment and Development is informally referred to as the Earth Summit. It resulted in a host of documents: Agenda 21, the Rio Declaration on Environment and Development, the Statement of Forest Principles, the United Nations Framework Convention on Climate Change, and the United Nations Convention on Biological Diversity.

202 The following documents were agreed to at the Earth Summit: Report of the United Nations Conference on Environment and Development, Rio Declaration, Framework Convention on Climate Change, Convention on Biological Diversity (CBD), Statement of Forest Principles, and Agenda 21.

2032005 World Summit Outcome (15 September 2005) A/RES/60/1. Resolution adopted by the General Assembly 60/1. 2005 World Summit Outcome, General Assembly District General 24 October 200, Final document.

204 CSD has outlined key targets and crosscutting thematic areas and published its action plan. See United Nations Sustainable Development CSD Multiyear Program of Work (Online) URLhttp://www.un.org/esa/sustdev/csd11/CSD_multiyear_prog_work.htm. Accessed May 2005.

already exists in many countries and the international community is starting to discuss legal protection for ecosystems and animal and plant species at international level.

Older treaties were concerned with situations that affected the flow or navigability of a river, but this focus has expanded to include issues related to water pollution and other environmental damage. This change in focus has occurred because situations such as over-hunting and the threat of extinction inspired the international community to develop international legal norms and obligations for the protection and conservation of animal species. The scope of this protection includes natural resources and habitat protection rather than the protection of inland water. Most of the international discussions and agreements concerning water deal with the protections of endangered species such as birds, fish, and whales. The focus on species protection was a move away from the more traditional legal environment-orientated agreements, which were concerned with resolving disputes about ownership and rights to resources for human benefit rather than the safeguarding the resource.[205]

The CBD deals with a resource in terms of in situ and ex situ and provides guidance about resource exploitation, and it recognises that it is necessary to consider the habitat in which a resource is located. One argument for the protection of the environment at international level is the concept of "common property or common heritage and concern."[206,207] Birnie and Boyle note that "the concept of

205 Birnie and Boyle, International Law, p555.

206 The concept of common heritage in the 1979 Moon Treaty and 1982 UNCLOS implies that the resources of some areas cannot be subject to the sovereignty or ownership of one specific country but rather constitute a resource to be conserved or exploited for the benefit of all without discrimination. For further discussion about common heritage, see Dr Baslar, 1998. The Concept of the Common Heritage of Mankind in International Law. The Hague: Martinus Nijhoff Publishers.

common heritage implies that the resources of these areas cannot be appropriate to the exclusive sovereignty of states but must be conserved and exploited for the benefit of all without discrimination."[208] It has been suggested that debates over ownership should be discontinued and that water should be regarded instead as an area of common concern.[209]

Although the international community recognises the shared obligation to protect the world's resources, protection of the individual environment lies in the hands of the country within whose boundaries the resource is located.[210] The CBD concedes that nation states own specific resources,[211] but the concept of biodiversity conservation as a shared global concern emphasises not only the awareness of the global importance of biological diversity, but the obligation to co-operate in its conservation and management.[212] The CBD represents a major breakthrough on the international scene. It exceeds preoccupations with biological diversity per se and addresses issues such as the sustainable use of biological resources, benefit sharing, and access to genetic resources and to technology.[213] In addition, it recognises the rights and input of indigenous and local communities. According to Juma, "the CBD has adopted the ecosystem approach to understand and cope with the human impacts

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207 ibid.

208 Birnie and Boyle, International Law, p143.

209 See, for example, its use in the 1988 General Assembly Resolution 43/053, Protection of Global Climate for Present and Future Generations of Mankind, para. 1.

210 The Convention highlights that the conservation of the world's biodiversity is a common concern rather than a common heritage of mankind. Article 3 provides that "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." This provision repeats Principle 21 of the UN Conference on the Human Environment (UNCHE) of 1972. This doctrine enshrines the principle that national states are sovereign and have equal rights and duties as members of the international community.

211 Article 15, Recognising 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.

212 Kameri-Mbote A. P.,and Cullet P., 1999. "Agro-Biodiversity And International Law: A Conceptual Framework," Journal of Environment Law 11 no. 257.

213 Burhenne-Guilmin and Leftkowitz, 1992. 3 YbIEL, p43.

on inland water biological diversity.[214] The ecosystem approach[215] integrates the conservation and sustainable use of biological diversity and the fair and equitable sharing of benefits of inland waters.[216]

The Ramsar Convention on Wetlands, signed in Ramsar, Iran, in 1971, provides a framework for the conservation and use of wetlands and their resources. It also uses an ecosystem approach that assesses all human activities impacting on an ecosystem and integrates ecological, environmental, economic, and social factors. Its objective is to restore and maintain the health of ecological resources and the communities and economies that are supported by these resources.[217] Although the use of an ecologically based approach is an important step forward in the steps towards the successful protection of the environment, the success of this approach is dependent upon on expert scientific advice that presents an accurate picture of the current status of inland water ecosystems and biodiversity.[218] In addition, some people believe the ecosystem-based approach used by the CBD and the Ramsar Convention may not be able to operate successfully "within the trade regime."[219] There can, however, be little doubt that the development of the CBD and the Ramsar Convention marks the start of an exciting new era.

3.4 An Overview of Milestone Conferences

214 For more details about the co-system approach, see Decision V/6 COP 5 and COP 6, Decision VI/12 and Recommendation SBSTTA 5, and Recommendations V/10 Ecosystem Approach: Further Conceptual Elaboration.

215 For a discussion about the ecosystem approach in the American context, see Conserving Biodiversity on Military Lands, section 2, p6.

216 Ecosystem Approach Principle 5, Decision V/6 COP CBD in Report of the Fifth Meeting of the Conference of the Parties to the Convention on Biological Diversity-Annex 3. UNEP/CBD/COP/5/23anx3. The approach consists of 12 principles that are designed to achieve goals of sustainable development in an ecosystem.

217 Juma C., The CBD and the Biological Diversity of Inland Waters.

218 Juma C., Executive Secretary, Secretariat of the Convention on Biological Diversity.

219 Riley S., 2005."Invasive Alien Species and the Protection of Biodiversity," Journal of Environmental Law 17 no. 323.

Several international conferences have debated the action needed to address the negative trends affecting water quality and quantity. One of the first major conferences to discuss this issue was the Mar Del Plata conference in 1977. This conference resulted in a plan of action,[220] and proclaimed 1981 to 1990 to be the International Drinking Water and Sanitation Decade. The conference focused on societies that needed immediate action to ensure a supply of water. Although the Drinking Water and Sanitation Decade failed to achieve its stated targets, there is some indication that it led to an increased awareness about the problems facing inland water:

> Much was learnt from the experience of the water and sanitation decade...there was further realisation of the importance of comprehensive and balanced country-specific approaches to the water and sanitation problem. Most important, perhaps, was the realisation that the achievement of this goal that was set at the beginning of the decade would take far more time and cost far more money than was originally thought.[221]

More recently, the 1992 International Conference on Water and Environment held in Dublin proposed four key principles.[222] Principle Two promotes participatory management in water-development issues that includes "users, planners and policy makers at all levels."[223] This principle is similar to the concept of conservation management and sustainable use discussed below in relation to CBD Article 8(j). In addition, the 1992 UN Conference on the Environment and Development (UNCED) produced Agenda 21,[224] which proposes a seven-step action programme for

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220 UN Conference on Water, Mar del Plata Assessment of Water Resources, Water Use and Efficiency.

221 Choguill C., Franceys R., and Cotton A., 1993. Planning for Water and Sanitation, Centre for Development Planning Studies. London, UK.

222 1992 International Conference on Water and the Environment, Dublin: Economic Value of Water, Women, Poverty, Resolving Conflicts, Natural Disasters, Awareness.

223 The Dublin Statement on Water and Sustainable Development is available at WMO (Online) http://www.wmo.ch/web/homs/documents/english/icwedece.html. Accessed June 2004.

224 United Nation Sustainable Development, June 1992. United Nations Conference on Environment & Development Rio de Janerio, Brazil, Agenda 21.

freshwater.[225] The most significant achievement of these two 1992 conferences was to highlight the vital role played by water in sustainable development and the urgent need to revise water management practice to include appropriate strategies.

There is a certain measure of interface and similarity of terminology between CBD and Agenda 21. It has been suggested that these guideline documents constitute a stepping stone or, perhaps more optimistically, a cornerstone rather than a complete edifice: for example, on the issue of invasive species, both conferences provide a measure of guidance yet fail "to specify mechanisms for preventing introductions or limiting their effects."[226]

The World Water Council, an international think-tank with influence in the world of international water politics, organises the World Water Forums. Since the first Water Forum held in Marrakech in 1997, these fora have been held triennially. Each forum has a clear vision and framework for action.[227] The World Water Forum attracts a broad spectrum of participants interested in water management, including practitioners, users, politicians, and the media.[228]

The World Water Forum is part of a series of key global gatherings in which worldwide water issues have been discussed. This series includes the United Nations meetings discussed above, such as the 1992 Earth Summit (Rio), the 2002 World Summit on Sustainable Development (Johannesburg), CSD-12 and 13 (New York),

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225 Agenda 21 is a detailed action plan designed to be implemented wherever humans have impacted the environment. See Robinson N. A., "International Protection of the Environment" in Agenda 21 and the UNCED Proceedings, 1993. 3rd series, vol. 4. New York: Oceana Publications, Inc.

226 Riley, "Invasive Alien Species."

227 Details about the first water forum can be seen on the World Water Council site at WWC World Water Council (Online) http://www.worldwatercouncil.org. Accessed June 2005.

228 The World Water Council was established in 1996 in response to increasing concern from the global community about world water issues. Its mission is to promote awareness, build political commitment, and trigger action about critical water issues at all levels, including the highest decision-making level, to facilitate the efficient management and use of water in all its dimensions and on an environmentally sustainable basis. The Third World Water Forum, held in Kyoto, Shiga, and Osaka, was attended by 24,000 delegates from 182 countries.

and the 2005 Millennium Summit (New York). Nongovernmental fora, such as the International Conference on Freshwater (2001), dedicated specifically to freshwater, have reinforced the message of these conferences and identified targets to be met in water management.[229] Taking these targets as its point of departure, the World Water Forum proposes concrete action plans designed to radically alter the methodology of water management.

The World Water Forum and other recent conferences are designed to achieve the UN's Millennium Development Goals.[230] The Millennium Development Goals for 2015[231] were formulated by the UN Summit 2000 and are designed to work at the national level: "There are three key areas in which MDGs operate. Namely, in providing practical assistance in support of national development priorities, monitoring development progress at the national level, and monitoring global development trends."[232]

These are some conferences that are benchmarks in the international approach to global water-based challenges. They represent the growing recognition of a global problem that demands global solutions tailored to the unique requirements of each individual set of circumstances. More recent conferences have moved beyond the stage of debating the state of water as a resource to devising plans of action aimed at redressing the situation, with follow-up progress reports.

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229 International Conference on Freshwater Berlin Conference Report, Dec 2001. See International Convention on Freshwater Convention (Online) http://www.water-2001.de/. Accessed June 2005.

230 An overview of the millennium goals and their progress is available at UN (2002-6) Millennium Project (Online) http://www.unmillenniumproject.org/reports/goals_targets.htm. Accessed Feb 2007, and Investing in Development: A Practical Plan to Achieve the Millennium Development Goals UN Millennium Project 2005. New York: United Nations Development Program.

231 United Nations Millennium Declaration, A/RES/55/2, Art 19. See UN Millennium Declaration (Online) http://www.un.org/millennium/declaration/ares552e.htm. Last Accessed May 2007.

232 "Significance of the Millennium Development Goals to Timor-Leste," Statement made by Dr S. Hasegawa, Deputy Special Representative of the Secretary-General and Resident Coordinator of the UN Operational Activities for Development Millennium Development Goals Conference. See unagencies.east-timor.org/ Speeches/MDGSpeech26March2003Hasegawa-final 25 March 2003, Hotel Timor, Dili

CBD programmes address many of the key challenges identified in these conferences, including the call to share water resources, consider all stakeholders, and take into account not only the social and economic value of the resource, but, more importantly, the needs of the poor and/or vulnerable.[233] In particular, the CBD focuses on conservation management and sustainable use.

This brief overview of milestone conferences and international documents illustrates that the international community recognises the gravity of the challenges facing water as a resource and the urgent need for effective management in order to safeguard the future health of inland water and the implications for human life. Predictably, many of the collaborative documents involve the same or comparable international bodies and scientific experts and reach similar conclusions, and although the available data indicate there is a global water crisis, there is a need for more accurate and harmonised data on a global scale.[234]

3.5 CBD: A New Direction in International Law and Policy

Any decision concerning inland water conservation must take account of the close relationship between human communities on the one hand and inland waters and their biological diversity on the other. The CBD meticulously underlines the important role played by local communities and the necessity of obtaining their co-operation in all endeavours aimed at achieving conservation and sustainable use.[235] In addition, it acknowledges the

233 OECD Staff, 2002. The Dac Guidelines. Washington, DC: Organisation for Economic Co-operation and Development, p52.

234 Benvenisti E., 1996. "Collective Action in the Utilisation of Shared Freshwater: The Challenges of International Water Resources Law," AJIL 90 pp384, 390-394.

235 CBD Decision IV/4: Status and Trends of the Biological Diversity of Inland Water Ecosystems and Options for Conservation and Sustainable Use.

> crucial part played by technical and scientific co-operation in all aspects of biological diversity, including the transfer of technology, and recognising also the necessity of capacity-building to enable Parties to carry out identification, monitoring and assessment of biological diversity as required by Article 7 of the Convention.[236]

Within international law, the trend is to encourage wider participation[237] and more direct dialogue, and makes more use of larger participatory fora and modern informational sources to promote public awareness. However, the ultimate success of future environmental management and the CBD depends not only on global socioeconomic harmonisation, but also on the political will of individual states to shoulder their responsibilities.

In its infancy, the CBD, along with other international conventions and agreements, was met with a certain amount of criticism, and some people doubted its efficacy and predicted it would fail. Much of this criticism may be ascribed to the relative uncertainty about state guidelines and their possible knock-on effect on the implementation and/or violation of the Convention at a national level. Although severely criticised as a nonbinding document, the CBD reinforces existing principles, builds on them, and proposes further principles that are echoed in other international documents; therefore, it can be argued that these principles have the character of *lex ferenda*.[238]

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236 The Ramsar Convention on Wetlands, 4-15th May 1998. Decisions of the 4th COP of the Convention on Biological Diversity: Decision IV/4, Decisions adopted by the 4th Conference of the Parties to the Convention on Biological Diversity held in Bratislava.

237 Such as the UN Working Group on Indigenous Populations (WGIP) (derogating from Article 71 of the UN Charter on the participation of NGOs in the meetings of the ECOSOC and its subsidiary bodies). This has resulted in the conferral of specific procedural capacities on indigenous representatives acting on behalf of their groups, including participation in the drafting process of the UN Draft Declaration on the Rights of Indigenous Peoples, adopted by WGIP in 1993. See Brownlie I., 1998. Principles of Public International Law. Oxford, Oxford University Press , p66.

238 lex ferenda (or de lege ferenda): norms in the process of ripening into law. Contrast lex lata. lex lata (or de lege lata): law that is binding and well-established. See Aust A., 2005. Handbook of International Law. London, UK: London School of Economics and Political Science.

CBD manifests the global-centric perspective that is supported by the World Bank, major northern environmental NGOs, and industrialised countries.[239] This perspective is based on a particular representation of the threats to biological diversity and strives to identify symptoms and implement expedient responses rather than address underlying causes[240]:

> This perspective proposes appropriate conservation and national biodiversity planning. It focuses on intellectual property rights as the chief mechanisms for the compensation and economic use of biodiversity. It also promotes the problematic practice of bioprospecting, which often has serious effects, including the loss by small farmers and indigenous peoples of rights to their own plants and knowledge. The dominant global centric perspective is challenged by some developing world governments, which, without questioning it in a fundamental way, seek to renegotiate the terms of biodiversity treaties and strategies. Although there is great variation in the positions adopted by these governments, they tend to emphasize issues of sovereignty, particularly in international conventions such as the CBD.[241]

Although the CBD is a nonbinding agreement, it has been able to promote compliance with its principles in relation to carbon emissions:

> Compliance with the CBD is guaranteed in two ways – two kinds of political decision more exactly – by parties subject to legally binding GHG emissions limitation and reduction targets under the Kyoto Protocol (Annex I parties to the UNFCCC). The first consists in financing and authorising only the projects promoting biological diversity conservation. The second is based on not using emission credits generated from carbon sequestration project activities for the purpose of demonstrating their compliance with their commitments.[242]

It is important to recognise that the CBD is a complement rather than an alternative to provisions such as the Rio Declaration and Agenda 21. CBD supports Agenda 21's seven programmes of action for freshwater, which have promoted change and

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239 Paulson S.,and Gezon L., 2004. Eds., Political Ecology Across Spaces, Scales, and Social Groups. New Brunswick, NJ: Rutgers University Press, p261.

240 ibid. p261. See also in the context of bioregional management approach German Advisory Council on Global Change, 2001. Wissenschaftlicher Beirat der Bundesregierung Globale Umwelt [World in Transition: Conservation and Sustainable Use of the Biosphere].London, UK: James & James/Earthscan, p382.

241 Paulson and Gezon, Political Ecology, p261.

242 Sandrine Rousseaux Centre National de la Recherche Scientifique, 2005. Environmental Law Review 7 no. 1 p1.

been described as having "heralded the beginning of the … evolution in water management practices."[243] Enormous strides have been made towards defining international legal principles and obtaining co-operation about such issues as biodiversity loss and the status of, and trends in the Earth's ecosystems, including, naturally, the status of inland water ecosystems and the communities most affected by these ecosystems. In addition, CBD and the Ramsar Convention Bureau joint initiatives have been designed to bring together international initiatives to achieve common goals exemplifying international co-operation.[244] These positive developments should not be ignored.

3.6 Philosophy and International Environmental Concerns

Despite the fact that international environmental measures have been designed to improve or at the very least sustain levels for present and future generations, there remains the sobering suspicion that the environmental degradation already suffered may be irreversible. A global biodiversity assessment produced for UNEP divides the speculation about future prospects into a spectrum, with "Malthusian pessimists at one end and the technological optimists at the other."[245] Malthusian theory, a popular feature of debate among economist and political scientists, influences governmental policy.[246] The basic Malthusian premise contends that the world's resources are unsustainable, destruction of the environment as a result of human

243 UNESCO Staff , Water for People, Water for Life, p6. The 1992 UN Conference on the Environment and Development (UNCED) produced Agenda 21, which, in turn, identified seven programme areas for action in respect to freshwater.

244 For a discussion about the parallel objectives and obligations of the two conventions, see http://iucn.org/themes/RAMSAR/about-biodiversity.htm.

245 Heywood and Watson, Global Biodiversity Assessment, p792.

246 Kula E., 1992. Economics of Natural Resources and the Environment. Berlin, Germany: Springer, p3. Jones S.,and Carswell G.,, 2004. Eds., Earthscan Reader in Environment, Development and Rural Livelihoods. London, UK: James & James/Earthscan, p59.

activity has passed the point of no return, "ecological and economic collapse is inevitable, resulting in the collapse of populations and civilisations, and perhaps followed by a regrouping at a much lower level of resource use and civilisation," and no technological invention will prove capable of staving off this inevitable consequence.[247] The Malthusian view is equally pessimistic about the future of inland water:

> The fact that people recognise that water is precious, finite, and irreplaceable, and that we have *no* substitutes for it, will hopefully provide humanity locally, regionally, and globally, with the impetus for a proactive approach to the integrated management of freshwater for sustainable use, both within and between countries ... in the absence of proactive human actions to address such problems, we can be assured that nature will ultimately take care of the problem for us.[248]

There are numerous examples of civilisations living beyond their environmental means and failing as a result of deforestation and soil erosion, which resulted in poor harvests, leading to malnutrition and vulnerability to disease.[249]

The counter-argument, frequently aired in the media, is offered by technical optimists, who posit that the key to avoiding the fate of these self-annihilating civilisations lies in the human ability to adapt to changed circumstances, in particular, by means of new technologies.[250] This putative solution to the crisis does not, however, address the problem of the environmental damage already suffered or the need for immediate remedial and preventative action. However, it would appear somewhat precipitate to embrace either view at this stage because of the prevailing gap in knowledge and the need for a greater level of precise information about the

247 Heywood and Watson, Global Biodiversity Assessment, p792.

248 Holland, Blood and Shaffer, Achieving Sustainable Freshwater Systems, p38.

249 Reference is made to Maya and Easter Island civilizations in terms of deforestation, and soil erosion has been linked to the Black Death epidemic in medieval Europe. See Harrison P., and Pearce F., 2001. AAAS Atlas of Population and Environment. California: University of California Press, p9.

250 ibid.

current state of inland water.[251] To this end, many modern programmes of action employ a methodological approach using water indicators recommended by UN agencies and WWAP.[252]

Exactly how and to what extent climatic changes will impact upon the problems affecting inland water ecosystems remains somewhat unclear. Recent estimates predict that climatic change will account for 20% of the increase in water scarcity worldwide.[253]

3.7 International Law and Specific Water Concerns and Programmes

An in-depth examination of all international legal developments and their potential ability to protect inland water biodiversity is beyond the scope of this thesis; therefore, only an introductory overview of some relevant principles of international law and policy are examined because many international agreements and programmes are based on the same principles: for example, the CBD is based on pre-existing principles and not on principles expressly produced ad hoc.

Internationally, legal and policy provisions dealing with inland water systems traditionally encompass the question of international watercourses, their management and use, and restrictions in respect to environmental damage, including pollution, sustainable use, and development. Some of the principles associated with international watercourses are related to the provisions contained in CBD Article

251 Lachavanne J. B., 1997. Biodiversity in Land-Inland Water Ecotones. London, UK: Taylor & Francis, p246; Bernan Press, 2004. Yearbook Of The United Nations. New York: United Nations Publications, p1045.

252 UNESCO Staff, Water for People, Water for Life, p7.

253 UNESCO Staff, Water for People, Water for Life, p10.

8(j), such as the protection of watercourse ecosystems and the notification, consultation, and negotiation of environmental impact risk for proposed projects.[254]

Today, there is greater focus on an integrated coordinated approach in the field of water policy: for example, the European Union is adopting a model of integrated management that requires member states to set up river basin management districts responsible for implementing EU directives. This programme is designed to accomplish the following objectives:

> The establishment of a framework for the protection of inland surface waters, transitional waters, coastal and groundwater in order to prevent further deterioration and to protect and enhance the status of aquatic ecosystems; the promotion of sustainable water use based on a long term protection of available water resources.[255]

Although the focus of the present thesis is on an analysis of the development of international law related to inland water and the status of and trends in indigenous communities, many of the principles discussed here are intended for negotiations between two nation states. They are relevant, however, because any discussion about water as a resource must address many of the same concerns: "Watercourse ecosystem protection and sustainable use of water resources is embraced by international law; a sharp division between international and non-international watercourses becomes much more difficult to maintain."[256]

It is recognised that many indirect activities may impact upon a shared water resource; therefore, a general review and revision of activities may be required to maintain the health standards of the shared water resource: for example, activities

254 Such as the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 17 March 1992. For an overview, see Galizzi P., and Sands P., 2004. Documents in International Environmental Law. Cambridge, UK: Cambridge University Press, p539.

255 Fitzmaurice M.,and Elias O., 2006. Watercourse Co-operation In Northern Europe: A Model for the Future. Cambridge, UK Cambridge University Press, p170, which discusses Article 1 of the October 2000 directive adopted by the Parliament and Council of the European Union establishing a framework for community action in the field of water policy.

256 Birnie and Boyle, International Law, p316.

that may cause air or groundwater pollution. It is widely accepted that inland waters form part of the natural heritage of humankind and are a global common that should be preserved. The protection and maintenance of global commons depend on individual sovereign nations honouring their international obligations, and this, in turn, relies on a level of awareness in both developed and developing countries sufficient "to make international environmental regimes effective."[257]

International legal principles that inform international watercourse treaties and agreements can be applied to treaties and agreements designed to protect and preserve inland water as a resource. For example, Principle 10 of the Rio Declaration, Article 235(2) of the 1982 UNCLOS, Article 2(1) of the 1996 ILA Helsinki Articles on International Watercourses, and human rights precedents[258] describe international standards for compensating victims of transboundary damage. These provisions could be applied to issues related to inland water. Although they have been criticised for perpetuating the pervading lack of definition,[259] some people believe these provisions can be effective for protecting and preserving water as a resource:

> There is arguably enough material here on which to build something more than a soft law compensation principle. The International Law Commission, for example, does not normally differentiate between the codification of existing international law and the progressive development of new law. In reality, its endorsement has not infrequently proved sufficient to endow what might otherwise have been regarded as *lex ferenda* with enough added authority to elevate it into law.[260]

257 Huber J., 2004. New Technologies and Environmental Innovation. London, UK: Edward Elgar, p112.

258 1996 Helsinki Articles on International Watercourses, 1997. Article 2(1), in ILA, Report of the 62nd Conference. London. See also 1982 UNCLOS, Article 235(2), which also requires states to ensure that recourse is available within their legal system for "prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment."

259 Boyle A. E., 2005. "Globalising Environmental Liability: The Interplay Of National And International Law," Journal of Environmental Law 17 no. 3..

260 ibid.

3.8 Inland Water and Convention on Biodiversity Key Principles

The overall objectives laid out in paragraph 1 of Decision III/11 of the Conference of the Parties to the Convention on Biological Diversity include the application of the ecosystem approach, which implies, *inter alia*, intersectorial cooperation, decentralisation of management to the lowest level appropriate, equitable distribution of benefits, and the use of adaptive management policies that can deal with uncertainties and are modified in the light of experience and changing conditions. The implementation process will also build upon the knowledge, innovations and practices of local communities and thus complement Article 8 (j) of the Convention. A multi-disciplinary approach that takes into account scientific, social and economic issues is required.[261]

The three key objectives are considered of equal importance in the implementation and operation of CBD. These goals convey, both explicitly and implicitly, the importance and value of biodiversity, both globally and locally.[262] In addition, it has been noted that the Convention "is not just about conservation, in practice as well as on paper, it is also about equity, human, economic and political rights."[263] These key principles are clearly stated in CBD Article 8(j):

Subject to its national legislation, (each Contracting Party shall) respect, preserve, and maintain knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and

261 Secretariat of the Convention on Biological Diversity, 2001. Handbook of the Convention on Biological Diversity, p555.

262 OECD, 2002. Handbook of Biodiversity Valuation: A Guide for Policy Makers. Washington: DC: Organisation for Economic Co-operation and Development, p34.

263 French D., International Law and Policy of Sustainable Development, p132. See also Le Prestre P., 2002. "The CBD at Ten: The Long Road to Effectiveness," Journal of International Wildlife Law and Policy 5, p274.

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 utilisation of such knowledge, innovations, and practices.

3.9 Equitable Benefit-sharing

CBD calls for the fair and equitable sharing of benefits derived from the use of genetic resources. In its Preamble, the CBD Convention points out that contracting parties should recognise

> 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.[264]

However, the

> benefits from the commercial use of these genetic resources have largely been enjoyed by companies and research institutions which have the research and development capacity required to develop marketable products, and obtain intellectual property rights (IPRs) and patents on novel products.[265]

CBD Article 6 identifies the factors that constitute reasonable and equitable. These factors include, but are not limited to, social and economic needs of the watercourse states and the populations within the states who depend on the watercourse. In addition, CBD discusses “conservation, protection, development,” economy of use of the water resource, and costs of implementing measures.[266]

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264 Convention on Biological Biodiversity Preamble.

265 OECD Staff, 2002. The Dac Guidelines.

266 Article 6 of the UN Watercourses Convention.

In general, nation states and the International Court of Justice (ICJ) have endorsed equitable utilisation as a principle of international law.[267] Article 5 of the 1997 UN Watercourses Convention states that "watercourse states shall in their respective territories utilize an international watercourse in an equitable and reasonable manner."[268] This requires the optimal and sustainable use of a watercourse and its benefits "consistent with adequate protection of the watercourse."[269]

The CBD Convention's consideration of equitable benefit-sharing focuses, in particular, on the impact of intellectual property rights on the conservation and sustainable use of biodiversity and the equitable sharing of benefits from its use[270] and addresses the fair and equitable sharing of benefits derived from genetic resources[271]: options for assisting developing countries party to the CBD[272] to access genetic resources and obtain fair and equitable benefit-sharing.[273]

The CBD may be regarded as an instrument intended to promote, on mutually agreed terms, access to genetic resources and associated knowledge in exchange for finance, technology, and the opportunity to participate in research. Some people have referred to this exchange, which occupies a seminal position in the Convention, as the "grand bargain."[274]

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267 Birnie and Boyle, International Law, p303, notes 48 and 49. Rept. of the ILC (1987), GAOR A/42/10,P70; Gabcikovo-Nagymaros Case, ICJ Rep. (1997), 7, para. 55.

268 Sands P., Principles of International Environmental Law, pp466–467.

269 Article 5 identifies a non-exhaustive list of factors and circumstances to be considered to ensure equitable and reasonable use, including social and economic needs and conservation of water resources. See Sands, Principles of International Environmental Law.

270 UNEP/CBD/COP/3/22. COP 2 adopted Decision II/12 on IPRS requesting the Executive Secretary to liaise with WTO and undertake a preliminary study of the impacts of IPR systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16(5) of the Convention.

271 See also the fair and equitable sharing of benefits from the use of genetic resources, Decision III/I, paragraph I.

272 UNEP/CBD/COP/4/22.

273 UNEP/CBD/COP/4/Inf.16.

274 Ten Kate and Laird, The Commercial Use of Biodiversity, p4.

In April 1999, delegates on the Commission on Genetic Resources reported that parties agreed to establish a multilateral system for exercising sovereign rights that is efficient, effective and transparent, to facilitate access to plant genetic resources for food and agriculture, and to share in a fair and equitable way, the benefits arising from the utilisation of these resources. However, typically for international negotiations, language provisionally agreed thus far on any article or paragraph may still be subject to change, as it will ultimately be adopted as a package.[275]

The implementation of CBD guidelines on equitable benefitsharing may require the establishment of a regulatory framework, clear access guidelines, institutional mechanisms, and equitablesharing arrangements. In addition, it may necessitate the development of national capacities in biodiversity prospecting to ensure the availability of national experts capable of negotiating favourable terms and co-operating closely with biodiversity prospectors to ensure that countries reap maximum benefits from biodiversity.[276] This could be accomplished by regulating the access to genetic resources and adopting a gradual incremental approach,[277] and all existing experts and policy, legal, and institutional regimes should be considered and explored before seeking new ones.[278]

Although the CBD highlights the need for benefitsharing with local communities, policy making still requires definition in national law, with the active participation of local and indigenous communities. One option for handling access to

275 ibid., p120.

276 Nagarajan V., and W'O Okut-Uma R., 2005. OECD Environmental Strategy: 2004 Review Of Progress. Washington, DC : OECD, p144.

277 ibid.

278 ibid.

genetic resources and benefitsharing is through contractual agreements, applying mutually agreed terms and based on prior informed consent principles. It has been suggested that "ways to recognise the contribution of traditional knowledge include the development of community biodiversity registers, local access protocols and codes of conduct for collectors and users of biodiversity resource. Capacity development is needed in all these areas."[279]

3.10 Shared Management Strategies

The common management of environmental regulations and sustainable development is not an alien concept in international watercourses agreements and treaties. International policies and instruments, even those predating the CBD, have encouraged a common management approach: notably, the Stockholm Declaration on the Human Environment[280] and ILC advocate a coordinated environmental strategy.[281] The wider concept of public involvement is perhaps best exemplified by the 1992 Rio Declaration on Environment and Development, Principle 10:

> Environment issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.[282]

It has been noted that "in the last decade, proliferation of global and regional instruments has expanded and crystallised public involvement in environmental

279 Edited by Organisation for Economic Co-operation , The Dac Guidelines, 39–40.

280 Stockholm Action Plan for the Human Environment, UN Doc. A/CONF.48/14/Rev. 1, Rec. 51.

281 Birnie and Boyle, International Law, pp112–116.

282 1992 Rio Declaration on Environment and Development, Principle 10.

matters...simultaneously, international institutions that conduct or support activities affecting watercourses have opened up their processes to members of the public."[283] The 1992 UNECE Transboundary Watercourses Convention and the 1997 UN International Watercourses Convention promote a concept of joint responsibility and encourage the establishment of joint bodies to give effect to the duties of consultation and cooperation.[284] The 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention) and its 1999 London Protocol establish norms for public involvement in the management of international watercourses in the UNECE region.[285] The UNECE Convention seeks to reduce, control, and prevent transboundary water pollution and the release of hazardous substances into aquatic environments. The London Protocol focuses on health-related issues of international waters. Although joint management institutions are not obligatory in international law, treaties and agreements have noted that these types of institutions are essential and desirable for fulfilling a treaty's purpose.[286]

The Lac Lanoux arbitration set a precedent in international law for the use of joint management practices: "Account must be taken of all interests, of whatsoever nature, which are liable to be affected by the works undertaken, even if they do not correspond to a right."[287] This is a noteworthy international law decision and reflects the importance of water for human survival. In relation to indigenous communities,

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283 Nakayama M., Jansky L., Bruch C., and Salewicz K. A., 2005. Eds., Public Participation in the Governance Of International Freshwater Resources. Japan: United Nations University Press, p27. See also Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity, p569.

284 ibid., pp305 note 80 and 81, 335.

285 Nakayama, Jansky, Bruch, and Salewicz, Public Participation, p27.

286 ibid., p305.

287 Lake Lanoux Arbitration (Spain v. France.), 24 I.L.R. 101, 127-130 140 (1957), 12 u.n.r.i.a.a. 281, 306-08, 316 (1964).

this may help steer the discussion between nation state representatives and indigenous communities away from the question of territory ownership or, as so often happens, from lengthy and complex negotiations over rights claimed through controversial interpretations of agreements and treaties. Instead, this decision may help move discussions towards the establishment and recognition of the duty to consider communities likely to be affected by alterations to the water resource and establish joint management institutions.

These types of management will generally take the form of notification and consultation, but in many cases, the community will have no power to veto or prevent the implementation of projected activities. However, the Lac Lanoux arbitration[288] represented "a significant step in recognising the claims of equitable sharing in limiting unilateral acts of riparian States,"[289] and as a result, it may help establish joint management institutions in which indigenous communities have real power over decisions about resources that affect their lives.

Some countries already have shared management situations, especially in relation to protected areas:

> A large body of opinion would like to see even more devolution of management decisions about natural resources to local levels. However, most protected area systems exist in locations where there are conflicting and overlapping sets of values that range from local to global. Such situations need some form of shared management responsibility. Good models of collaborative management of protected areas already exist in some countries; unfortunately, they are often complex, have high associated transaction costs and take time to develop. Nature conservation agreements between government agencies and private landowners in the United States and several European countries are good examples ... Most countries have institutions whose aim is to conserve nature at the national level. And for the conservation of resources of global value, we need global institutions. A

288 Lac Lanoux Arbitration, "Equitable Utilization."

289 Weston B. H., and R Falk, 1997. International Law and World Order. New York, Brill Academic Publisher, p157.

> number of these already exist for biodiversity. The Convention on Biological Diversity is the leading example.[290]

Sovereign states may be reluctant to surrender control of conservation areas to multinational bodies, but conservation organisations have influence that extends beyond national boundaries. Therefore, the conservation community

> must...help local people to protect their resources against global pressures and, at the same time, develop mechanisms that will enable local stakeholders to be fairly compensated for the cost they incur when they live in areas whose values are global and not local.[291]

3.11 Sustainable Use and the Ecosystem Approach

3.11.1 Ecosystem Approach

The 1997 UN Convention Article 20, Protection and Preservation of Ecosystems, stipulates that "watercourse States shall individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses."[292] This, coupled with the World Court decision in the Gabcikovo-Nagymaros case discussed previously, suggests that international law is "adapting to take into account advances in scientific understanding of natural systems,"[293] which supports the *lex ferenda* premise advanced above.

The CBD clearly goes further. The Convention is organised into separate sections, and each section discusses the status of individual ecosystems,[294] identifies trends that impact on a specific ecosystem, and examines possible measures intended to mitigate or halt negative trends. Although the use of an ecosystematic approach is

290 Stolton S.,and Dudley N., 1999. Eds., Partnerships for Protection: New Strategies for Planning and Management for Protected Areas. London, UK: James & James/Earthscan, pp33, 56.

291 ibid., p34.

292 UN Convention, Annex I, Article 20.

293 McCaffrey S. C., 2003. The Law of International Watercourses. Oxford, UK: Oxford University Press, p390.

294 Marine and coastal ecosystems, forests, agro biodiversity and inland water.

not novel or unique to the CBD, in structuring the Convention on the basis of individual ecosystems, the CBD's approach is innovative, and the ecosystem approach is fundamental to the implementation of the CBD because it is an integrated consideration for the conservation and sustainable use of biological diversity. In this way, the hitherto prevailing spatial restriction to natural or semi natural ecosystems or protected areas was lifted. This reorientation leads to biodiversity issues gaining a greater relevance to a larger area and being given greater consideration in land use planning as a whole.[295]

3.11.2 Sustainable Use

An activity is considered sustainable "if it uses renewable resources no faster than their rate of regeneration, uses nonrenewable resources no faster than sustainable renewable substitutes are developed, and pollutes no more than the environment can assimilate."[296] Today, the goal of achieving the sustainable use of water remains remote, and more than one billion people currently face a water crisis.[297] It is not necessary to embrace the Malthusian philosophy to realise that current practices involving inland water cannot be sustained and may have a negative effect on people's health and productivity, the world economy, and the global ecosystem.[298] Agenda 21 highlights the importance of water for human survival and socioeconomic development, and it points out that people must modify their activities to suit the limitations of their environment in order to ensure the sustainability of inland water.

295 German Advisory Council on Global Change, World in Transition, p339.

296 Weeks, Beyond the Ark, p100.

297 Vogtmann H., and Dobretsov N., 2005. Transboundary Water Resources: Strategies for Regional Security and Ecological Stability. Berlin, Germany: Springer, p1.

298 ibid., p3.

This call for sustainable use of natural resources is echoed in the CBD.[299] COP 5 considers sustainable use a crosscutting issue,[300] and each of the CBD programmes advocates the sustainable use or sustainable management of biological resources.[301] The CBD stresses the need for substantial investment to conserve biodiversity and recognises the unique role the private sector can play in promoting the sustainable use of biological resources.[302] The CBD provides for both *in situ* and *ex situ* sustainable use: *in situ* sustainable use technologies include aerial survey equipment, geographic information systems, and fencing equipment; ex *situ* sustainable use technologies include tissue culture, field-based propagation, protoplast fusion, and cryopreservation.[303]

When calculating the allocation of freshwater resources among competing users, the basic water needs of terrestrial and aquatic ecosystems and their living organisms are often overlooked.[304] Possibly due to the

> inadequate understanding of the complex interlinkages between and within ecosystems, and between their living and non living components, including their relation to human needs and activities ... Better identification and quantification of the basic water needs of aquatic ecosystems also is essential in the pursuit of sustainable freshwater supplies (e.g., a wetland needs a certain minimum quantity of freshwater inflow to remain a wetland).[305]

Agenda 21 and CBD recognise the interconnection between and within ecosystems and how this interconnection impacts on the sustainable use of inland water.

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299 By United Nations Dept. of Economic and Social Affairs, 2003. Indicators of Sustainable Development: Guidelines and Methodologies. New York: United Nations Publications, p171.

300 CBD COP 5 Decision V/24.

301 Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity, p135

302 OECD, Harnessing Markets for Biodiversity, p3.

303 Dutfield G., 2004. Intellectual Property, Biogenetic Resources and Traditional Knowledge. London, UK James & James/Earthscan, p86. See also CBD Secretariat 1996b.

304 Holland, Blood and Shaffer, Achieving Sustainable Freshwater Systems, p33.

305 ibid., pp33–34.

There is widespread international recognition[306] that, in order to address the sustainable use of water, it is necessary to establish a framework for efficient, equitable, sustainable water use and conservation and to promote participatory, ecosystem-based management.[307] Watercourse agreements between nations, such as those affecting the Rhine[308] and Danube rivers and the Mekong River Basin,[309] although varying in complexity, all extend beyond the simple consideration of transboundary impacts to include the diversity of life within the river, or, as the 1995 Mekong River Basin agreement phrases it, to protect the "ecological balance" of the basin.[310] It has been proposed that joint integrated management plans "have to be elaborated for all transboundary river basins and aquifers choosing the most rational water management strategies, taking into account ecosystem needs."[311] These types of agreements will become more important as water shortages become more common.[312]

Although most of the international agreements and treaties only deal with international watercourses, the CBD and the Ramsar Convention also deal with domestic watercourses.[313] As these conventions show, the principles that apply to

306 Guerquin, Ahmed, Hua, Ikeda, Ozbilen and Schuttelaar, World Water Actions, p22.

307 ibid.

308 Glassner M., 1998. Ed., The United Nations at Work. Westport, CT: Praeger/Greenwood, p15.

309 McCaffrey, The Law of International Watercourses, p40.

310 Swan S. K., Syatauw J. J. G., and Pinto M. C. W., 2004. Eds., Asian Yearbook of International Law. Boston, MA: Martinus Nijhoff Publishers, p591.

311 Guerquin et al., World Water Actions, p47.

312 McCaffrey, The Law of International Watercourses, p40.

313 The following are examples of conventions referring to Ramsar and CBD principles regarding watercourse environmental protection: 1990 Elbe Convention, Article 1(2); and 1999 Rhine Convention, Article 3 (1). For further information about CBD and sustainable use of inland water, see Decision IV/4.

international watercourses are equally important in situations where a lake, river, or drainage basin is shared by several states with no form of agreement or treaty.[314]

3.12 Protection of Watercourse Ecosystems

Articles 20 and 22 of the 1997 UN Convention set out provisions for the preservation and protection of international watercourses,[315] and these provisions are based on Articles 192 to 196 of the 1986 UNCLOS.[316] In addition, ILC states that freshwater ecosystems must be preserved as close to their natural state as possible.[317] The ILC discussion about the UN Convention has been interpreted to mean the protection of watercourse ecosystems is above the artificiality of international borders. Article 20, however, has received criticism for failing to go beyond customary law to develop ecosystem-based legal principles that oblige states to protect and preserve all ecosystems within their domain.[318] The CBD has attempted to fill this gap in international agreements and treaties.

3.13 Notification, Consultation, and Negotiation

The CBD advocates consultation with indigenous communities about matters concerning developments affecting inland water ecosystems as well as conservation

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314 On requirements for proving the existence of a customary international law principle, see de Sadeleer N., 2003. Environmental Principles: From Political Slogans to Legal Rules. Oxford, UK: Oxford University Press, p318.

315 The International Watercourse Convention, Articles 20 and 22. See also Fitzmaurice and Elias, Watercourse Co-operation In Northern Europe: A Model for the Future, p37 and McCaffrey, The Law of International Watercourses, p385.

316 Article 192 of the Convention was declared a "general obligation" that "states have the obligation to protect and preserve the marine environment." Rao, International Environmental Law and Economics, p193.

317 Birnie and Boyle, International Law, p313 note 166. II (1994), Pt.2,art 118

318 Fuentes X. T., 1998. Sustainable Development and the Equitable Utilization of the International Watercourses Baltic Yearbook of International Law BYIL 69, p119. Toope J. and Brunee S. J., 1997. Environmental Security and Freshwater Resources: Ecosystem Regime Building AJIL The American Journal of International Law 91, p26; and Bourne, C. B., 1997. "The Primacy of the Principle of Equitable Utilisation in the 1997 Watercourses Convention" 35 CYIL [Canadian Yearbook of International Law] 35, pp215, 339, note 174.

management and sustainable use of natural resources. The idea of consultation is not unique to the CBD: for example, almost 20 years before the CBD, the 1973 agreement between the USA and Mexico obligated these two countries to consult about potential pollution and environmentally harmful "transboundary impacts."[319] Since 1973, there have been a number of institutions designed to provide consultation about environmental issues: for example, "one organ-single purpose bodies such as the Rhine Commission…and hierarchically structured entities, such as the Niger Basin Authority."[320] In addition, besides the practices of the Nordic states, the European Union's Water Framework Directive emphasises a need for "water solidarity."[321] There has also been an increase in monitoring and standard setting in respect of the environmental impacts of a watercourse.[322]

ILC prefers a broader level of notification, requiring the other party to be notified[323] not only when the conduct of one state appears likely to have adverse effects on a watercourse, but in the event of any potential activity affecting the watercourse, even when these effects may be beneficial. In addition, the state potentially affected may instigate the notification and consultation process independently if the other state does not initiate the process.[324] A state that initiates the notification, consultation, and negotiation process has the right to proceed with its activity because the opposing state has no power of veto and cannot prevent development of a water resource subject to obligations of equitable use and

319 1973 US-Mexico Agreement on the Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River. Article 6. UN Legislative texts, 236, 12 ILM (1973), p1105.

320 Fitzmaurice and Elias, Watercourse Co-operation In Northern Europe, p61.

321 Guerquin et al., World Water Actions, p142.

322 UN Watercourses Convention, 1997. Article 21(3) and 1992 UNECE Transboundary Watercourses Convention Articles 9-13.

323 UN Convention, 1997. Articles 11 and 12.

324 ibid., Article 18. Rept of the ILC (1988), pp134–136.

prevention of serious harm.[325] Articles 12 and 13 of the 1997 UN Convention stipulated that notification should be timely and must contain sufficient information about issues such as environmental impact.[326] This is comparable to CBD Article 8(j)'s discussion about the innovations and knowledge of indigenous and local communities.

The CBD takes the need to exchange information seriously, introducing clearing-house mechanisms and calling for the involvement of and cooperation between nations and international organisations. Again, this idea did not originate with the CBD; however, the scale to which the CBD has succeeded in accomplishing it, with broad-based, worldwide representation, is unprecedented.[327] For example, the exchange of information between stakeholders in a watershed was encouraged in the water-source-specific 1944 US-Mexico agreement,[328] and it was a feature in the ILA's 1966 Helsinki Rules and the 1997 UN Convention, Article 9.[329] More recently, in the ILA's 1982 Montreal Rules on Water Pollution, states are required to exchange information about pollution and trends in a shared water basin and to create individual river commissions.[330]

Indigenous communities are frequently treated as a foreign element within a nation state, but the principles of notification and participation are intended to eliminate the exclusion and isolation of all stakeholders. Agenda 21, for example,

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325 Article 16 Rept. of the ILC (1988), pp129ff.

326 For further discussion about the 1997 UN Watercourse Convention, including the wider principle of prohibition of significant harm, see UN Doc. UNEP/IG 12/2 (1978), 2005. IUCN Academy of Environmental Law, Law of Energy for Sustainable Development: The Law of Energy for Sustainable Development. Cambridge, UK: Cambridge University Press, p31; and Fitzmaurice and Elias, Watercourse Co-operation In Northern Europe, p47.

327 For further information about the exchange of information and capacity building, see German Advisory Council on Global Change, World in Transition, p338.

328 Colorado River Treaty, 1944. UN Legislative Texts, p236.

329 ILA Helsinki Rules, 1966. Article XXIX(1).

330 ILA Montreal Rules, 1966. Water Pollution in an International Drainage Basin, Articles 5 and 6.

calls for active public participation, including the participation of indigenous people and local communities, in water management policy and decision-making.[331] The 1992 Rio Declaration not only calls for participation by all concerned citizens, but specifically highlights the need for the participation of certain groups, including indigenous people.[332] These principles have the ring of common sense, because the water issues that arise between nations also arise between indigenous communities and nations.

Most nation states recognise the duties and rights related to a watercourse within an international context. Only three countries (all upstream) opposed the inclusion of articles about the duty to notify and consult in the 1997 UN Watercourses convention.333 However,, a much larger number of countries refuse to accept a 'notify and consult' process when water issues are domestic and especially in cases where the sole community affected, at least in the immediate vicinity, is an indigenous community.

3.14 Inland Water and Indigenous People

Within international law, whether by custom or agreement or otherwise, there are established principles for sharing, managing, or preserving a water source, and there are obligations placed on nation states in regard to maintaining a water source for

331 Agenda 21, Principle 18.9 (c). See Byers M., 2001. The Role of Law in International Politics: Essays in International Relations and International Law. Oxford, UK: Oxford University Press, p118.

332 Zillman D. M., Lucas A., and Pring G. W., 2002. Eds., Human Rights in Natural Resource Exploitation: Public Participation in the Sustainable Development. Oxford, UK: Oxford University Press, p42.

333 UN Convention on the Law of the Non Navigational Uses of International Watercourses, 1997. Articles 7-24. See also Birnie and Boyle, International Law, 2nd ed., Ch. 3.

human consumption.[334] The 1997 Mar del Plata Water Conference stated that "all people have the right to have access to water in quantities and quality equal to their basic needs." The Universal Declaration of Human Rights confirmed the central role of water in the rights to life and the principle of right to human dignity;[335] however, in the subsequent Rio Conference and the three World Water Fora, the approach was based on the need for water rather than the specific right to water.[336]

Although the right to a clean environment is not recognised as a human right, it is consider essential for ensuring a whole catalogue of human rights.[337] The right to a clean environment is viewed in conjunction with maintaining and protecting ecosystems and recognising people as members of ecosystems within that body, and that the survival and health of ecosystems is vital for "the collective survival of all human beings."[338] The right to a clean environment is, however, a vague concept, and there is no clear definition of "clean environment".

Article 10 of the 1997 UN Watercourses Convention states that human needs must be taken into account when considering water priorities. It fails to specify, however, the precise level at which human needs are to be taken into account (i.e., it is unclear whether the reference is to drinking and sanitation only or to permanent needs such as agriculture or economic development as well, arguably also essential to the continued survival of people). The 1999 UNECE Protocol on Water and

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334 Salman M., and McInerney-Lankford S., 2004. The Human Right to Water: Legal and Policy Dimensions. Washington, DC: World Bank Publications, p17 argue that there exists within the International Covenant on Economic, Social and Cultural Rights a human right to water "because it is a right that inheres in several other rights, and a right without which key provisions of the Covenant would be rendered ineffectual" (ix).

335 For a full discussion about the right to water in international documents, see Salman and McInerney-Lankford, The Human Right to Water, p5.

336 ibid..

337 Mann J., Gruskin S., Grodin M. A., and Annas G. J., 1999. Health and Human Rights: A Reader. London, UK: Routledge, p134.

338 Weston et al., International Law and World Order, p1126.

Health states that, besides drinking water and sanitation, "other measures to protect human health" take priority over less stringent agreements.[339]

3.15 International Inland Water Preservation and Protection-Specific Documents

The selected documents below, together with the CBD and the Ramsar Convention, constitute a significant milestone in terms of international environmental preservation, protection, and sustainable development. These documents are, in some respects, pioneering documents that reflect wide-scale international collaboration between governments and organisations and leading scientific researchers. They attempt to provide information about the status of the world's ecosystems, identify their importance for human well-being, and identify negative trends that threaten the welfare or continued welfare of ecosystems that include humans.

3.16 Principles in International Environmental Law in Relation to Inland Water

The United Nations Development Programme, the World Bank, and the World Resources Institute recently conducted a pilot analysis of global ecosystems to provide "a meaningful, reasonably objective overview of the state of the planet."[340]

3.16.1 Pilot Analysis of Global Ecosystems[341]

339 UNECE Protocol, 1999. (To the 1992 Convention) on Water and Health Article 4(9), "which commits parties to wholesome drinking water, adequate sanitation, and other measures to protect human health." See Sands, Principles of International Environmental Law, p484

340 Florini A., 2003. The Coming Democracy: New Rules for Running a New World. Washington, DC : Island Press, p173.

341 Revenga, Brunner, Henninger, Kassem, and Payne, Pilot Analysis of Global Ecosystems

The pilot analysis of global ecosystems produced ecosystem-specific reports. In 2000, a report that focused on freshwater systems was published; this discusses the status and trends associated with freshwater. It includes an analysis of factors affecting water quality and quantity, examines human impact on water resources, and discusses the status of freshwater biodiversity, including a separate section on inland fisheries. These two latter parts of the report also discuss the sustainability of freshwater systems. The report concludes, "human activities are starting to significantly alter the earth's basic chemical cycles – water, carbon and nitrogen – on which all ecosystems depend."[342]

This pilot analysis is in accordance with the CBD goals to accumulate and disseminate more accurate information about the current status and trends affecting resources. The pilot analysis is noteworthy because it is the first attempt to synthesise information from global, regional, and national assessments, including assessments about changes to an ecosystem. A 2003 CBD report[343] relies to a great extent on the pilot analysis. Although the pilot analysis was groundbreaking, it encountered difficulties as a result of a "lack of available information."[344]

The supreme objective of the pilot analysis was to map an ecosystem's condition and its ability to continue to meet the demands placed on it. The analysis was founded on the premise that there is a dearth of sufficiently accurate information about the health of ecosystems globally. The freshwater report encourages the accumulation and analysis of further information and seeks to identify some of the most crucial lacunae described in the pilot analysis.

342 See Jeucken M., 2001. Sustainable Finance and Banking: The Financial Sector and the Future of the Planet. London, UK: James & James/Earthscan, p15.

343 CBD Technical Series No. 11, Dec 2003. Status and Trends of Biodiversity of Inland Water Ecosystems.

344 Kondratyev et al. Global Carbon Cycle and Climate Change, p109.

The pilot analysis was designed to support the Millennium Ecosystem Assessment[345] and provide a more substantial basis on which to inform political decision-making at the national and subnational level. In essence, the pilot analysis highlights the current state of ecosystems and identifies the information needed, in terms of effective data collection and monitoring, for a more profound understanding about the status and needs of ecosystems.

3.16.2 Millennium Ecosystem Assessment

The MEA followed the yearlong PAGES project that studied five major types of ecosystems and assessed the effectiveness of various options for response and identified best practices.[346] The MEA was planned in response to the need for "reliable scientific information" and the reduction of the "considerable gaps in our knowledge." As UN Secretary General Kofi Annan[347] pointed out, "in particular, so far no complete global assessment of the state of the main ecosystems existing over the globe has been obtained."[348] This is not to detract from the value of earlier projects, such as the 1995 Global Biodiversity Assessment (GBA), which at the time was welcomed as "the most comprehensive analysis of the science of biological diversity ever carried out."[349] The GBA, however, was criticised, and some people claimed it reflected a "conservation agenda articulated by industrialised countries

345 Resources Institute World, 2003. Ecosystems and Human Well-Being: A Framework for Assessment. Washington, DC : Island Press, p64.

346 Dalal-Clayton B., and Bass S., 2002. Sustainable Development Strategies: A Resource Book. Washington, DC; Organisation for Economic Co-operation and Development, p15.

347 Annan K., 2000. We the Peoples: The Role of the United Nations in the 21st Century. New York: United Nations Publications, pp55, 64–65.

348 Kondratyev et al., Global Carbon Cycle and Climate Change, p121.

349 National Research Council (U.S.), 2002. Committee for Survey and Analysis of Science Advice on Sustainable Development to International Organizations , Knowledge and Diplomacy: Science Advice in the United Nations System. Washington, DC. National Academy Press, p41.

and was not in keeping with the overall spirit of the CBD."[350] The criticism of the GBA raises questions about

> future independent assessments such as the Millennium Ecosystem Assessment that have tacit support from the governing bodies of various conventions but are subject to uncertain procedures on how the assessment and political processes interact, especially on issues that are dominated by geopolitical differences between the industrialized and developing Countries.[351]

The MEA was designed to map the health of the planet, and it enjoyed the support of many governments and various UN environment and development programmes and scientific, cultural, and agricultural organisations.[352] The focus of this assessment was on human wellbeing and an evaluation of the consequences of ecosystem change on human wellbeing. It examined alternative strategies for the conservation of ecosystems in order for these ecosystems to meet the demands of human populations.[353] The Assessment represents a natural progression from the 2002 World Summit on Sustainable Development and the subsequent Plan of Implementation. In addition, the Assessment seeks to promote the attainment of the United National Millennium Development Goals.[354]

The Assessment was conducted with the encouragement and collaboration of major international conventions, including the Convention on Biological Diversity, the Convention to Combat Desertification, and the Ramsar Convention on Wetlands, and these conventions plan to use the findings of the Assessment in their work

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350 ibid., 42.

351 ibid.

352 For more information, see Resources Institute World, Ecosystems and Human Well-Being.

353 Groves C., 2003. Drafting a Conservation Blueprint: A Practitioner's Guide to Planning for Biodiversity. Washington, DC Island Press, p70.

354 Strachan et al., The WSSD: The Plain Language Version of the Johannesburg Plan of Implementation and Yamin F., and Depledge J., 2005. The International Climate Change Regime: A Guide to Rules Institutions and Procedures. Cambridge, UK: Cambridge University Press, p537.

programmes.[355] The MEA has been described as "an outstanding example of the sort of international scientific and political cooperation that is needed to further the causes of sustainable development."[356]

The Assessment received input from governmental, nongovernmental, and private sector contributors and drew on a number of scientific reports. The nature of its framework suggests it was undertaken with the specific aim of providing information for political decision makers.[357] The Assessment acknowledges the need for economic growth and social development and admits that these considerations outweigh the need for environment conservation in cases where reconciling these conflicting aims proves impossible. The optimal solution appears to be the selection of developments that are, as far as is feasible, sustainable.[358] The Assessment focused on key human developments and identified goals for sustainability in developing resources, and it moved from the atomistic approach and embraced a holistic approach.[359] The holistic approach is supported by the CBD, which suggests that the consideration of single issues may have a detrimental effect on the achievement of other key objectives and supports the idea that international environmental law is moving towards a more holistic approach.[360]

The Assessment recognises that a better understanding of the overall picture is required for appropriate decision-making, including the need for trade-offs or

355 UN, 2002. Yearbook of the United Nations, 2000. Geneva, Switzerland: UN, p966.

356 Annan, We the Peoples, p64–65.

357 UN, Yearbook of the United Nations 2000, p966.

358 UN, Global Environment Outlook 3, p334.

359 Redgwell C., date. Judicial Handbook on Environmental Law. New York: UNEP/Earthprint, p15 and Redgwell C., 1999. Intergenerational Trusts and Environmental Protection. Manchester, UK: Manchester University Press, p111.

360 By United Nations Environment Programme, 1998. Handbook of Environmental Law. New York: UNEP/Earthprint, p62. Sands, Principles of International Environmental Law, p168. See also United Nations Environment Programme, 1998. UNEP Environmental Law Training Manual. New York: UNEP/Earthprint.

negotiations across sectors and between the various stakeholders, and an overall view is essential too for effective environmental decision-making.[361] The Assessment framework is described as a "multiscale assessment framework" that recognises the need for action on all levels, "local to global," for the effective minimisation of human activities that adversely affect ecosystems.[362] It has been suggested that an important aspect of stakeholder negotiations is that decision makers must be accountable for their final decision.[363]

The Assessment was undertaken in an attempt to fill gaps in scientific knowledge and establish a viable basis for informed decisions.[364] Although the Assessment cannot and does not promise to ensure sound decision-making, its aim was to strive, at the very least, to provide the best possible tools for the task.[365]

The Assessment comes at a time when humankind's involvement in and dependency on the world's ecosystems has been recognised, and it has been realised that while technology or culture may function as a buffer it is powerless to alter the facts.[366] In addition, to achieve progress in other critical challenges, such as the eradication of poverty and promoting sustainable use and development for present and future generations, it has become increasingly clear that human well-being requires good ecosystem management.[367]

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361 Jewell T., and Steele J., 1998. Eds., Law in Environmental Decision-Making: National, European, and International Perspectives. Oxford, UK: Oxford University Press, p66.

362 Resources Institute World, Ecosystem and Human Well-Being, pp3, 42.

363 Gillroy J. M., and Bowersox J., 2003. Eds., The Moral Austerity of Environmental Decision-making. Durham, North Carolina: Duke University Press, p320.

364 By United Nations Dept. of Economic and Social Affairs, 2003. Population, Environment, and Development: The Concise Report. New York: United Nations Publications, p51.

365 National Research Council, 2005. Valuing Ecosystem Services: Toward Better Environmental Decision-Making. Washington, DC state: Committee on Assessing and Valuing the Services of Aquatic and Related Terrestrial Ecosystems, National Research Council (U. S.), p33.

366 Jorgensen S. E., 2002. Integration of Ecosystem Theories: A Pattern. Berlin, Germany: Springer, p114.

367 Cosgrove W. J.,and Rijsberman F. R., 2000. World Water Vision: Making Water Everybody's Business. London, UK: James & James/Earthscan, xxiv.

In short, the Assessment presents the findings of many leading scientists in an effort to elucidate the present condition of ecosystems and, more specifically, human development, whether directly or indirectly attributable to changes within an ecosystem, and the potential consequences for human well-being.[368] The Assessment clearly indicates that in many cases communities that cause changes in an ecosystem are not those who will be most directly affected by the changes. The Assessment aimed to provide the tools for effective decision-making, recognising the implications and complexities of multiple stakeholders.[369] The Assessment, therefore, has considerable relevance for the work undertaken by the CBD and the programmes established by the 2002 World Summit on Sustainable Development and the UN Millennium Development Goals.[370]

3.16.3 The United Nations World Water Development Report

The 2003 UN World Water Development report analysed data and trends affecting the world's freshwater resources,[371] and it represents the collaboration of more than 23 UN agencies.[372] At the outset, it highlights the urgent need for the elimination or minimisation of negative trends affecting water. The report initially evaluates the world's water resources and human dependency on water, and it discusses water management using case studies that describe a variety of water scenarios.[373]

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368 Mason M., 2005. The New Accountability: Environmental Responsibility Across Borders. London, UK : James & James/Earthscan, p10.

369 Resources Institute World, Ecosystems and Human Well-Being, p45.

370 Wallace B., 2005. Becoming Part of the Solution: The Engineer's Guide to Sustainable Development. Reston, VA: ASCE Publications, p36; French, International Law and Policy of Sustainable Development, p138; and Strachan et al., The WSSD: The Plain Language Version of the Johannesburg Plan of Implementation.

371 UN, 2004. Basic Facts About The United Nations. New York: United Nations Publications, p220.

372 Falkenmark M., 2004. Balancing Water for Humans and Nature: The New Approach in Ecohydrology. London, UK: James & James/Earthscan.

373 Gleick P. H., 2002. The World's Water 2002-2003: The Biennial Report on Freshwater Resources. Washington, DC: Island Press, p112.

The report addresses the seven challenges identified at the 2000 World Water Forum, and it describes other challenges uncovered in the course of compiling the report.[374] This report supports the findings of the UN Summit of 2000, which set out the Millennium Development Goals for 2015, and the UN's aim to address the water crisis during the next several years.[375] The report concludes that the water crisis has a negative effect on people's well-being, and it supports the call to "halve the proportion of people without access to safe drinking water."[376]

The 2000 Hague Ministerial Declaration (HMD) also adopted seven challenges as cornerstones for future action.[377] These challenges, together with the four identified in the course of creating the report, have been endorsed as a way to monitor the progress of the UN World Water Development report. Many of the challenges relate to or overlap with the work promoted by CBD Article 8(j), such as the challenge of "protecting ecosystems for people and planet."[378]

As with many other documents, the 2003 UN World Water Development report identifies how specific human activities may impact on inland water ecosystems and what specific function of an ecosystem may be compromised by these activities.[379] In addition, it recognises that the rehabilitation of ecosystems will

374 Guerquin et al., World Water Actions, p171. World Bank, 2003. World Development Report 2004: Making Services Work for Poor People. Washington, DC: World Bank, p159. Gleick, 2000. The World's Water 2000-2001: Report on Freshwater Resources. London, UK. p10.

375 World Bank, World Development Report 2004, p159. Dijkzeul D., 2003. Ed., Rethinking International Organizations: Pathology and Promise Political. Oxford.New York Berghahn Publishing, p351.

376 ibid., UNEP, Global Environment Outlook 3, p157.

377 Salman and McInerney-Lankford, The Human Right to Water, pp11–29.

378 Wilshusen P. R., Fortwangler C. L., West P. C., and Brechin S. R., 2003. Eds., Contested Nature: Promoting International Biodiversity with Social Justice in the Twenty-First Century. New York: Suny Press, p175.

379 Waltner-Toews D., 2004. Ecosystem Sustainability and Health: A Practical Approach. Cambridge, Cambridge University Press, p44. Resources Institute World, Ecosystems and Human Well-Being, p69. Rapport et al., Managing for Healthy Ecosystems, p9.

take centre stage in future environmental management, and "water is an essential part of any ecosystem."[380]

3.17 Ramsar and CBD Collaborations

The Ramsar Convention and its scientific and technical review panel, in partnership with a whole host of international bodies, including the IUCN Species Survival Commission[381] and the World Conservation Monitoring Centre (WCMC),[382] have focused on the welfare of inland water ecosystems.[383] The Ramsar Convention and these commissions and centres have conducted several projects that examine inland water ecosystems and proposed alternative strategies for improving conservation management and the biodiversity of inland water ecosystems.[384]

Many Ramsar and CBD programmes or projects are the product of international discussions about the specific challenges facing inland water.[385] For example, Agenda 21 and Caring for the Earth[386] highlighted the status of inland water and recommended areas that need attention: information, integrated water management, sustainable water management, conservation of ecosystem, and international cooperation.[387] Ramsar and CBD projects are based on these recommendations about how to manage inland water biodiversity.[388] Ramsar and

380 UNESCO Staff, 2003. The UN WWDR, Water for People Water for Life Challenge Two. Oxford, New York.

381 Reeve R., 2002. Policing International Trade in Endangered Species: The CITES Treaty and Compliance. London, UK James & James/Earthscan, p46.

382 UNEP, Global Environment Outlook 3, p419.

383 Dooge et al., Global Water Resource Issues, p86.

384 Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity, p236.

385 See COP 4 for information about the implementation of joint work plans and frameworks for enhanced cooperation (Decision IV/4, paragraph 4 and Decision IV/4, paragraph 8 [c]).

386 IUCN/UNEP/WWP, 1991.

387 Dooge et al., Global Water Resource Issues, p111.

388 Lambert A., 2000. Identifying, Preparing and Drafting Project Proposals: Guidelines for RAMSAR Contracting Parties and Partners. Official Publication of the RAMSAR Bureau.

CBD action plans identify short-, medium-, and long-term goals as a springboard to environmental protection success rather than trying to make an unrealistic giant leap.[389]

CBD and Ramsar projects conducted in collaboration with many leading bodies have worked towards addressing the lack of accurate data illustrated in many international reports and documents.[390] CBD and Ramsar are permanent fixtures, and their data is constantly being updated and improved.[391]

Most international discussions and reports stop short of putting the principles they identify into practice.[392] Ramsar, CBD, and their partners, however, are determined to proceed beyond mere discussion of principles, establishing practical procedures and guidelines to ensure the implementation of these principles (i.e., the intention is to go beyond recognition and discussion of issues and solutions and successfully address the problems associated with inland water).[393] For example, the CBD has conducted research to produce practical ways to ensure that indigenous people are compensated for their genetic resources and associated traditional knowledge, and at the seventh meeting of the Parties to CBD, delegates recommended that the World Intellectual Property Organisation (WIPO) should use the "practical options for intellectual property rights application procedures with regard to the triggers of disclosure requirements"[394] uncovered during this research.

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389 UNEP/CBD/COP/7/20/Add.1, 30 November 2003. The Programme of Work of the Convention and the Millennium Development Goals: Note by the Executive Secretary, paragraph 26.

390 Havens et al., Ex Situ Plant Conservation, p482.

391 Man and Biosphere Nationalkomitee, 2005. Full Of Life: UNESCO Biosphere Reserves: Model Regions for Sustainable Development. Berlin, Germany: Springer, p12

392 Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity, p235.

393 The SBSTTA's function is to evaluate scientific response to COP requests. See German Advisory Council on Global Change, World in Transition, p336.

394 COP 7. See UNEP/CBD/COP/7/L.28 of 20 February 2004.

3.18 Chapter Conclusions

International law that deals with watercourses was traditionally concerned with the allocation of the resources between states, and has only recently, involved environmental issues.[395] The world's water has decreased in quality and quantity, and as a result, conservation management and sustainable developments have assumed increasing prominence in discussions concerning water resource obligations. It has been suggested, however, that, "the rather large body of general principles brings up the question of volume and the further need for norm creation when the most serious question is weak regime formation and the lack of international enforcement mechanisms."[396]

The 1997 UN Convention on International Watercourses contains a useful discussion about international legal principles, and many other sources of international principles are applicable to inland water and its protection. For example, the Law of the Sea contains principles for ecological protection:

> According to its preamble, the Convention on the Law of the Sea is intended to contribute to a just and equitable international economic order that takes into account above all particular interests and needs of developing countries. In addition, it stipulates that marine scientific research should be carried out for the benefit of mankind as a whole, (Article 143 91) although it does not go any further in defining this. Article 5 of the Convention stipulates that there should be cooperation among the Contracting Parties "in respect of areas beyond national jurisdiction."[397]

395 McCaffrey, The Law of International Watercourses, p26.

396 Beach H., Hamner J., Hewitt J. J., Kaufman E., Kurki A., Oppenheimer J. A., and Wolf A. T., 2000. Transboundary Freshwater Dispute Resolution: Theory, Practice, and Annotated References. Japan: United Nations University Press, pp19–20.

397 Schellnhuber H-J., 2002. World in Transition: New Structures for Global Environmental Policy. London, UK: James & James/Earthscan, p151. See also Boyle A., 2005. "Further Development of The Law Of The Sea Convention: Mechanisms for Change," International and Comparative Law Quarterly 54 no. 3 p563.

Although international principles relevant to watercourses go beyond resource allocation and equitable utilisation, there is a need to deal with the complete ecosystem and create practices that maintain its well-being and promote sustainable development. In order for this to occur, the co-management of international watercourses must become more sophisticated[398]: For example, it is necessary to create norms for internationally shared watercourses and to provide international support for national action necessary to deal with today's water crisis.[399] A real commitment to implementation is required. Therefore, environmental legal scholars have concluded, "the record of states in the co-operative management of watercourses resources is thus an inadequate one, despite the general international endorsement of this approach in principle."[400]

Global recognition of the degradation of inland water and humankind's reliance on it has resulted in major international fora that have been identified many of the challenges associated with inland water and proposed many solutions. More recently, tasks and goals have been established that are aimed at implementing practical solutions. CBD and Ramsar-led collaborations have produced programmes designed to achieve the goals established in these international discussions. In addition, CBD and Ramsar research has been collecting and updating information about the water crisis and disseminating this information to the public in order to encourage wider participation and dialogue about the state of and trends in inland water. CBD and Ramsar also collaborates with national-level environment

398 For discussion about basic water use doctrines, see Mirovitskaya N., and Ascher W. L, 2002. Eds., Guide to Sustainable Development and Environmental Policy. Durham: North Carolina: Duke University Press, p310.

399This has been recognised in the Protocol on Water and Health (1999). See Galizzi and Sands, Documents in International Environmental Law, p573.

400 Birnie and Boyle, International Law and the Environment, 2nd ed. See also Lintner S. F., 1998. International Round Table Transboundary Water Management – Experience of International River and Lake Commissions. Germany, Published EF.

programmes by providing guidance for national projects[401] and collecting national progress reports about the implementation of strategies designed to reach the CBD and Ramsar's short- and long-term goals and targets.[402,403]

This chapter contains a discussion about international documents that include principles of international environmental law potentially applicable to inland water preservation, the dialogue specifically concerned with water and potential solutions to related issues, the growing network of participatory bodies and the recognition of multiple stakeholders, and water resource uses and dependency. In addition, it has shown that the international community has moved from recognising water-related problems and challenges to practical guidance about how to achieve the goals outlined in many international documents.

This chapter has also highlighted the interrelation between inland water ecosystems and human life, especially for those communities most directly affected by the degradation of inland water ecosystems (i.e., the inhabitants of areas in the immediate vicinity of the water source). Such communities are often comprised of indigenous peoples. The issues and challenges related to the status and trends relevant to indigenous peoples globally, like the status and trends related to inland water, and in many cases connected with water, increasingly form the subject of debate within the international community. Chapter 5 contains a discussion about some of these concerns and shows that there is an urgent need for action to ensure the rights of indigenous people at the local and global level.

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401 For an example, see the following resource about Thailand's only RAMSAR site: Wikramanayake E., Dinerstein E., and Loucks C. J., 2001. Terrestrial Ecoregions of the Indo-Pacific: A Conservation Assessment. Washington, DC: Island Press, p409. Rapport et al., Managing for Healthy Ecosystems, p1102.

402 Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity, p455 and World Bank, Making Sustainable Commitments, p13.

403 Charman D., 2002. Peatlands and Environmental Change. New Jersey: John Wiley and Sons, p260.

CHAPTER FOUR

COMPOSITION, ROLE, AND STATUS OF INDIGENOUS PEOPLES

4.1 Introduction

This present chapter and chapter five review the current debate about the issues affecting indigenous peoples and the manner in which these issues are addressed by international law. This chapter outlines the key issues that concern indigenous peoples and shows that indigenous peoples, like inland water ecosystems, are under threat. The term *indigenous peoples* denotes cultural groups who have an historical continuity or association with a given area, have retained something of their distinctive cultural, social/organisational, or linguistic characteristics, and are recognised as indigenous both by themselves and by other groups.

Indigenous peoples around the world share many of the same concerns and face similar threats to their well-being. The emergence of international fora has created an opportunity for a discussion about these issues and promoted international awareness of indigenous peoples' shared experiences and common cause.[404] An in-depth analysis of all the issues related to indigenous peoples and their consequences at the domestic and international level exceeds the scope of the present thesis. Indeed, the discussion and textual analysis of any one of these issues could well constitute a thesis in itself. The basic overview presented in this chapter, however, provides a contextual background for the analyses that follow.

404 For example, through the UN WGI, whose meetings are open to representatives of all indigenous peoples and their communities and organizations. As such, they are now among the major human rights meetings held by the UN. Indigenous people from all over the world have participated in WGIP.

Indigenous peoples, arguably among the world's most disadvantaged and vulnerable communities,[405] currently face challenges that are critical and multifarious. The Forum on Indigenous Issues recently pinpointed nine different challenges faced by indigenous peoples, and includes the following: (1) the environment, (2) economic development, (3) social development, (4) health, (5) human rights, (6) culture, and (7) education.[406]

There also is considerable discussion about the political rights of indigenous peoples and the need to establish appropriate criteria for the precise definition of the terms *indigenous person*, *indigenous people*, or *indigenous peoples*. The need for a clear definition is especially pressing, because many traditional approaches featured discussions and decisions pertaining to people from almost exclusively non-indigenous backgrounds.

A feature of the current debate involves the increased level of participation by indigenous peoples, who are acquiring a voice at the international level. However, despite significant progress, much work remains to be done. Many obstacles remain to be overcome in order to achieve the overall goal of achieving socio-political, economic, cultural, and religious equality. There now appears, however, to be genuine hope for a volte-face on questions pertaining to the rights of indigenous peoples. This recognition of indigenous peoples was helped when the UN made the status of indigenous affairs the designated decadal topic for 1994 to 2004, and this decade raised the profile and created a general awareness of the problems faced by indigenous people.

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405 Hassan R. M., Scholes R., and Ash N., 2005. Ecosystems And Human Will-Being: Current State and Trends :Findings of the Condition and Trends. Washington, DC: Island Press, p149.

406 Permanent Forum on Indigenous Issues, Second Session, 23 May 2003, 18th & 19th Meeting.

Increased consciousness about the importance of issues related to indigenous peoples is reflected in the number of indigenous groups participating in international fora and organisations run by indigenous peoples. In addition, the international community has started to recognise the need for special measures designed to protect the rights of indigenous peoples (see chapter five).[407]

Despite the welcome trend towards greater recognition of their concerns, indigenous peoples continue to face innumerable difficulties and suffer widespread oppression. At present, such groups are often treated as third-class citizens. In some cases, they are even classified as noncitizens and treated as nonhumans, a gross violation of their fundamental human rights.

The positive developments observed in the international arena may be ascribed to two key factors: (1) Indigenous peoples have successfully brought their concerns to the attention of governments and the international community and have demanded action, and (2) there has been widespread recognition of the continued violation of indigenous peoples' rights and calls for action to redress inequalities. There is growing international awareness of 'the importance of cultural diversity and the rights of indigenous peoples in general and indigenous peoples' contributions to the development of modern society."[408]

In the interests of ease of reference, the following concerns of indigenous peoples have been divided into topic areas. It might be argued that this method

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407 Leaflet no. 1. Indigenous Peoples and the United Nations System: An Overview. See UN Indigenous People and United Nations System; An Overview (Online) http://www.unhchr.ch/html/racism/indileaflet1.doc. Accessed June 2005.

408 See UN, USING THE SYSTEM - An Information Set for Indigenous Peoples on the Operations and Procedures of the United Nations (Online) http://www.unhchr.ch/html/racism/indintro.doc. Accessed June 2007.

imposes a certain atomistic artificiality. Certainly, a holistic approach to indigenous peoples' rights is recommended because many of the relevant issues overlap.[409]

4.2 Indigenous Peoples: Definitions, Extent, and Scope

It has proved difficult to decide on a precise definition for the term *indigenous person* in law. When tackling this definitional challenge, three principal approaches have been adopted: (1) The UN definition has been used (see below), (2) an indigenous person has been defined within the context of a given instrument, and (3) the definition is specific to a particular organisation. Besides these approaches, some people suggest that the term *indigenous* should be defined by people who are themselves indigenous.[410]

ILO and the UN use two different definitions:

(a) Tribal peoples in independent countries whose social, cultural and economic conditions distinguish them from other sections of the national community and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations.
(b) Peoples in independent countries who are regarded as indigenous by virtue of their descent from the populations that inhabited either the country or the surrounding geographical region at the time of conquest or colonisation or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural, and political institutions.[411]

The first definition suggests it is important to preserve and develop a people's distinct culture, along with economic and socio-political perceptions, and this

409 Indigenous peoples continue to be excluded from power, denied identities, and displaced from lands. Permanent Forum, Secretary-General 12 May 2003.

410 Vuotto J. P., 2004. 22 B.U. International Law Journal p219, note 14 (citing Wiessner, Supra note 12, at 114 n. 392, and Working Group on Indigenous Populations, Working Paper by the Chairperson-Rapporteur Mrs. Erica-Irene A. Daes, on the concept of indigenous people, UN ESCOR, Commission on Human Rights, Sub-Commission on Prevention of Discrimination and Protection of Minorities, 14th Sess., at 5, UN Doc. E/CN.4/ Sub.2/AC.4/1996/2[1996]).

411 Convention Concerning Indigenous and Tribal Peoples in Independent Countries, June 27, 1989, Article 1.

definition implies that these qualities are crucial to the preservation of a distinctive people readily recognisable as indigenous.

The UN currently refers to the UN WGIP full definition discussed below. However, Jose Martinez Cobo, the former Special Rapporteur of the Sub-Commission on the Promotion and Protection of Human Rights, supplied a previously adopted insightful definition during his study of the discrimination against indigenous populations:

> Indigenous communities, peoples and nations are those which, having a historical continuity with the pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems.[412]

This definition appears to support the call to invite indigenous peoples to arrive at an acceptable definition themselves.

The search for an appropriate definition has provoked much debate. The necessity and desirability of establishing a definition, especially a standardised international legal definition, have also been subject to question. The argument most commonly voiced is the concern that a fixed definition might be excessively rigid and incapable of adequately reflecting the great diversity represented by indigenous peoples and their widely divergent historical composition,[413] and a uniform approach would be inappropriate because of the complexity and diversity covered by the term *indigenous*. One alternative proposal suggests following a Latin American practice

412 Cobo J. M., 1986. Study of the Problem of Discrimination Against Indigenous Populations, 1983, UN Doc. E/CN.4/Sub.2/1986/7/Add.4,U.N. Sales No. E.86.XIV.3.

413 Mills J. A, "Note, Legal Constructions of Cultural Identity in Latin America: An Argument Against Defining 'Indigenous Peoples,'" 8 Tex. Hisp. J.L. & Pol'y 49 (49).

of unanimously recognising a group as indigenous, thereby avoiding reliance on the interpretation of definitions.[414]

The Government of Bangladesh highlighted the importance for the implementation of UN resolutions of establishing an adequate definition of indigenous peoples, and urged either the adoption of a precise yet inclusive definition or the establishment of broad-based criteria in order to ensure that governments employ harmonised terminology when referring to indigenous peoples. It was pointed out that failure to do this would incur the risk of "failing to include genuine indigenous peoples and the risk of targeting peoples who are not indigenous."[415]

UN HABITAT suggests that there is a difference in the definitions of the indigenous as used in developed and developing countries. It stated that it would give consideration to both these groups' definitions in its reports.[416]

4.2.1 Variations in Definitional Approach

The variations in approach to the definition of indigenous person/peoples are scarcely calculated to further the cause of those who advocate uniformity or the harmonisation of terms. This is a problem generally recognised in respect to international issues right across the board. As with many other issues that plague the international community, the lack of a clear definition of indigenous peoples has an historical cause. In the past, significant political and philosophical problems have

414 Neugebauer G. P., 2003. "Note Indigenous Peoples as Stakeholders: Influencing Resource-Management Decisions Affecting Indigenous Community Interests in Latin America," 78 N.Y.U.L. Rev. pp1227,1231,1231 n.16.

415 The Government of Bangladesh responding to General Assembly Resolution 50/157 and Commission of Human Rights Resolution 1996/41.

416 E/C.19/2003/8. United Nations Human Settlements Programme states that this would be addressed in its 2003-2004 report on Indigenous Peoples' Right to Housing study.

arisen in relation to beneficial provisions for indigenous peoples, and there was a fear that the matter could invite abuse, in that an excessive number of claims would be made for benefits associated with being indigenous.

An increasing number of organisations have modified their definitions to bring them into line with the definition proposed by the UN. Many key groups, including CBD, now cite the working definition adopted by the UN Working Group on Indigenous Peoples:

> The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at the time when persons of a different culture or ethnic origin arrived there from other parts of the world, overcame them and, by conquest, settlement, or other means reduced them to a non-dominant or colonial situation; who today live more in conformity with their particular social, economic and cultural customs and traditions than with the institutions of the country of which they now form a part, under State structure which incorporates mainly the national, social and cultural characteristics of other segments of the population which are predominant.[417]

This definition leaves comparatively wide parameters for interpretation, but even when groups make no direct reference to this definition, many of their own definitions closely resemble it.

Some domestic approaches describe indigenous peoples as "population groups who have retained a distinct ethno-political, economic, social and cultural identity that is generally characterised by adherence to communal or tribal affiliations, customs, values or systems."[418] This definition does not include such criteria as having been overcome by conquest or the need to live in close conformity with the group's own cultural traditions and so forth. It does, however, offer a means of general characterisation, suggesting that the term *indigenous person* may apply

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417 Working definition adopted by the UN Working Group on Indigenous Peoples.

418 The Medium-Term Philippine Development Plan 2001-2004; see NEDA (2001) National Economic and Development Authority (Online) http://www.neda.gov.ph. Accessed May 2005.

also to people who do not necessarily subscribe to tribal values or embrace tribal customs.

By contrast, the 1989 Indigenous and Tribal Peoples' Convention states in Article One, that "self identification as indigenous or tribal shall be regarded as fundamental criterion for determining the groups to which the provisions of this convention apply."[419] In an attempt to avoid the debate about people or peoples in international law, it is stated that "the use of the term 'peoples' in this Convention shall not be construed as having implications as regards the rights which may attach to the term under international law."[420]

4.2.2 Categorisation

In many countries, the definitional challenge is further complicated by the practice of categorising and defining people, who may, along with their inclusion in other groups, fall into the category of indigenous peoples. For example, in Canada, the following terms are currently in use: Aboriginal peoples, indigenous peoples, Indian, First Peoples or First Nations, and Native peoples. The Canadian government health service distinguishes between indigenous peoples and Aboriginal peoples as follows: Indigenous denotes groups or nations who originally lived in places all over the world. Aboriginal peoples in Canada are among the world's indigenous people.

Meanwhile, Aboriginal peoples are described as groups or nations of people who were living in Canada before the arrival of European explorers 500 years ago. In the case of First Nations or First Peoples, the definition is more extensive and reflects an attempt at cultural relativistic sensitivity to the different meanings behind

419 1989 Indigenous and Tribal Peoples Convention 169, Article 1.2.

420 ibid, Article 1.3.

the terminology. First Peoples or First Nations are used to denote Aboriginal societies that predate the arrival and settlement of Europeans in Canada. As an illustration of the problematic nature of definitions, it should be noted that some Aboriginal peoples (e.g., the Inuit) do not regard themselves as First Nations. Again, the English term *nation* is ill suited to the denotation of Aboriginal social structures. Many language-users consider the term *First Peoples* to be more inclusive and to more accurately reflect their circumstances.[421]

In the international context, especially when issues of self-determination are concerned, the selection of the term *people* or *peoples* has been of significance. Governments have tended to demand clear-cut definitions. The UN notes the "significant difference between the words 'indigenous people' and 'indigenous peoples.'" The plural form peoples imply the presence throughout the world of distinct groups of indigenous people, each group constituting a people with distinct characteristics and legal character:

> Thus we may speak of the Cree People or the Yanomami People; when we group together more than one "people", we refer to these groups as "peoples", thus emphasizing the collective character of indigenous culture and rights. This requires a degree of group unity and is disadvantageous to individuals seeking application in absence of evidence of this unity. Exemplary in issues of self-determination, Article 1 of the United Nations Charter recognises the "principle of equal rights and self-determination of peoples".[422]

Although indigenous peoples have been classified under the heading 'minority groups' in accordance with their own wishes, they are currently being

421 CHN is a national, nonprofit, bilingual web-based health information service. CHN's goal is to help Canadians access information on health matters and the prevention of disease. CHN achieves this through a unique collaboration, which one of the most dynamic and comprehensive networks anywhere in the world. This network of health information providers includes Health Canada and national and provincial/territorial nonprofit organizations, as well as universities, hospitals, libraries, and community organizations.

422 Leaflet no. 1. Indigenous Peoples and the United Nations System: An Overview. See UN Indigenous Peoples and the United Nations System: An overview (Online) http://www.unhchr.ch/html/racism/indileaflet1.doc. Accessed May 2005.

recognised as a separate entity.[423] The term *indigenous peoples* is a political term that is more powerful than the term *minority population*. *Indigenous peoples* implies the right to self-determination and territorial independence. 'Minority group' implies that indigenous peoples are part of a larger society and cannot be a majority group. When speaking about indigenous peoples, WGIP tends to employ the term *populations* and, in the process, avoids the political debate associated with the term *indigenous peoples*.[424]

4.2.3 Indigenous Peoples and Minorities

The tendency of international organisations to classify indigenous peoples as minorities complicates the issue. Although indigenous peoples and minorities have recently received greater recognition and consideration in international law, and indigenous peoples usually have a minority status, these two groups have different historical backgrounds, legal status, and cultural identity. On the one hand, there is a focus on rights to ancestral lands, and in the light of historical events, the international community may feel a sense of obligation to make reparation for previous injustices. As a result, the position of minorities differs from that of indigenous peoples in international law.[425]Minority groups' organisations and institutions fulfil a functional role in the preservation of their culture and identity, while culture and identity define indigenous peoples.[426] In spite of their position in

423 Smith R., 2003. International Human Rights. Oxford, UK: Oxford University Press.

424 Sanders D., 1989. "The UN Working Group on Indigenous Populations," Human Rights Quarterly 11.pp405, 428–429.

425 Martinez M. A., July 1995. Discrimination against Indigenous Peoples, Study on Treaties, Agreements and Other Constructive Arrangements between States and Indigenous Populations, Second Progress Report, UN Doc. E/CN.4/Sub.2/1995/2.

426 Meijknecht A., 2001. Towards International Personality: The Position of Minorities and Indigenous Peoples in International Law. Oxford: Intersentia Antwerpen-Groningen.

the history of the areas in which they live, indigenous peoples have less protection in international law than minority groups.

4.2.4 Extent and Scope of Indigenous Peoples

It has been estimated that there are 5,000 indigenous groups comprising 370 million people living in more than 70 countries distributed over five continents[427]; however, this figure may be conservative. Some people believe that the majority of the world's 6,000 known languages and cultures belong to indigenous peoples.[428]

While indigenous groups are found in most parts of the world, statistical information about the size and scope of these populations is sketchy and incomplete. One attempt at mapping the situation was made by the *Gaia Atlas of Indigenous Peoples*.[429] Apart from the fact that this study lacks the status of an official source, the data it supplies no longer reflect the current situation.

International data collection standards are being developed to fill this gap in information (e.g., national census questionnaires). This endeavour, if successful, promises to provide a much more precise picture of the current scope and size of indigenous populations and more accurate statistics about their health, education, and socioeconomic circumstances.[430]

Many countries contain a number of different indigenous groups who have different beliefs and culture. Majority groups have often been quick to categorise

427 UN, The International Day of the World's Indigenous Peoples, Report of the Secretary-General on Information Concerning Indigenous Issues requested by the Economic and Social Council (E/2003/72) and Report of the Commission on Sustainable Development (E/2003/29),

428 ibid..

429 Burger J., Ed., Gaia Atlas of Indigenous Peoples (London: Gaia Books, 1990).

430 See E/C.19/2003/4 for information about data collection and disaggregation by ethnicity.

indigenous peoples without making allowances for such differences, thus adding to the complexity of the overall picture of indigenous issues.[431]

4.2.5 Definitions of Indigenous Peoples in International Law

The 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples, Article 8, proclaims the right of indigenous people as individuals and collectively "to maintain and develop…distinct identities and characteristics, including the right to identify themselves as indigenous and to be recognised as such." This would appear to favour the self-identification of indigenous peoples as indigenous rather than adhering to rigid blueprint criteria that define what constitutes an indigenous person. There is, however, a lack of agreement about the actual Declaration on Indigenous Peoples' Rights. At recent meetings (i.e., April 2004), delegates from several countries[432] openly expressed their disappointment about this lack of progress. The important contribution made by WGIP was recognised, and a vast majority of countries agreed that WGIP still had an important role to play in the future, but in spite of this support for WGIP, after nine years of debate, the Declaration remains incomplete.

Article 8 also provides for the right of indigenous peoples "to determine their own citizenship in accordance with their customs and traditions." The context of the Article suggests that this refers to indigenous citizenship. The Declaration, however,

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431 Clemencia Forero Ucros (Colombia), 2004. Special Rapporteur on Human Rights. See UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed July 2005.

432 For example, Cuban representative Miguel Alfonso Martinez expressed his concern about the low level of progress made in the negotiations and the possibility of devising texts that would reflect the aspirations of indigenous peoples and the logical and predictable needs of states in terms of upholding their sovereignty. The Declaration was not be concluded during the International Decade, although the UN General Assembly considered it one of the fundamental objectives of the Decade.

provides no clear guidelines for identifying the precise groups and individuals whom the provisions are designed to protect.

The 1989 Indigenous and Tribal Peoples Convention (C169) offers a much greater degree of precision. This document makes it clear at the outset that it applies to tribal peoples. Article one defines the term *tribal peoples* and emphasises these groups' distinctiveness from the larger national community with respect to "social, cultural and economic conditions" and includes a status regulated at least in part "by their own customs or traditions or by special laws or regulations."

The Convention applies to peoples "regarded as indigenous on account of…descent." Tribal people are descendents of the inhabitants of a country or region that has been colonised, and it is noted that these inhabitants "irrespective of their legal status retain some…of their own social, economic, cultural and political institutions." The Convention supports "self-identification as indigenous or tribal as a fundamental criterion for determining the groups to which the provisions of this Convention apply."

The debate about the precise definition and scope of the terms *indigenous person* and *indigenous peoples* continues. This chapter has only described a few of the methods used to establish a definition of these terms. At present there appears to be no universally accepted monosemous definition of indigenous people or populations. The CBD tends to group indigenous people with local communities living close to environmental resources and using traditional knowledge and innovations, possibly in an attempt to avoid the contested issue of presenting a definition for the term "indigenous people".

There are many definitions in operation: internationally, three key definitions tend to be quoted: these are the definitions supplied by the United Nations, the International

Law Association and the World Bank respectively. The establishment of an acceptable definition which is neither too narrow nor too broad, and which will satisfactorily apply to the world's many indigenous peoples, remains a bone of contention. . This possibly explains why the draft Universal Declaration on the Rights of the Indigenous Peoples prepared by the DWIG does not provide a specific definition of indigenous peoples or populations. According to the Chairperson, Ms. Erica Irene Daes, Rapporteur of the Working Group, this was because "historically, indigenous peoples have suffered from definitions imposed by others." [433]

That said, if a definition is regarded as essential, most definitions include some, if not all, of the cultural and historical "requirements" set out by the following two definitions; in addition, some definitions take into account self-identification and recognition within the indigenous community. The definition employed by the International Labour Organisation (Convention No. 169, concerning the working rights of Indigenous and Tribal Peoples, 1989) applies to:

> both tribal peoples whose social, cultural and economic conditions distinguish them from other sections of the national community and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations, and to peoples who are regarded as indigenous on account of their descent from the populations which inhabit the country at the time of conquest or colonisation.

The definition of Indigenous Peoples employed by the World Bank (operational directive 4.20, 1991) reads as follows:

> Indigenous Peoples can be identified in particular geographical areas by the presence in varying degrees of the following characteristics: a) close attachment to ancestral territories and to the natural resources in these areas; b) self-identification and identification by others as members of a distinct cultural group; c) an indigenous language, often different from the national language; d) presence of customary social and political institutions; and e) primarily subsistence-oriented production.

433 (E/CN.4/Stib.2/AC.4/1995/3, page 3).

4.3 Concerns Regarding Indigenous Peoples

There are many different issues that concern indigenous peoples, but the key issues are related to social injustice and human rights violations, land and environmental resources, cultural expression and preservation, and political rights associated with self-governance or self-determination.[434] The debate about indigenous peoples in the international community has highlighted these issues and emphasised that indigenous peoples need instrumental guidelines for protection.

At the outset, the declared aim of the International Decade of the World's Indigenous People was to strengthen international co-operation to resolve problems faced by indigenous peoples in areas such as human rights, the environment, development, education, and health.[435] These five key areas are similar to the seven challenges identified by the Forum for Indigenous People. The issues are considered to be of grave importance by the UN, and they been targeted for further work and discussion.

The UN has been criticised for its apparent inability to handle indigenous peoples' issues holistically and comprehensively. It has been pointed out that the UN uses a somewhat piece-meal approach and only investigates specific issues following accusations of genocide, disputes about private sector natural resource extraction, and violations of indigenous peoples' human rights.[436] It has been suggested that the UN should consider indigenous peoples' issues in general or debate these issues in a fashion calculated to encourage participation and transparency. As a result of this

434 See E/CN.4/Sub.2/2003/20. Note that there is more legal activity in the area of indigenous sovereignty over natural resources than in other areas related to indigenous peoples.

435 Commission on Human Rights, Human Rights and Indigenous Issues, Economic and Social Council Resolution E/CN.4/RES/2001/57.

436 E/CN.4/Sub.2/AC.4/2002/3 17 June 2002

criticism, in 2000,[437] a concept tabled in the 1980s and discussed both at the start of the indigenous decade in 1995 and the Chile Conference in 1997, finally saw the light of day and resulted in the Indigenous Peoples' Forum. This Forum was the first UN body in which indigenous representatives nominated by indigenous peoples could be heard as members having full rights as indigenous leaders in civil society and the UN.

The Forum advises and makes recommendations to the Economic and Social Council on the five key issues affecting indigenous peoples: (1) human rights, (2) the environment, (3) development, (4) education, and (5) health. It also advises the Council about issues related to culture. In addition, it acts in the capacity of co-coordinator of activities within the UN structure. These functions include hosting an annual session to identify the key concerns of indigenous peoples and discuss approaches to deal with these concerns and specific target areas.[438]

437 Initially proposed to establish a forum on indigenous peoples issues A/CONF.157/24, (Part I), chap. III, sect. II.B, para. 32. In June 1995, a workshop was held in Copenhagen, Denmark, to discuss establishing a permanent forum for indigenous peoples. The UN workshop on the permanent forum was held in Santiago, Chile, in 1997: See E/CN.4/Sub.2/AC.4/1995/7 and E/CN.4/1998/11 and Add.1-3. The Commission on Human Rights met in 1998 and created an ad hoc working group to consider proposals for establishing the permanent forum. The working group met first in early 1999. In April 2000, the Commission on Human Rights adopted a resolution to establish the Permanent Forum on Indigenous Issues during the International Decade of the World's Indigenous Peoples. Three months later, the Economic and Social Council endorsed the Resolution, and the Permanent Forum came into formal existence. See Official Records of the Economic and Social Council, 1998, Supplement No. 3 (E/1998/23), chap. II, sect. A. and 1999/52 of 27 April 1999 Ibid., 1999, Supplement No. 3 (E/1999/23), chap. II, sect. A. to consider the establishment of a permanent forum.

438 Permanent Forum on Indigenous Issues Second Session 23 May 2003,18th & 19th Meetings. Working Group on Indigenous Populations of the Sub-Commission on the Promotion and Protection of Human Rights and the International Decade of the World's Indigenous People. Commission on Human Rights Resolution 2003/58: the 60th session. See UN (2004) Commission on Human Rights. Sixtieth session (Online) http://www.unhchr.ch/html/menu2/2/60chr/index.html. Accessed Feb 2005.E.doc E/CN.4/2004/79. Item 15: An open-ended working group established to elaborate a draft United Nations Declaration on the Rights of Indigenous Peoples (Commission Resolution 2003/57, Economic and Social Council decision 2003/253) met from 15 to 26 September 2003. Permanent Forum on Indigenous Issues Second Session 23 May 2003,18th & 19th Meetings (AM & PM) urges United Nations bodies to address matters related to trafficking, sexual exploitation of indigenous girls. 2004 Special Rapporteur on Human Rights, see UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed June 2005.

4.3.1 Perceived Indigenous Peoples' Concerns and International Legal Provisions

Most indigenous peoples face discrimination, and there are efforts being made to ensure that indigenous peoples are considered equal in "dignity and rights to all other peoples, while recognising the right of all peoples to be different, to consider themselves different, and to be respected as such.'[439] In addition to discrimination, human rights violations suffered by indigenous peoples have included, for example, dispossession of land, territories, and resources and a lack of access to the means to develop "in accordance with their own needs and interests."[440]

On the international stage, key instruments have addressed the following areas related to indigenous peoples: the right to effective participation and self-governance, the rights to the preservation of environmental and cultural values, the protection of biodiversity, and environmental and human rights. These instruments represent immense progress from past policies, which avoided the issue of recognising indigenous peoples' needs or rights.

The 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples is unique among international declarations and conventions that deal with indigenous peoples because it deals with their concerns globally and attempts to protect their rights in relation to education, health, religious expression, and so forth. The Declaration also deals with questions about the use of traditional knowledge to encourage sustainable use of the environment, upholding treaty negotiations, right to self-determination, education of the next generation in language and culture,

439 Discrimination Against Indigenous Peoples. Report of the Working Group on Indigenous Populations in its eleventh session, Chairperson-Rapporteur: Ms. Erica-Irene A. Daes, Draft United Nations Declaration on the Rights of Indigenous Peoples Distr. General E/CN.4/Sub.2/1993/29/Annex I, 23 August 1993. Draft Declaration as agreed upon at the Working Group's Eleventh Session.

440 ibid.

collective rights, and right of citizenship. Although these rights are recognised in other human rights documents, including the Universal Declaration of 1948, the Declaration recognises that further steps are needed to take account of the unique circumstances of indigenous peoples and address their concerns.

History abounds with examples of cases where dominant societies are shown not merely lacking sensitivity towards the cultures of indigenous peoples, but pursuing aggressive policies calculated to bring about the enforced assimilation of such peoples through the systematic eradication of their distinctive traditions and cultures.[441] The 1994 Draft UN Declaration on the Rights of Indigenous Peoples serves as a reminder of historical events that should not be allowed to recur, and calls for measures to prevent and offer redress for "any form of assimilation or integration by other cultures or ways of life imposed on them by legislative, administrative or other measures."[442]

Although many international agreements, whether in the form of declarations or conventions, focus on areas of potential interest or relevance to indigenous peoples and may include indigenous peoples in the deliberation process, the CBD goes further in addressing issues of concern to indigenous peoples. In Article 8(j), the CBD actively encourages indigenous participation, accords recognition to indigenous knowledge, and discusses equitable benefit sharing in its categorisation of different ecosystems. These key concerns, many of which were identified long ago, remain at the heart of the debate today.[443]

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441 Perkins S. C., 1992. Researching Indigenous Peoples Rights Under International Law (supply city, state: publisher.

442 DUNDRIP 1994 Part II Article 7(d).

443 Item 15: An open-ended working group established to elaborate a draft United Nations Declaration on the Rights of Indigenous Peoples (Commission Resolution 2003/57, Economic and Social Council decision 2003/253) met from 15 to 26 September 2003.

Indigenous groups are frequently excluded at both domestic and international level from debates pertaining to the status and trends of inland water. Moreover, the fundamental rights of indigenous communities often go unrecognised, and are in consequence frequently subject to gross violation.

The Indigenous Peoples' Kyoto Water Declaration states that indigenous knowledge and methodology in water resource management is being ignored and disrespected, and that this is part of a general lack of recognition of indigenous peoples' rights of self determination and territorial ownership. Worryingly, indigenous peoples' desire to maintain and preserve water resources is depicted as being at loggerheads with the intentions of governments and industry internationally: the following extract from the declaration demonstrates this concern;

> '…our rights to recover, administer, protect and develop our territories, natural resources and water systems are systematically denied and misrepresented by governmental and international and domestic commercial interests. Our rights to conserve, recreate and transmit the totality of our cultural heritage to future generations, our human right to exist as Peoples is increasingly and alarmingly restricted, unduly impaired or totally denied.'[444]

In regard to the CBD the declaration requests that states refer to Article 8J and urges them to recognise the importance of conserving traditional knowledge for the conservation of ecosystems.[445]

Attempts within international law to cater for the interests of indigenous people have not been crowned with unqualified success: there is the suggestion that the rights provided for are neither sufficiently well defined nor sufficiently generous in addressing the specific needs of indigenous populations. There is also a concern that in the establishment of these rights there has been insufficient consultation with

444 Article 13, March 2003. The Indigenous Peoples Kyoto Water Declaration Third World Water Forum, Kyoto, Japan.

445 ibid., Article 32.

the indigenous populations themselves, and that in consequence they do not adequately reflect the specific needs of indigenous populations. There remains, however, the central stumbling block, namely, that at present it appears that the enforcement of the rights as they stand is dependent upon the whim of the domestic government of the day and its inclination to recognise and uphold the international rights. Currently, governments are seemingly able to disregard doctrines with impunity and indigenous communities face daunting obstacles in attempting to obtain such compliance.

In some respects the CBD is pioneering, for example, in its recognition of the crucial importance of including indigenous communities in the dialogue regarding ecosystems, and its recommendations for the acknowledgement and conservation of the traditional knowledge held by indigenous groups and local communities. The CBD recognises the need for transparency and optimisation of knowledge, sharing of distributional resources such as the COP meetings and the distribution of working policy documents as well as the development of national clearinghouse mechanisms and the provision of financial support for indigenous participation.

The CBD recognises state sovereignty over national resources including inland water ecosystems. It does not offer definitions for ‘indigenous people’, nor does it seek to stipulate the specific or collective rights of such people or in any way challenge the domestic government’s treatment of indigenous people, apart from the basic ‘request’ that the value of indigenous traditional knowledge be recognised. Although the involvement of indigenous groups is actively encouraged, their role is many cases reduced to that of observers, and they have no power of veto.

In so far as the CBD highlights the importance of indigenous and local community participation, it represents a step in the right direction: however, in terms of being a policy group capable of bringing an end to discrimination and improving the generally disadvantaged position of indigenous communities within international law, it is relatively ineffectual.

CHAPTER FIVE

INDIGENOUS PEOPLES AND HUMAN RIGHTS

5.1 Introduction

Although current international human rights documents and principles apply to indigenous peoples, recent developments have resulted in the creation of organisations intended to address the concerns of indigenous peoples directly, as a consequence of the continuing violation of indigenous peoples' fundamental freedoms and human rights throughout the world.[446] Many of these human rights violations stem from deep-seated ignorance and discrimination against indigenous peoples and cultures.[447] All too often, discrimination has had violent consequences, even occasionally resulting in programmes of ethnic cleansing. In consequence, the international community has made discrimination against indigenous peoples a prime target for intervention.

Discrimination against indigenous peoples was recognised as a problem that needed international attention as early as 1971. At this time, the UN selected a rapporteur whose sole task was to report on the status of discrimination against indigenous peoples.[448] Although the UN has been concerned with the violation of indigenous peoples' human rights for more than 40 years, indigenous peoples still

446 Remarks made about human rights and indigenous issues by Marcelino Diaz De Jesus, member of the Juridical Commission for Auto-Development of First Andean Peoples, UN doc. E/CN.4/SUB.2/RES/2003/56.

447 See Discrimination Against Indigenous Peoples Report produced by the Working Group on Indigenous Populations during its eleventh session. See also Chairperson-Rapporteur, Ms. Erica-Irene A. Daes, Draft United Nations Declaration on the Rights of Indigenous Peoples, Distr. GENERALE/CN.4/Sub.2/1993/29/Annex I.

448 See Cobo M., 1986. Study of the Problem of Discrimination Against Indigenous Populations, UN Doc. E/CN.4/Sub.2/1986/7. In 1971, the Sub-Commission on the Prevention of Discrimination and the Protection of Minorities, comprising 26 independent human rights experts, appointed one of its members, Martinez Cobo, as Special Rapporteur. He was asked to conduct a comprehensive study that examined discrimination against indigenous populations and recommend national and international measures for eliminating this type of discrimination.

experience discrimination, and they are still being treated like second-class citizens in many parts of the world.

There are several examples of the violation of the human rights of indigenous peoples by governments and majority groups. In Brazil, the government is trying to exploit the wealth of the Amazon Basin and open it up for agriculture and other resource-based operations. The government has met with resistance from some indigenous groups, and as a result, there has been an increased military presence in the Amazon area and a sharp increase in violence against indigenous leaders and the number of kidnappings, rapes, and torture of indigenous peoples.[449] In April 2004, the Indian Council of South America representative Tomas Condori cited the killing of 80 indigenous people in Bolivia in October 2003 as an example of the continuing victimisation of indigenous peoples in Latin America and their repression by the judicial and political system.[450] In Bangladesh, the government has a policy of discriminating against tribal peoples. In one case, the government encouraged 500,000 illegal Bengali settlers to move into the Jumma people's territory in an attempt to make the indigenous Juma people a minority in their own territory and destroy their distinctive identity. The government has also used aggressive policies of Islamicisation against the Jumma people and incited conflict within Jumma communities. In addition, the government has maintained a strong military presence

449 Wilhelm M., Society for Threatened Peoples, expressed profound concern about the sharp increase in the rate of destruction of the Amazonian rainforest and the livelihood of indigenous peoples in Brazil. The new Brazilian government had announced the acceleration of the demarcation process in indigenous territories, but these promises have not been kept, and in some cases, the size of some indigenous group's territory has been reduced or deliberately opened up to settlers. There was deep concern about the current model of development in Amazonia, the rising violence against indigenous leaders, and the increasing presence of the military in Amazonia. See UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed June 2005.

450 Condori T., Special Rapporteur on Human Rights for the Indian Council of South America, see UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed July 2005.

in the region.[451]In spite of the international community's desire to stop such human rights violations, these examples reveal the need for an enforceable legal framework that guarantees the human rights of indigenous peoples.

The 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples is intended as a step towards ensuring the human rights of indigenous peoples. To date, however, only 2 out of 45 articles in the Declaration have been ratified. It is clear that even though the international community is concerned about the violation of indigenous peoples' human rights, much remains to be done before such violations become a thing of the past.

5.2. Prevention of Discrimination

There is much debate in the international community about the problem of discrimination against indigenous peoples, but a comprehensive catalogue of indigenous concerns, trends, and legal development associated with indigenous peoples is beyond the scope of this thesis. The following discussion, however, may provide an overview of the international community's attempts to stop the violation of indigenous peoples' human rights.

It has been recognised in the field of international law that there is a need to provide special or additional protection for certain groups. With this in mind, international legal conventions and declarations have been produced to address the rights of children, refugees, minorities, and women. These conventions and declarations include, but are by no means limited to, the following early examples:

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451 According to a statement by Sanchay Charkma, a member of the Asian Indigenous and Tribal Peoples Network, highlighting the problem of definitions, many situations in which governments carried out genocidal and ethnic cleansing policies did not qualify as genocide within the formal definition of the term. UN discussions held in April 2004. See UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed July 2005.

the 1951 Convention Relating to the Status of Refugees and subsequent protocols, the 1952 Convention on the Political Rights of Women, and the Declaration on the Rights of the Child.[452]

Indigenous peoples have been recognised as a vulnerable group requiring special measures to ensure their protection and safeguard their rights. This recognition has led to the development of the specific principles and documents discussed in this chapter, and it is reflected in a number of international legal instruments, in particular, the 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples. Although these principles and documents have been produced, not everyone in the international community accepts them.

There is no doubt that many indigenous people are suffering discrimination and the violation of their human rights, and there is growing concern and more urgent calls for special or additional action to stop this abuse in the international community. Although there are calls for special provisions to protect the rights of indigenous peoples, these provisions would not constitute a set of special rights and privileges; they would only ensure that indigenous peoples are able to enjoy the universal human rights identified by the UN and other international bodies.

5.3 The General Right to Protection Against Discrimination

Initially, the notion of non-discrimination was inspired by the idea of equality before the law. This idea can be traced back to early philosophical teachings, and it was used (and arguably abused) during the many revolutions of the eighteenth and nineteenth centuries in attempts to destroy class structures. Although the idea of

[452] MISSING TEXT

equality before the law has a long history, in practice, people are still discriminated against on the basis of gender, race, and socioeconomic status.

The Universal Declaration of Human Rights (UDHR) was one of the earliest international documents to recognise equality before the law as a right and the right to equal protection against discrimination:

> All are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violations of this Declaration and against any incitement to such discrimination.[453]

The Declaration focuses on rights associated with race, sex, language, and religion in Articles 1 and 55. More recent instruments have extended this focus to include ethnic origin, sexual orientation, age, and disability.454 Other instruments455 list rights associated with language, race, religion, and gender, and some documents provide "other status" people the right to protection against discrimination. It has been suggested, however, that these lists are limited, and as a result, most cases of discrimination brought before enforcement bodies have involved sex, race, and religion.[456]

5.4 Discrimination on Grounds of Race

Events such as the Second World War drew attention to the issue of racial discrimination, and led to a reactive attempt to prevent it. The 1949 Draft Declaration in the Duties of States mentioned the duty of states to treat every

453 Universal Declaration of Human Rights, art. 7.

454 Article 13, 1997 which was added to the European Community Treaty of Amsterdam.

455 See Universal Declaration, art. 2(1), ICCPR, art. 2(2), ICESCR, art. 1, ACHR, art. 2, ACHPR, Commonwealth of Independent States Convention on Human Rights and Fundamental Freedoms (CIS), art. 20(2), European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR), art. 14, and Arab Charter on Human Rights (AL), art. 2.

456 Smith R. K. M., 2003. International Human Rights. Oxford, UK: Oxford University Press, p202.

individual in their jurisdiction with respect and to guarantee their fundamental freedoms, including human rights, without making a distinction based on race. It was not until 1966, however, that a specific convention (i.e., the International Convention on the Elimination of All Forms of Racial Discrimination) emerged that specifically focused on the elimination of all forms of racial discrimination. This Convention provides a working definition for racial discrimination in Article 1: any distinction, exclusion, restriction or preference based on race, colour descent, or national or ethnic origin which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on an equal footing, of human rights and fundamental freedoms in the political, economic, social, cultural or any other field of public life.

The International Convention on the Elimination of All Forms of Racial Discrimination expanded the concept of equality before the law in order to comply with the "fundamental obligations of the convention"[457] and "eliminate racial discrimination in all its forms and to guarantee the right of everyone, without distinction as to race, colour, or national or ethnic origin."

This Convention is more strongly worded than the Universal Declaration of Human Rights, and it constitutes an advance from the bald statement that every individual possesses rights and is entitled to the protection of these rights. The Convention established a watchdog committee to observe the enforcement of its provisions.[458] This committee reflects geographical distributions, diverse forms of

457 International Convention on the Elimination of All Forms of Racial Discrimination, art. 5 and Fundamental Obligations, art. 2.

458 The 1966 International Convention on the Elimination of All Forms of Racial Discrimination, art. 8 established the Committee on the Elimination of Racial Discrimination.

society, and basic forms of legal systems. Its functions include writing reports and addressing interstate and individual complaints.[459]

The Convention imposes a duty on states to eliminate all forms of racial discrimination. This reflects a proactive approach and changes in the international legal paradigms. The Convention, however, does not contain provisions to protect people against discrimination based on gender, language, or religion.

Many international legal instruments, such as the International Covenant on Civil and Political Rights (ICCPR), and the International Covenant on Economic, Social and Cultural Rights (ICESCR), and regional documents (e.g., African Charter on Human and Peoples' Rights and the Charter of Fundamental Rights of the European Union), incorporate, to some degree, the concept of the right to protection against discrimination. These documents either explicitly guarantee protection against discrimination or state that each right applies to all people.[460] Among its attempts to eliminate discrimination, the UN produced model national legislation as a part of the third decade to Combat Racism and Racial Discrimination to help governments produce national legislation to outlaw racial discrimination.[461]

The Committee on the Elimination of Racial Discrimination has tailored recommendations that focus on the rights of indigenous peoples and stated that the situation of these peoples is "a matter of close attention and concern."[462] In addition to confirming the Convention on Elimination of All Forms of Racial Discrimination, this statement acknowledges that indigenous peoples are also protected against discrimination in the Convention. The Committee recognised that indigenous

459 Smith, International Human Rights, p77.

460 For an example, see the African Charter on Human and Peoples' Rights, art. 22.

461 See also World Conferences against Racism, Racial Discrimination, Xenophobia and Related Intolerance, Durban South Africa, 2001.

462 Committee on the Elimination of Racial Discrimination.

peoples need special provisions to protect their human rights and fundamental freedoms and stop the loss of their lands and threats to their culture. According to the Committee, indigenous peoples' "historical identity has been and still is jeopardised."[463] As a result, the Committee called on states to "ensure that members of indigenous peoples are free and equal in dignity and rights and free from any discrimination, in particular that based on indigenous origin or identity."[464]

The International Labour Organisation Convention No. 169, Concerning Indigenous and Tribal Peoples in Independent Countries (1989) (hereafter ILOC 169) assumes that indigenous peoples should enjoy "the general rights of citizenship without discrimination" and emphasises the need to implement special measures in order to appropriately safeguard the rights of indigenous peoples.[465] The general preamble to ILOC 169 states that although the international documents that include protection against discrimination "remove the assimilationist orientation of earlier standards," indigenous communities still face many problems:

> These peoples are unable to enjoy their fundamental human rights to the same degree as the rest of the population of the States within which they live, and that their laws, values, customs and perspectives have often been eroded, and calling attention to the distinctive contributions of indigenous and tribal peoples to the cultural diversity and social and ecological harmony of humankind and to international cooperation and understanding.[466]

Articles 2 and 3 of ILOC 169 deal specifically with issues of discrimination. Article 2 states that governments shall ensure that "these peoples benefit on an equal footing from the rights and opportunities which national laws and regulations grant to other

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463 Committee on the Elimination of Racial Discrimination, General Recommendation XXIII (51) on the Rights of Indigenous Peoples, adopted 18 August 1997, and referred to in doc. E/CN.4/Sub.2/2003/20.

464 ibid.

465 The International Labour Organisation Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries (1989) (hereafter the ILOC 169).

466 ibid.

members of the population."[467] Article 3 states that "indigenous and tribal peoples shall enjoy the full measure of human rights and fundamental freedoms without hindrance or discrimination." It also states that there shall be no discrimination between male and female members of these peoples.[468]

The 1994 UN Draft Declaration on the Rights of Indigenous Peoples, adopted by the Sub-Commission on Prevention of Discrimination and Protection of Minorities,[469] also affirms the principles of equality for indigenous peoples in its general text and preamble. It states, "indigenous peoples are equal in dignity and rights to all other peoples" and declares that

> all doctrines, policies and practices based on or advocating superiority of peoples or individuals on the basis of national origin, racial, religious, ethnic or cultural differences are racist, scientifically false, legally invalid, morally condemnable and socially unjust.[470]

The preamble reaffirms that "indigenous peoples in the exercise of their rights should be free from discrimination of any kind."[471]

Both ILOC 169 and the 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples state that their provisions supplement existing provisions in international law: for example UN conventions that relate to socioeconomic, cultural, and political rights and the Universal Declaration of Human Rights. These documents point out that their provisions should not be used to restrict the effectiveness or application of the principles already in existence, especially provisions that deal with human rights.

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467 ibid.

468 Indigenous and Tribal Peoples Convention 169, 1989, art. 3.

469 Resolution 1994/45, August 1994: see also report of the working group, UN doc. E/CN.4/Sub.2/1994/30, UN Doc.E/CN.4/Sub.2/2000/10, 19 July 2000, UN doc. E/CN.4/2001/85, and the Commission on Human Rights Resolution 2001/58,24, April 2001.

470 The 1994 Draft UN Declaration on the Rights of Indigenous Peoples, adopted by the Sub-Commission on Prevention of Discrimination and Protection of Minorities.

471 ibid.

Indigenous peoples who experience discrimination are also subject to threat in other aspects of their lives. As a result, they also need protection to ensure their right to culture, education, and language.

5.5 The Right to Culture, Education, and Language

Indigenous peoples pursue diverse lifestyles and hold a wide spectrum of beliefs and ideas. Some groups wish to preserve their traditional lifestyles and resist all change, while other groups aspire to full participation in the material and cultural life of the surrounding society. The culture of all indigenous peoples, like all other cultures, is in a constant state of evolution[472]. That being said, it might be argued that for some indigenous peoples the joint sense of belonging to a distinctive culture creates powerful bonds of solidarity.

5.5.1 Culture as a Right

United Nations Educational, Scientific and Cultural Organisation (UNESCO) have debated the need for an international instrument that deals with cultural heritage. UNESCO has selected several issues and concerns as key points of focus, especially in relation to indigenous people: (1) intangible heritage and (2) development of humanity.

Intangible heritage encompasses forms of traditional or popular expression, such as language, oral literature, music, dance, games, mythology, rituals, costumes, craftwork, art, and traditional modes of communication and information.[473] The

472 See Deputy Secretary-General Celebrates "Diversity And Richness" Aboriginal People Give To Human Family at Ottawa Awards Ceremony, 1 April 2003.

473 For more information, see UNESCO Cultural Heritage (Online) http://www.unesco.org.culture/heritage/Intangible. Accessed Sept 2004.

protection of cultural expression, practices, and rituals can be found in a multitude of international legal instruments, including the 1966 International Covenant on Economic, Social and Cultural Rights and the Universal Declaration of Human Rights.

Article 27 of the Universal Declaration of Human Rights makes it clear that everyone has the right to "freely participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits," and "everyone has the right to the protection of the moral and material interests from any scientific, literary or artistic production of which he is the author."[474] (This last right is discussed in chapter six in relation to the use of indigenous knowledge, innovations, and practices in inland water conservation, sustainable use of biodiversity, and the equitable sharing of the benefits obtained as a consequence of these innovations and practices.)

> The International Covenant on Economic, Social and Cultural Rights builds on the Universal Declaration of Human Rights' acknowledgement of cultural rights and states in its preamble that the ideal "of free human beings enjoying freedom from fear and want can only be achieved if conditions are created whereby everyone may enjoy his cultural rights, as well as his civil and political rights."[475] According to Article 15, every person has the right: to take part in cultural life, enjoy the benefits of scientific progress and its applications, and to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

474 Universal Declaration of Human Rights, 1966. Art. 27(1) and (2), and art. 27.

475 ICESCR 1966, part II, section 2.

This article is similar to UDHR Article 27.

The right to participate in cultural life and share in the benefits of scientific advancement are also recognised by ICESCR. According to Article 15, in order to fulfil the goals of the Covenant, it is necessary to recognise that these rights are "those necessary for the conservation, the development and the diffusion of science and culture." It recognises, furthermore, that benefits can "be derived from the encouragement and development of international contacts and cooperation in the scientific and cultural fields."[476] ICESCR is a general instrument, and it makes no special provision for indigenous peoples; however, the majority of instruments that do make special provisions for indigenous peoples recognise the rights contained in ICESCR and seek to build on them.

ICESCR provisions have been reaffirmed in regional instruments such as the 1988 Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (ACHRESCR). Although ACHRESCR does not make any specific reference to indigenous peoples, it recognises that "the essential rights of man are not derived from one's being a national of a certain state, but are based upon attributes of the human person, for which they merit international protection."[477]

5.5.2 Indigenous Peoples and the Right to Culture

Cultural condition is one of the key criteria in ILOC 169. In order for ILOC 169 to apply to a group/individual, this group/individual must be able to show that their

476 ICESCR 1966, part III, art. 15.

477 See preamble in the 1988 Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights.

cultural conditions "distinguish them from other sections of the national community," and their status is governed "by their own customs or traditions or by special laws."

The retention of distinctive cultural institutions, regardless of legal status, is also an important criterion for eligibility to seek protection under ILOC 169.[478] Therefore, culture is, in essence, a key defining feature of a people, and consequently, the preservation and protection of a culture constitute key factors for maintaining a distinctive group identity as a people. In the case of indigenous peoples, it is recognised that indigenous peoples need special protection to ensure their cultural rights.

Article 2 in the General Policy section of ILOC 169 notes that the burden of responsibility falls on governments to promote "the full realisation of the cultural rights of these peoples with the respect for their cultural identity."[479] This statement acknowledges the fact that the term *cultural rights* encompasses much more than cultural activities *per se*, and the institutions of a people lie at the heart of their culture. Some of these issues are addressed below in relation to socio-political rights. The Convention contains ten general sections, and culture is not treated in one specific section; instead, it transcends and has relevance in all thematic areas, whether the focus is on land, health, or some other aspect of people's lives.

There is a call for the adoption of special measures designed to safeguard the cultures of indigenous peoples. ILOC 169 stipulates that when applying any of its provisions "the social, cultural, religious and spiritual values and practices of these peoples shall be recognised and protected, and due account shall be taken of the

478 ILOC 169, art. 1, General Policy.

479 ibid., art. 2(b).

nature of the problems which face them both as groups and as individuals."[480] In addition, the integrity of the values, practices, and institutions of indigenous peoples shall be respected.

ILOC 169 also calls on governments to give special attention to customs and customary laws when applying national laws to indigenous peoples [481] However, although there is no specific section devoted to the need to respect and recognise cultural rights, this cultural sensitivity is referred to throughout ILOC 169, and the wording of ILOC 169 clearly emphasises the importance of culture for indigenous peoples.

ILOC 169 recognises that no culture, including indigenous culture, is a static concept; instead, it is an ever-changing tapestry. This recognition is reflected in the protection of culture: "Indigenous peoples have the right to practise and revitalise their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures."[482]

ILOC 169 has more information about what constitutes culture than other documents and includes "archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature" in its description of culture. Part 3 of ILOC 169 describes additional key aspects of culture: the right of intergenerational transmission of cultural elements such as

480 ILOC 169, General Policy, art. 5.

481 Attention is drawn to penal matters. Respect for the customs of indigenous peoples and their social and cultural characteristics are to be taken into account in the imposition of penalties laid down by "general law." In addition, it is suggested that alternative methods of punishment be preferred to incarceration for indigenous peoples. This again reflects the Convention's emphasis on cultural values, customs, and identity. There is also a provision for respecting a community's method for dealing with offences in the community. See ILOC 169, part I, General Policy, art. 8, 9(1), and 10.

482 DUNDRIP 1994, part III, art. 12.

"histories, languages, oral traditions, philosophies, writing systems and literature."[483] It notes that indigenous peoples have the right to establish their own media, and states must "ensure that State-owned media duly reflect indigenous cultural diversity."[484] ILOC 169 also recalls historical abuses, specifying "a right to the restitution of cultural, intellectual, religious and spiritual property taken without their free and informed consent or in violation of their laws, traditions and customs."[485]

Article 13 states that the cultural rights of indigenous peoples must be "preserved, respected and protected."[486] ILOC 169 clearly expresses the view that indigenous peoples' cultural rights require specific protection in order to ensure that the abuses of the past do not happen again.

The preamble recognises the urgent need for indigenous peoples' right to culture and for their distinctive characteristics as a people to be respected and promoted. ILOC 169 also contains a provision that protects indigenous peoples from any form of cultural genocide, unequivocally stating that "any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities"[487] should be prevented, and if it happens, those who commit cultural genocide should be punished. In addition, this document recognises that cultural and traditional practices "contribute to sustainable and equitable development and proper management of the environment."[488]

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483 ibid, art. 14.

484 ibid, part IV, art. 17.

485 ibid, part III, art. 12.

486 ibid, part III, art. 13.

487 ibid., part II, art. 7.

488 DUNRIP, 1994, Preamble, paragraph 9.

5.5.3 Indigenous Peoples and the Right to Education

The Permanent Forum for Indigenous Peoples has targeted education and cultural concerns in its recommendations. It encourages the establishment of academic institutions to train indigenous leaders and urges public and private universities to develop curricula that are relevant to indigenous peoples.

It recommends that, at the national level, states should make a commitment to reduce illiteracy, truancy and dropout rates and promote the primary education of indigenous peoples because, in many areas, indigenous children have inadequate access to education. In addition, the Forum urged that educational systems should rescue, foster, and divulge the history and culture of indigenous peoples in order to strengthen their sense of identity.[489]

In recent years, there has been a growing recognition that it is important to involve indigenous communities in their children's education and protect "in particular the right of indigenous families and communities to retain shared responsibility for the upbringing, training, education and well-being of their children."[490] In many cases, this right has been violated as a result of discrimination, and as a result, it is an area that has been debated in international workshops and meetings dealing with indigenous issues.[491]

The repression of indigenous people is often the result of aggressive policies that restrict the free expression of indigenous cultures and attempts to coerce

489 Forum recommendation on educational matters, doc. E/C.19/2003/L.18.

490 Discrimination Against Indigenous Peoples, Report of the Working Group on Indigenous Populations at its eleventh session. United Nations Declaration on the Rights of Indigenous Peoples, Distr. General E/CN.4/Sub.2/1993/29/Annex I.

491 See also doc. E/CN.4/Sub.2/AC.4/1998/3, Note by the Secretariat on the Principal Theme of Indigenous Peoples: Education and Language, and doc. E/CN.4/Sub.2/AC.4/1999/5, Report on the Workshop on Higher Education and Indigenous Peoples.

indigenous peoples into embracing more mainstream cultural activities. The denial of the right to use indigenous language in public administration matters or judicial systems has been identified as a violation of the rights of indigenous peoples and international principles. Therefore, the Forum recommends that governments provide public services in indigenous languages in indigenous territories. In addition, it urges governments and UN agencies to support indigenous media and indigenous youth programmes.[492]

5.5.4 Education as a Right

The 1948 Universal Declaration of Human Rights includes provisions about education. Article 26 states that elementary education should be free and compulsory, and should "promote understanding, tolerance and friendship among all nations, racial or religious groups." It suggests that parents should have the right to choose the type of education received by their children. Although these provisions do not single out indigenous peoples or any other group, it is clear from the language that the intention is to prevent discrimination against specific social groups in respect to access to education and professional qualifications and educate people in a manner that will strengthen "respect for human rights and fundamental freedoms."[493]

The right to education was reaffirmed and developed in the 1996 International Covenant on Economic, Social and Cultural Rights, Article 13. The initial part of the Article reaffirms the principle in the UDHR. In addition, it states "education shall enable all persons to participate effectively in a free society." This

492 Doc. E/C.19/2003/L.17.

493 The 1948 Universal Declaration of Human Rights, art. 26.

Article builds on the UDHR and provides details about the measures needed to ensure the full realisation of the right to education.

The 1996 International Covenant does not focus exclusively on elementary education, but it also includes various forms of secondary education, higher education, and fundamental education provisions that should be rendered accessible and encourages the provision of free education. The Covenant also specifies that parents are at liberty to select schools "other than those established by the public authorities' provided they meet State requirements for the minimum educational standards."[494]

5.5.4.(1) Education Rights and Specific Groups

The right to education is often associated with children, and the principal provisions in many international documents emphasise the normal provision of free, compulsory education throughout childhood. The 1989 Convention on the Rights of the Child is noteworthy because it recognises that it is necessary to take socioeconomic circumstances into consideration in order to ensure that all children enjoy their educational rights. Therefore, in Article 28(b), it is stipulated that secondary education should also be free, and there should be "financial assistance in case of need."

Article 28 points out that in order to achieve international cooperation in educational matters "particular account shall be taken of developing countries."[495]

494 Article 14 of the 1966 Convention imposes a timeframe in which contracting parties shall "work out and adopt a detailed plan of action." However, this is not as progressive as it may at first appear because the timescale is a 2-year period in which to devise a plan of action for the attainment of the goal of compulsory, free education for all. The timeframe for the actual implementation, however, is somewhat vague: It is to be fixed within such a plan and to be a "reasonable number of years."

495 The 1989 Convention on the Rights of the Child, art. 28.

Although there is no specific mention of indigenous peoples, this Convention does recognise that for the fundamental right to education to be universal, as intended, it may be necessary to take socioeconomic issues into account.

More broadly, the Convention recognises that certain individuals will require extra provisions in order to enjoy the right to education. This represents a progressive move away from some of the other international instruments, which merely state that everyone has the right to education or that no individual should be discriminated against in respect of access to education. The right to education as a universal right is also reaffirmed in the guiding principles that relate to various groups such as refugees and migrant workers.[496]

The 1997 Convention on Internal Displacement, Principle 23, states "every human being has the right to education." Principle 23, Section 2 calls for appropriate authorities to ensure that specific groups of people should receive compulsory, free education. In addition, Principle 23(2) also emphasises that this education "should respect their cultural identity, language and religion."[497]

Conventions that deal with the status of refugees and stateless people[498] feature certain basic provisions about education and adopt a different approach. In these conventions, the emphasis appears to be on equality of treatment rather than on special provisions to ensure the universal right to education. For example, the 1990

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496 However, recognition of educational rights for these specific groups is not treated in the same way. Although the focus here is not on indigenous peoples, in particular, the additional provisions are often equally relevant for indigenous peoples, and the different instruments reflect different attempts to render the right effective for the specific group identified. To some extent, the shift appears to be date-related. Instruments examined here in relation to refugees and stateless people stem from 1951 and 1960, respectively, whereas the conventions related to the rights of the child, migrant workers, and internally displaced people stem from 1989, 1990, and 1997 and appear to recognise the need for additional provisions for specific groups as opposed to just focusing on nondiscriminatory actions and equal rights.

497 The 1997 Convention on Internal Displacement, principle 23, section 2.

498 The 1960 Convention Relating to the Status of Stateless Persons, specifically chapter III: Gainful Employment and article 22: Public Education. The 1951 Convention Relating to the Status of Refugees, chapter IV: Welfare and article 22: Public Education.

International Convention on the Protection of the Rights of all Migrant Workers and Members of their Families is noteworthy because it stipulates the basic right to education and equal treatment with the nationals of a given state. The European Union produced, among other conventions, the 1995 Framework Convention for the Protection of National Minorities,[499] and in Articles 12 and 13, it gives national minorities the right to set up and manage their own "private educational and training establishments," subject to the restriction that this takes place "within the framework" of a state's education system and the state is not obliged to make any financial contribution to these institutions.

5.5.4.(2) Education Provisions in Anti-Discrimination Instruments

Anti-discrimination instruments have focused on eliminating discrimination in the area of education. The 1966 International Convention on the Elimination of all Forms of Racial Discrimination lists, in Article 5, several fundamental rights, including economic, social, and cultural rights, and it specifies "the right to education and training."[500]

The 1981 Declaration on the Elimination of all Forms of Intolerance and of Discrimination based on Religion or Belief states in Article 5 that children have the "right to have access to education in the matter of religion or belief in accordance with the wishes of his parents." There is also the right not to be "compelled to receive teaching on religion or belief against the wishes of his parents…the best interest of the child being the guiding principle."

499 The 1995 Framework Convention for the Protection of National Minorities.

500 Article 5(a) V in the 1966 International Convention on the Elimination of all Forms of Racial Discrimination.

The Convention Against Discrimination in Education[501] addresses a broad spectrum of acts of discrimination, including

> any distinction, exclusion, limitation or preference which, being based on race, colour, sex, language, religion, political or other opinion, national or social origin, economic condition or birth, has the purpose or effect of nullifying or impairing equality of treatment in education.[502]

Although the Convention does not single out indigenous peoples for special attention, many of the examples of discrimination mentioned are highly relevant to indigenous peoples.

5.6 Education Provisions Specifically for Indigenous Peoples

ILOC 169

In 1944, the International Labour Organization recognised a "solemn obligation" to encourage "among the nations of the world" programmes that would achieve "the assurance of equality of educational and vocational opportunity." The conference affirmed that these rights applied to all peoples, but it is noteworthy that the conference recognised that application

"must be determined with due regard to the stage of social and economic development reached by each people and their progressive application to peoples who are still dependent, as well as to those who have already achieved self-government, is a matter of concern to the whole civilized world."

ILOC 169, Article 26 closely resembles the international conventions that relate to other societal groups, and it focuses on providing educational opportunities at least equal to those enjoyed by a national community. However, Articles 27 to 32

501 The Convention Against Discrimination in Education, December 1960 adopted by UNESCO. See also ILO Convention Concerning Discrimination in Respect of Employment and Occupation.

502 ibid. which convention? Article 1

elaborates on the educational rights of indigenous peoples and recognises that indigenous peoples have special needs, and as a result, educational programmes and services for indigenous peoples should be "developed and implemented in co-operation" with these peoples. In addition, ILOC 169 states that these programmes shall incorporate their history, knowledge, value systems, and so forth. Although indigenous peoples have the right to their own educational facilities, these facilities are required to meet minimum educational standards. ILOC 169 goes further than other international documents and states that these minimum requirement standards should be established by a competent authority in consultation with indigenous peoples.

The provisions set out in Article 15 of the 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples are similar to international documents related to minorities. However, the Declaration expects states to take effective measures and provide appropriate resources needed to meet the educational requirements outlined in the document. These provisions include the right of indigenous children living outside their communities to have access to education "in their own culture and language." Article 15 makes it clear that all indigenous people, not only indigenous children, have the right to all levels of education in the state and the right to establish and control their own educational systems and institutions.

In addition, the Declaration recognises that people have the right to education in their own language and in a "manner appropriate to their cultural methods of teaching and learning." This is a far more detailed provision than those discussed in other international documents. Of the documents discussed, the two instruments specifically related to indigenous peoples have been far more detailed than those that relate to refugees, migrant workers, and internally displaced persons.

5.7 Language

5.7.1 Status and Trends

Language has been the focus of many international documents because one language dies, on average, every fortnight, and 50% of the world's estimated 6,000 languages are classified as endangered.[503] The Universal Declaration on Cultural Diversity and General Assembly stresses that preserving a language is a matter of the utmost importance,[504] and language offers an invaluable way of promoting, protecting, and preserving cultures and promoting diversity on a global scale.[505]

Language rights have been divided into four basic categories: (1) the use of language in private and in public, (2) in education, (3) in the media, and (4) in judicial and administrative circumstances. The issue of language rights has often been considered in conjunction with anti-discrimination measures and fairness in judicial situations (e.g., the right to have a criminal charge read in an understood language, which is required in order to meet the equal and fair treatment provisions in the Universal Declaration of Human Rights).

The recognition of language as a valuable cultural heritage and an individual and collective right is of comparatively recent date. Politically, this is a sensitive area. On one hand, the right to language is promoted in the anti-assimilationist approach and is considered a part of a group's cultural identity. On the other hand, the right to language is considered a threat to the homogeneity of a state and may be

503 missing information

504 United Nations Educational, Scientific and Cultural Organization (UNESCO) Resolution 56/262.

505 Doc. E/C.19/2003/21 [A C E F R S]. UNESCO Resolution 56/262.

used to foster separatist movements that may constitute a threat to a state's security.[506]

5.7.2 Language as a General Right

International documents do not discuss language as a general right. The Universal Declaration on Human Rights does not explicitly acknowledge language as a right, but it does imply some protection of language in its provisions that deal with freedom of expression.[507] As with the Universal Declaration on Human Rights, the 1966 International Covenant on Economic, Social and Cultural Rights does not provide specific measures to protect language.

5.7.3 Language as a Specific Right

Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities[508]

Although indigenous peoples and minorities are distinct from one another, in many cases, indigenous people also constitute a minority in a geographical region, which entitles them to protection under international documents that relate to minorities. The Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, Article 4 deals with language rights and states that there should be adequate opportunities for minorities to learn or receive instruction in their mother tongue. This Article specifically protects the right of minorities to "use their

506 For more information, see Hannum H., 1990. Autonomy, Sovereignty, and Self-Determination: The Accommodation of Conflicting Rights. Thonberry P., 2000. International Law and the Rights of Minorities 1991as discussed by Henry Steiner p1289-1305, International Human Rights in Context, OUP.

507 The right to language has become recognised in relation to nondiscrimination in penal cases.

508 Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, adopted by General Assembly Resolution 47/135, December 1992.

own language, in private and in public, freely and without interference or any form of discrimination."[509]

5.7.4 The 1992 European Charter for Regional or Minority Languages

The 1992 European Charter for Regional or Minority Languages[510] deals with the use of language by minorities.[511] The preamble reconfirms that many languages "are in danger of eventual extinction," and these languages contribute to Europe's "cultural wealth and traditions." Although indigenous peoples' right to language is not specifically guaranteed by the Charter, this right is guaranteed if an indigenous group is a minority within a state.[512]

5.7.5 Provisions Specifically for Indigenous Peoples

ILOC 169

ILOC 169, Articles 26 to 31 specifically deal with education and means of communication. Article 28 states that indigenous children should be taught to read and write their own indigenous language. In the event this proves impracticable, the indigenous group must be consulted about alternative solutions. ILOC 169 stipulates that states must provide the appropriate resources needed to ensure indigenous peoples' "access to education in their own culture and language" (see Article 15). Indigenous peoples are to be encouraged to acquire fluency in one of the country's official languages while efforts continue to "preserve and promote the development and practice of the indigenous languages of the peoples concerned" (see Article 28).

509 ibid., art. 2(1), adopted by UN Resolution 47/135.

510 The 1992 European Charter for Regional or Minority Languages.

511 ibid., art. 7.4.

512 ibid., art. 1.

In order for the status of indigenous peoples to improve, they need to be aware of their rights and the international documents that protect them. ILOC 169, Article 30 represents a pioneering attempt to ensure that indigenous peoples understand their rights in relation to labour, economic opportunities, education and health matters, social welfare, “and their rights deriving from this convention.” ILOC 169 suggests that, if necessary, people are to be informed about these rights by means of mass communication in their own languages.

5.7.6 The 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples

The 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples takes a more holistic approach to the protection of language rights. In addition to dealing with language, the Declaration also discusses oral traditions, philosophies, writing systems, and literature and recognises the right to retain place names and “names for communities, places and persons” (see Article 14). States are also under the obligation to ensure the protection of indigenous rights and that indigenous people understand what is happening during “political, legal and administrative proceedings.”

ILOC 169 and the 1994 Draft United Nations Declaration on the Rights of Indigenous Peoples use a broad approach to language rights and the importance of these rights. Other international legal instruments merely incorporate language rights in order to prevent discrimination, either directly on language grounds or indirectly as a consequence of language barriers.

5.8 Collective Rights

Collective rights are rights that are attributable to and enforceable by a group rather than the individual. The term *collective* or *group rights* have created controversy, and generally, these rights have been discussed in relation to a collectivity, such as peoples, and used to deal with self-determination issues. In some cases, collective is used to refer to the rights of "individuals who 'belong to' certain groups."[513][514]

It has been suggested that the universal acceptance of the individual and collective rights of indigenous peoples constitutes a "necessary precursor to the effective functioning of the international mechanisms established to ensure those rights."[515] This view of collective rights has been promoted because many indigenous peoples collectively own land. The UN has been criticised for focusing on individual rights rather than on the collective rights that are often associated which indigenous issues. The Draft Declaration, however, establishes collective rights to a degree unprecedented in international human rights law.[516]

In addition to the Draft Declaration and ILOC 169, a number of national laws and agreements spell out the collective rights of indigenous peoples.[517] Despite these legal documents, some countries still refuse to recognise collective rights.[518]

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513 Henkin et al., Human Rights.

73 Thornberry P., 1998. "Images of Autonomy and Individual and Collective Rights in International Instruments on the Rights of Minorities," in Autonomy: Applications and Implications, ed. Markku Suksi. Netherlands: Kluwer Law International, pp97-124. See also Kymlicka W., 1995. Ed., The Rights of Minority Cultures. Oxford, UK: Oxford University Press. Also Sanders D., 1991. "Collective Rights," Hum Rts Q 13 pp368–386.

515 Cerda S., (from Argentina), speaking on behalf of the Latin American and Caribbean Group (GRULAC), see UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed June 2005.

516 See UN World Conference Against Racism (Online) http://www.unhchr.ch/html/racism/00-indigenousguide.html. Accessed June 2007.

517 ILO Convention 107 of 1957, updated to Convention 169 of 1989.

518 Genocide Convention 1948.

Problems concerning the recognition of collective rights are not uniquely applicable to Britain. Internationally, in terms of recognising collective rights, the difference in wording between 107 and the newer 169 Conventions of the International Labour Organisation[519] may suggest a U-turn in the recognition of collective rights. Article 11 of convention 107 states: 'The right of ownership, collective or individual, of the members of the populations concerned over the lands which these populations traditionally occupy shall be recognised.'[520] Much ambiguity remains regarding the recognition of collective rights,[521] with no clear internationally agreed resolution. [522]

5.8.1 Collective Rights in International Law

When the term *indigenous peoples* is interpreted to mean "a sum of individual beings," it concurs with the individual approach adopted in the majority of international human rights legal instruments. A more accurate definition, however, might state that the right in question is applied to individuals who are indigenous or belong to an indigenous group. The assigning of rights and duties collectively to peoples is problematic. There are more problems when there are differences of opinion in the group, especially about the appointment of a person authorised to

519 Conventions 107 and 169 of the International Labour Organisation (ILO), part of the UN. ILO Convention Concerning Indigenous and Tribal Peoples, 1989 (No. 169) and ILO Convention Concerning Indigenous and Tribal Populations, 1957 (No. 107).

520 ILO Convention Concerning Indigenous and Tribal Populations, 1957 (No. 107), art. 11. Bold added.

521 Meanwhile, ILOC 169, art. 14 states that "the rights of ownership and possession of the peoples concerned over the lands which they traditionally occupy shall be recognised." Arguably, this might still be interpreted to mean collective rights through the use of the plural term peoples, but it does not expressly specify the concept of collective rights in the face of positions adopted on this question by countries, such as Great Britain. This is possibly a deliberate ploy calculated to encourage signatures to the convention. The notion of collective rights applying exclusively to land may prove less controversial.

522 Kymlicka W., 1995. Multicultural Citizenship: A Liberal Theory of Minority Rights. Oxford: Clarendon Press. Kymlicka believes the question is far more interesting in the context of international law. He defends group-differentiated rights for minorities with five key tiers: (1) liberal premise, (2) conceptual premise, (3) empirical premise, (4) value premise, and (5) specification premise.

represent the group and make decisions on their behalf. For the provisions to be effective, individuals must be able to rely on them, regardless of their collective circumstances and not only where there is violation of the rights of the group as a whole.

The suggestion that indigenous peoples as a collectivity have legal capacity and are bearers of individual rights does not resolve these problems. Certain rights, especially human rights, are prescribed for individuals, but they lose force or become impracticable when related to a group. This complex debate lies beyond the scope of this thesis; however, it may serve to illustrate the very different paradigms of indigenous and non-indigenous societies.

Although indigenous representatives have repeatedly stressed the importance of collective rights and the collective nature of their societal arrangements, especially in relation to rights of self-determination and land-ownership issues, when attempting to establish provisions, non-indigenous state representatives have favoured an individual centred approach. For example, Articles 7 and 8 of the 1994 Draft Declaration states “indigenous peoples have a collective and individual right.” This may merely reflect the ongoing debate, it may represent an attempt to reconcile the two paradigms’ points of view, or it may be a genuine attempt to protect the rights of indigenous peoples by ensuring that paradigmatic controversies do not prevent or reduce the intended effect of the provisions.

There is a need to address hierarchical or priority rights when an individual and a collective right are in conflict. Draft Declaration, Article 34 states “indigenous peoples have the collective right to determine the responsibilities of individuals to their communities”; however, the effect of Article 34 is limited by Article 33, which stipulates that there is the duty to act in accordance with “internationally recognised

human rights standards," and this is re-emphasised in Article 45, which states that no state, group, or individual may act in a manner that violates the UN Charter.

An individual may have rights and duties to the collective, which, in turn, has duties to comply with international human rights provisions. This can cause a debate about the rights of the individual in relation to the rights of the community when there is a conflict between the two. Therefore, the issue of collective rights is far from resolved. Perhaps the best practice would be to view many rights as provisions for the individual, especially as far as human rights are concerned; however, the fact that these rights cannot easily be accommodated in the framework of individual rights does not constitute grounds for ignoring the claims about collective rights.

5.8.2 Provisions Specifically for Collective Rights

Philosophically, most international documents deal with collective rights in relation to indigenous peoples' rights to self-determination and natural resources.[523] As seen above, this can cause debate about how to apply specific provisions about indigenous peoples' rights.

ILOC 169

ILOC 169 has been described as a "mosaic of different approaches which refer to different entities as bearers of rights or duties."[524] Article 1 states that the provisions in the Convention are designed for "tribal peoples in independent countries whose…conditions distinguish them from other sections of the national community." The term *peoples* is repeated in Article 1 and throughout the document; however, the

523 ACM Report No. 16, 16–17.

524 Meijknecht A., Towards International Personality.

term *people* has caused much debate, especially in terms of the concept and right to self-determination as provided for in Article 1 of the ICCPR and ICSECR.

The Draft UN Declaration on the Rights of Indigenous Peoples discusses individual rights for indigenous peoples and group or community-based rights. Collective rights provisions are commonly related to issues associated with self-determination and land. Articles 25 to 27 relate to land and environment, in particular, and follow a collective rights-based pattern.

In general, the discussion about collective rights occurs in the context of land, often raising questions about the transfer of ownership of collectively held land. For example, there are discussions about who should represent the group in negotiations, whether all members must be included in negotiations, and whether all members must agree to the outcome of negotiations.

In terms of the application of international law in the collective sense, the situation lacks clarity.[525] Various nation states, however, have found collective rights doctrines problematic, and instead, they favour an approach in which indigenous peoples are referred to as "persons belonging to indigenous groups."[526] Indigenous representatives have stated that the refusal to recognise collective rights is discriminatory to indigenous people.[527]

525 Anaya J., UNPO Monitor 1999, sub. 2 states that international law does not preclude collective human rights.

526 Meijknecht A., Towards International Personality, sub 26, quoting Carmen A., of the International Indian Treaty Council. 131 Gray, 1999, p. 3. 132

527 ibid.

5.9 Environment and Natural Heritage

5.9.1 Concern, Status, and Trends

Indigenous communities have a wide variety of belief systems and concerns, and they often have a profound reverence for the natural world.[528] In spite of their reverence for the natural world, environmental devastation often affects indigenous people to a disproportionate degree because it impacts on the areas they occupy or the resources they use.[529] The United Nations Permanent Forum on Indigenous Issues (UNPFII) recently discussed this issue, which is not surprising given the number of violation of indigenous peoples' rights related to environmental resources.[530]

The knowledge and traditional practices of indigenous peoples often contribute to the sustainable, equitable development and proper management of the environment.[531] The contribution made by indigenous peoples to the cultural heritage of humanity, biodiversity, and maintenance of the global environment is gradually winning recognition and is reflected in key documents, such as CBD 8(j), which is closely related to indigenous environmental knowledge.[532] In addition, the 1998 Declaration on the Right and Responsibility of Individuals, Groups and Organs of Society to Promote and Protect Universally-Recognised Human Rights and Fundamental Freedoms acknowledges in its preamble that international co-operation

528 Deputy Secretary-General Celebrates "Diversity And Richness" Aboriginal People Give to Human Family at Ottawa Awards Ceremony, 1 April 2003.

529 Doc. E/C.19/2003/L.14.

530 In northern Chile, mining companies had been using and contaminating waters on indigenous lands. To add insult to injury, any moves by these communities to develop their agriculture have been condemned.

531 Discrimination Against Indigenous Peoples and Draft United Nations Declaration on the Rights of Indigenous Peoples, Distr. General E/CN.4/Sub.2/1993/29/Annex I, 23 August 1993.

532 See UN Huricane (Online) http://www.unhchr.ch/huricane/huricane.nsf/NewsRoom?OpenFrameSet. Accessed June 2005.

is needed to eliminate states' refusals "to recognise the right of peoples to self-determination and the right of every people to exercise full sovereignty over its wealth and natural resources."

5.10 Right of Development

Globally, indigenous peoples groups, national governments, and regional organisations have contributed to the production of the United Nations Development Program (UNDP) Indigenous Peoples: A Policy of Engagement report, which recognises indigenous peoples' rights and their significant contribution to development. This report reflects the ethos of the UN's millennium goal. It promotes long-term partnerships with indigenous groups, encourages participation in decision-making, and recognises the need for coexistence with indigenous cultural, economic, and sociopolitical systems. UNDP focuses on key areas of crucial importance to indigenous peoples: for example, natural resources, protection of intellectual and cultural property rights, political participation, and the right to development and informed consent to developments affecting indigenous peoples.[533] UNDP has incorporated a carrot-dangling incentive programme, rewarding communities able to demonstrate that they have achieved a reduction in poverty through conservation and the sustainable use of biodiversity.[534]

The World Summit on Sustainable Development (WSSD) examined successful sustainable development programmes and recommended their use in

533 Doc. E/C.19/2003/18. See also UNDP and UNHCHR pilot project designed in 2003 to build indigenous peoples' capacity –United Nations Economic and Social Council, E/C.19/2007/3/Add 12 Permanent Forum on Indigenous Issues Sixth Session New York May 2007

534 For more information, see the United Nations Equatorial Awards forexample recognition to the successful initiatives undertaken by communities in the Equator area to promote relief against poverty by means of conservation and sustainable use of biological diversity. Such initiative allows giving support and promotion to the World Summit on Sustainable Development and to the Agreement on Biodiversity

impoverished areas, along with environment management and biodiversity conservation. It emphasised learning through the exchange of information and recommended that this exchange of information should be encouraged at the international level by agencies such as UNDP and at national and inter-regional levels. For example, the Denmark and Greenland Home Rule on Indigenous Rights and Sustainable Development partnership arrangement was launched at WSSD and included the UNDP as a key partner. This partnership aims to encourage the sharing of information and provide indigenous peoples with an effective say and the opportunity to influence policy making associated with sustainable development.[535]

The UN's millennium goals, which are being pursued by UNDP, are a break-through development. UNDP has been actively trying to involve indigenous peoples in the decision-making process associated with sustainable development. It also conducted the Summit of Indigenous Peoples' Perspectives on the Goals to discover indigenous peoples' perspective about the UN's millennium goals. [536]

5.10.1 Right to Development

The 1986 Declaration on the Right to Development[537] is anthropocentric and adopts the paradigm that "the human person is the central subject of the development process and that development policy should therefore make the human being the main participant and beneficiary of development." In addition, the right to development is approached in a holistic manner. This Declaration acknowledges the need for the recognition and enforcement of other individual rights in order for the

535 Doc. E/C.19/2003/18.

536 See Summit of Indigenous Peoples Perspectives on the Goals sponsored by the Tebtebba Foundation, which has consultative status with the Economic and Social Council. For more information, see doc. E/C.19/2003/NGO/2.

537 Adopted by General Assembly Resolution 41/128, 4 December 1986.

right to development to be effective. This idea is the basic premise for the Declaration:

> The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized. (Article 1)

There are references throughout the Declaration that link the right to development with political, social and economic order and the idea that "all human rights and fundamental freedoms are indivisible and interdependent" (Article 6.2). Although it makes no specific mention of indigenous peoples, the Declaration frequently reaffirms nondiscriminatory principles and refers to the rights of peoples:

> States shall take resolute steps to eliminate the massive and flagrant violation of the human rights of peoples and human beings affected by situations such as those resulting from apartheid, all forms of racism and racial discrimination, colonialism, foreign domination and occupation, aggression, foreign interference and threats against national sovereignty, national unity and territorial integrity, threats of war and refusal to recognise the fundamental right of peoples to self determination.

The Declaration seeks to promote respect for fundamental rights such as the right to development. The reference to developing countries (see Article 4) suggests that certain groups merit special consideration; however, delegating responsibility to states fails to provide a solution in cases (not infrequent) where it is the state that is guilty of violating the rights of indigenous peoples. It states that the right to development will be a consequence of "full realisation of the right of peoples to self-determination." This specifically includes provisions set down by the International Covenants on Human Rights and the rights to full sovereignty over natural wealth and resources.

The Declaration, in keeping with the spirit of CBD article 8(j), imposes the duty of adopting policies that promote "active, free and meaningful participation in development and in the fair distribution of the benefits resulting there from" on states. This duty is intended to improve the well-being of the entire population and all individuals.

5.10.2 An Agenda for Development: Report and Recommendations of the UN Secretary General, 1994[538]

The agenda for development report produced by the UN Secretary General describes development as the "foremost and far-reaching task of our time." In addition, it points out that 'achieving development and continual, cooperative and effective action towards it are crucial for humanity's common future." There is some attempt in the report to explain the concept of developmental rights, and it describes five dimensions associated with development: (1) peace, (2) the economy, (3) environmental protection, (4) social justice, and (5) democracy. The report emphasises government responsibility to protect "poor and marginalized peoples" and calls on governments to be proactive in seeking "policies which offer them avenues towards productive involvement in their societies and economies."

The 1995 Copenhagen Summit on Social Development[539] recognised the great diversity of human society and acknowledged that certain members of society are disadvantaged and may require special attention and protection. Although there was no specific focus on indigenous peoples, the Summit noted that certain groups

538 UN doc. A/49/665 1994 and General Assembly Resolution 1992 47/181.

539 Report of the World Summit for Social Development, 1995. UN doc. A/CONF.I66/9 and General Assembly Resolution 50/161.

face specific problems, many of which are experienced by indigenous peoples, and that there is a need to "respond more effectively to the material and spiritual needs of individuals, their families and communities in which they live throughout our diverse countries and regions." The Summit also examined spiritual concerns, which are relevant to indigenous peoples.

Since 1992, most international conferences have recognised that development and the right to development mean economic, environmental, and social development. Not infrequently, indigenous peoples fall within the broad categories identified in the Copenhagen Declaration. This Declaration focuses on special issues, such as countries in economic transition, gender discrepancies, minorities, displaced persons, and refugees, and it reaffirms its mission to respond to those in immediate need and suffering the greatest distress. There is a specific reference to indigenous peoples, and it calls on states to "recognise and support indigenous people in their pursuit of economic and social development, with full respect for their identity, traditions, forms of social organisation and cultural values."[540]

There is also the recognition of rights such as the right to self-determination, which concerns many groups, including indigenous peoples, and the Declaration stresses the participation "by all" as a principle.

540 The 1995 Copenhagen Development on Social Development.

5.10.3 Right to Development Specifically Related to Indigenous Peoples

The right to development exists as a principle in the UN Draft Declaration. Development is a key word in this document, and most of its provisions refer to development, especially Part V, Articles 19 to 24:

> Indigenous peoples have the right to maintain and develop their political, economic and social systems, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities.[541]

The Declaration stipulates that should indigenous peoples be deprived of their means of "subsistence and development" they are entitled to just compensation. In addition, there should be provision for special "measures for the immediate, effective and continuing improvement of their economic and social conditions."[542] In addition, the Declaration specifies that indigenous people have the right to decide on developmental priorities and strategies and administer this development through their own institutions.

5.10.4 ILOC 169

ILOC 169 reflects the interdependency between rights to development and social, economic, and cultural rights. The provisions that deal with the rights to development are more precisely pinpointed in Article 7, and it contains the following key points:

> Indigenous peoples have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions and spiritual well-being and the lands they occupy or otherwise use, and to exercise control, to the extent possible, over their own economic, social and cultural development.'

541 The UN Draft Declaration, part V, art. 19–24, in particular, art. 21–23.

542 The UN Draft Declaration.

The emphasis is on indigenous peoples' right to participation in decision-making processes involving national and regional developmental plans that may impact upon them. Governments are called on to protect and preserve the territories inhabited by indigenous peoples and to consider environmental impact assessments as a prerequisite to implementing planned development activities. In addition, ILOC 169 states "the improvement of the conditions of life and work and levels of health and education of the peoples concerned…shall be a matter of priority in plans for the overall economic development of areas they inhabit." It is clear that the right to development is closely related to other rights in international documents that deal with general human rights and specific indigenous peoples' rights.

The list of Millennium goals was drawn up at the 2000 UN Summit (as discussed above in relation to inland water.) The time-scale for the achievement of the goals stipulates the year 2015; targets include, for instance, halving the proportion of people living on less than a dollar a day, without access to safe drinking water and/ or afflicted by hunger. More specifically, one of the challenges that has been recognised as crucial is the judicious administration of water so as to ensure sustainable development.

Progress in this regard is understandably slow, as changes in policy, institutions and regulations relating to the use of water need to be adapted in accordance with the principles of sustainable development. The goal posts are constantly moving in the light of the added challenge of climatic change; this, it is predicted, will increase water scarcity by 20%.[543] Hence, addressing the present problems is not sufficient as the scene is set for additional difficulties in the future.

543 UNWWDR, 'Water for People Water for Life.'

5.11 Chapter Conclusion

Indigenous people's circumstances have gained in international attention and in some areas of the globe their circumstances have improved. Meanwhile, however, in other areas they are faced with serious discrimination and human rights abuses. Although, there is great variety within the world's indigenous populations they share specific concerns and difficulties, many of which have been highlighted in the previous chapter, such as political determination, cultural and linguistic preservation of identity, ownership and preservation of natural resources and land, as well as often having additional poverty and health related problems.

On both national and international levels there is a failure to recognise indigenous peoples as active participants or stakeholders with regard to inland water ecosystem resources. Their participation is frequently remains unsought in policy and strategy formation or in debates about the general management and preservation of inland water ecosystems. In many cases, the cultural infrastructure of indigenous peoples does not include the type of institutional capacity necessary in order to successfully promote and protect their interests within the international legal-political framework. To achieve effective dialogue, proactive efforts on the part of "established" institutions are required in order to ensure the fruitful involvement of indigenous groups.

The CBD makes great efforts to involve indigenous communities in COP meetings; however, their involvement is often limited, and they have no power of veto.

Although the CBD recognises the importance of involving indigenous communities, it is noteworthy that the CBD is quick to recognise nation state

sovereignty over resources and remains evasive when it comes to the question of respecting the collective rights of indigenous people.

Perhaps this may be ascribed to a belief that such goals lie beyond the scope of the CBD, and that their attainment is a process which must be approached gradually, lest it lead to the alienation of sovereign nations, causing the retraction of their participation and a distortion of attempts at political coalition building on the common issues in respect of global ecosystem welfare. In short the CBD recognises the sovereignty of nation state and that the power over resources lies with the government of the day.

5.11.1 CBD Article 8(j) states:

> 'Each Contracting Party shall, as far as possible and as appropriate (…) 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.'

In effect, this may serve as a "get out clause", placing power over indigenous communities firmly into the hands of the domestic government.

Besides the wider political issues at stake in terms of the recognition of the rights of indigenous people, there remains the need to recognise that certain groups are more immediately affected by global trends in inland water degradation, whether such communities are indigenous or another type of community close to the resource. It must be recognised that such groups will be more immediately and more

acutely affected than the rest of the population by any change in the condition of the inland water ecosystem resources.

The basic right to water as a human right must be recognised. According to the Covenant on Economic and Cultural Rights (CESCR) in November 2002, the 145 countries, which have ratified the International CESCR shall ensure that everyone has access to safe and secure drinking water, equitably and without discrimination. Moreover, such communities should have an active and valuable stake in the welfare of the ecosystems, and should be involved in any decisions affecting the inland water ecosystem, and that any specific or unique traditional knowledge should be welcomed and incorporated within the overall policy plans for the resource.

The specific rights of indigenous people must be respected and upheld if these communities are to enjoy a truly effective participatory role. Arguably, whereas from a purely financial world view, it is possible to divorce inland water ecosystem resource management from cultural, spiritual and political rights and the recognition of such rights, the indigenous paradigm is to a greater degree holistic, hence recognition should to some extent be regarded as undermining the status of the community as a whole.

In essence, while there may be recognition of the importance or value of traditional indigenous knowledge, when this is not accompanied by recognition of what may be regarded as the basic socio-political and human rights of the community, no effective collaboration on ecosystem management is possible.

If the role is purely as advisory in respect of traditional concepts, but there is no recognition of indigenous rights, the right to consultation or vetoing rights which make it possible to say " no" to proposed measures, it is probable that the 'relationship' will prove hollow and ineffectual.

CHAPTER SIX

CONCLUSION

6.1 Introduction

The quality and quantity of inland water, including groundwater and wetlands, are being threatened by factors such as development and increased population. The international community is concerned about these threats to inland water, and has started to take steps to ensure the problem does not become critical. For example, more than 130 parties signed the Ramsar Convention on Wetlands, which is designed to protect and preserve more than 1,100 internationally important wetland sites that cover more than 96 million hectares.[544]

It has been suggested that, because of the variety of water management systems operating around the world, research should be undertaken to identify the type of management system needed to ensure the quality and quantity of inland water: "A lot of work must be done, such as empowerment of water users and security of water rights tenure…user/stakeholder participation is fundamental to improving water management."[545]

Initially, the discussion of water resources was conducted between neighbouring states. Over time, there has been increased general awareness that inland water is affected by activities and events that occur beyond the boundaries of neighbouring states. There is the growing realisation that the effective management

544 Stokke O. S.,and Thommesses O. B., 2003. Eds., Yearbook of International Co-operation on Environment and Development 2002/2003. London, UK Earthscan Publications, pp61–68. See Ramsar (2002) Ramsar Convention on Wetlands: Has it made a Difference (Online) http://www.ramsar.org/key_law_bowman2.htm. Accessed July 2005.

545 Figueres et al., 2003. Rethinking Water Management, p234.

of inland water requires the participation of all stakeholders, and discussions about inland water have expanded to include local people, state governments, regional organisations, and the international community.

The international recognition of the need for effective inland water management resulted in the UN's International Year of Freshwater 2003, which sought to raise awareness and instigate action among all stakeholders, generating action "not only by governments but also by civil society, communities, the business sector and individuals all over the world."[546]

The focus has shifted from locating resource availability to evolving strategies aimed at resource preservation. CBD, which reflects this shift in focus, is considered a groundbreaking international instrument because it is designed to ensure the quality and quantity of inland water resources around the world. However, the principles in the CBD are not revolutionary; the Convention merely reaffirms international concepts, but the CBD is a forerunner in the efforts to consult with all stakeholders in order to put these principles into action.

There are some indications that natural disasters, such as flooding and drought, will affect greater numbers of people in the future.[547] With an accurate assessment of the status and trends of water, it may be possible to preempt some of these disasters, or at least to predict their occurrence, by the use of effective inland management strategies. In addition to averting future natural disasters involving inland water, a global initiative to address the status of water and trends affecting the world's water quantity and quality, is urgently required, because approximately one

546 Annan K., 2004. Every Body Counts, Every Drop Matters: United Nations Classroom Resource Guide on Water. New York: United Nations Publications, p4.

547 WMO 2006

third of the world's population lacks adequate supplies of drinking water, and almost half of the world's land is without water.

Water consumption is expected to increase in future; lack of water could limit economic progress and increase the cost of living. Consequently, the need for water to meet the demands of agriculture, industry, and human life could lead to regional and international conflicts. A global strategy to ensure the quality and quantity of inland water is long overdue, even if such a strategy were to be devised today; increased water demands and scarcity will result in several billion people suffering water stress by 2032. Therefore, devising strategies that will ensure the quality and quantity of inland water in future is a matter of considerable urgency.

6.2 International Legal Development Relevant to the Status of and Trends Affecting Inland Water

Today, there are large numbers of environmental challenges, but "water-related problems have been recognised as the most immediate and serious threat to humankind."[548] If access to water continues to decrease, then one in three people will live in water-stressed areas by 2025. An awareness of water-related problems has started to penetrate the international consciousness.[549] Ideally, the use of strict rules and regulations would resolve these problems, but, because of the conflicting interests of the various countries, before any global strategy to safeguard and ensure the quality and quantity of inland water can be devised, many obstacles remain.

548 Toepfer K., UNEP Water for the Future, iii. Burroughs W. J., 2003. Climate. Cambridge, UK: Cambridge University Press, p218. Kegley Thomson C. W., 2005. World Politics: Trend and Transformation. Supply city, state: Wadsworth, p366.

549 Guerquin et al., World Water Actions, p4.

In order to overcome these obstacles to effective inland water management, the international community will first need to achieve the harmonisation of data collection methods, definitions, and terminology, and provide all stakeholders with workable solutions to water-related problems. The first step in this process involves the creation of resolutions and conventions that establish the principles of effective water management; the second step involves producing legal instruments to ensure that these principles are acted upon.

6.2.1 International Collaboration

The international community realises that the effective management of inland water is a global responsibility. As a result, a large number of key organisations and institutions have developed conventions[550] that have started to standardise definitions and terminology and establish the principles needed to build effective inland water management systems.[551]

This international collaboration has resulted in the formation of several agencies and programmes responsible for improving the quality and quantity of inland water around the world: for example, the World Water Council, Global Water Partnership, Global International Water Assessment, and the UN World Water Assessment Programme. These agencies and programmes are providing an ongoing global assessment of the status and trends affecting inland water resources, and conducting fora to raise awareness of the problem or to support countries in their

550 These international efforts to address water-related problems also include the Convention on Wetlands, FAO [spell out], the International Centre for Living Aquatic Resources Management (ICLARM), UNEP; DIVERSITAS [spell out], Wetlands International; IUCN [spell out], World Bank, and the Bonn Convention. For more information about organizations working on inland water, see UNEP/CBD/SBSSTTA/3/INF/4.

551 The development of a standardized definition in the Ramsar Convention is discussed by Ambasht R. S., Modern Trends in Applied Aquatic Ecology, p27 0 and Wescoat and White, Water for Life, p312.

efforts to evolve sustainable management systems for their inland water resources. Although these international initiatives are important, it is necessary that the strategies devised at international level are implemented at national level; national level action should include citizen information schemes and regulations that ensure the quality and quantity of inland water.

6.3 Status and Trends Affecting Indigenous Communities

There are an estimated 200 to 300 million indigenous people living around the world. Although these peoples have different cultures, lifestyles, histories, and politics, they experience many of the same problems. Frequently they are victims of discrimination and violence, their land is being exploited and their subsistence economies destroyed. As a result, statistics within many indigenous cultures reveal a far higher rate of depression, alcoholism, and suicide than those of the majority or dominant populations.

Indigenous peoples often live closer to inland water resources and are more acutely affected by detrimental changes than the inhabitants of mainstream societies; therefore, it is not surprising that the well-being of these indigenous peoples is directly connected to the - of inland water. The health of inland water impacts directly upon the survival of many indigenous peoples.

The value of involving indigenous communities in the sustainable management of inland water resources has been recognised by some nation states; these local communities ‘have been given the power’ to make decisions and take action to manage inland water resources. In addition, international agencies and documents, such as the CBD, have recognised the importance of using indigenous peoples’ traditional knowledge about the sustainable use of inland water in the effort

to ensure the quality and quantity of water; however, not all countries welcome the inclusion of indigenous peoples in the management of any resource, including that of inland water.

Indigenous peoples' efficient use of inland water is often labour-intensive, and as a result of the large numbers of indigenous people moving to cities in the quest for a better life, insufficient numbers may remain to conduct sustainable water management. This trend could be reversed if programmes were put in place to compensate indigenous peoples for the use of their traditional knowledge to sustainably manage inland water. CBD, Article 8(j) supports this idea and suggests that indigenous people should be consulted before any development that affects inland water is carried out, and that they should be compensated for the use of their expertise and knowledge.

Indigenous peoples are also beginning to realise that they need political power in order to ensure that they are part of the decision-making process involving the use of resources, they are forming international groups to deal with specific issues which affect them: for example, the Asia Indigenous Peoples Pact was established to deal with the loss of land. These efforts at international co-operation echo the recommendations of groups such as the UN Working Group for Indigenous Peoples.

6.3.1 International Legal Development Relevant to the Statusof and Trends Affecting Indigenous Communities

International law recognises the link between self-determination and cultural, economic, and political identity, and many of the concepts related to this link can be traced back to colonial treaties. Although there are international laws to protect an

individual's rights, in spite of the recognition that collective rights are needed to promote individual rights in indigenous communities, few international laws protect the collective rights of indigenous peoples, and many indigenous groups must rely on the goodwill of the surrounding state to ensure their collective rights.

As a result, international law is moving away from a position which has a narrow focus, the protection of indigenous peoples from discrimination, towards the provision of specific laws designed to protect indigenous peoples from the loss of land and other natural resources, including inland water.

The international community has organised fora, conferences and working groups and enacted conventions to deal with problems experienced by indigenous peoples. In many cases, these activities involved indigenous representatives, and this has resulted in an improved understanding of the concerns of indigenous communities, especially those relating to land rights and natural resources, such as inland water.

In addition to involvement in international organisations and advising on international documents, some indigenous groups have created charters that promote their collective rights and called upon international law to recognise these rights. The first step in the recognition of the collective rights of indigenous peoples occurred when the UN Human Rights Council was replaced by the Commission on Human Rights on 3 April 2006. At its first session in June 2006, the Commission adopted the 1994 Draft Declaration on the Human Rights of Indigenous Peoples and recommended it to the General Assembly for adoption. If this Declaration is adopted, it will pave the way for the creation of international law that will define and protect the collective rights of indigenous peoples.

Even if the Draft Declaration is not adopted, the following issues will be discussed and debated by the international community in the next few years: the right to self-determination; the loss of land and natural resources; the right to culture and language; and intellectual property rights, especially in relation to traditional knowledge about medicinal plants. Although the World Intellectual Property Organization recently rejected the call for provisions that guarantee compensation for the use of indigenous peoples' traditional knowledge, this will remain a key issue, because of its potential impact on the development of sustainable inland water management systems.

6.4 Last Words

The world is facing many ecological challenges, and CBD is promoting programmes that are examining all the planet's ecosystems. These programmes adopt a holistic approach that no longer aims to protect one single species or deal with a single issue. They emphasise that human beings are an integral part of the ecosystem, and that human activity is having a negative impact on the environment.

The CBD is one of the first international treaties to recognise the rights of indigenous people and their knowledge, innovations, and traditions. It states that, when use is made of the traditional knowledge of indigenous peoples, their consent is required, and there should be an equitable sharing of benefits.

Although a domestic law may not conform to international law, international law can have an important influence on the development of domestic law, especially in the sphere of human rights law and the recognition of new principles. International law can apply political pressure on local and national judicial systems. For example, a judge in a country that considers itself part of the modern world may follow

international laws and principles associated with the human rights of indigenous peoples in order to conform to the views of the international community and avoid appearing backward.

While it is true that some countries do not follow international laws to deal with issues associated with indigenous peoples, there are other countries that are establishing domestic mechanisms. One such example is the Waitangi Tribunal in New Zealand, which has been established to develop human rights law, with special relevance for indigenous peoples. In essence, this is a forum in which land and cultural rights may be addressed, and information about these issues disseminated.

This thesis has highlighted the failure of international law to protect the intellectual rights of indigenous peoples, highlighting the difference between the indigenous social paradigm and the social paradigm endorsed by mainstream societies. For example, indigenous peoples place the interests of the community above the interests of the individual; they do not believe that the rights of the individual should be permitted to threaten the community. There is also a difference in the way in which indigenous people view natural resources, especially water. In many indigenous cultures, water has a symbolic, spiritual meaning, and the health of water is directly related to the spiritual welfare as well as the health of the community. This type of belief system encourages communities to take care of their resources.

Despite some aggressive attempts to assimilate indigenous cultures into mainstream society, many of their ideas about the sustainable use of natural resources are starting to gain ground within the international community. They are beginning to influence international law and politics, exemplified by the shift away

from the view that environmental issues are the sole responsibility of a nation state towards notions of common heritage and global responsibility for natural resources.

In the increasingly interlinked global world, there is recognition that all parties need to play their part in protecting the environment. It is now known that damage to one environment can have global consequences. This is especially true in the case of inland water, because the health of inland water affects the health of a large variety of living organisms, including that of human beings. The health of inland water will become increasingly important as the water needs of agriculture, industry, and human life put more pressure on already fragile inland water sources.

Indigenous peoples will be the first to suffer the consequences of damaged inland water supplies. Unfortunately, despite the international community's recognition that inland water is threatened, plus the development of improved legal instruments, and the increased involvement of indigenous communities, inland water nevertheless remains under pressure. In order to ensure the quality and quantity of inland water and reduce the impact of water stress on indigenous communities, the degradation of inland water ecosystems must cease. If this does not happen, indigenous communities may need to move or to receive compensation for the loss of their traditional lifestyles.

6.5 Future Perspectives

As indicated, there are a number of provisions, both general and specific, within international law which award rights to indigenous people. However, there is much that suggests that these are inadequate, and that indigenous communities were not consulted in the course of their formulation. However, the real question appears to be, not the adequacy or otherwise of the rights accorded, but how they are to be

enforced. States may make a multitude of promises in the form of international doctrines, but the question remains how such benefits may be ensured and where redress may be sought in the event of the violation or infringement of such principles.

To summarise, does changing or developing international instruments effectively alleviate the current situation and affect the status and trends which impact upon the global indigenous population? If not, what steps must be taken? It appears that developments may come both from within, i.e., where the internal political climate is favourable towards recognising and upholding the rights of indigenous peoples, and making better provision for their needs, and from without, where the international political ethos promotes the recognition and upholding of indigenous peoples' rights, and exerts political or legal pressure on individual nation states to comply.

The CBD is distinguished by its recognition of the importance of the unique contribution of indigenous and local communities; however, other than promoting the recognition of the 'value' of traditional knowledge in the preservation and management of inland water ecosystems, and encouraging consultation and benefit-sharing when the resource is developed, the CBD does not actively pursue any strategy devoted to enforcing the basic human rights of such local communities within the international arena.

In the key principles, listed within what is effectively the constitution of the convention, the CBD states that nation states hold the ultimate rights regarding decisions pertaining to inland water ecosystems, and need only consider the input of indigenous and local communities in so far as this may be practicable, rather than stating categorically that international human rights to water resources needed to

sustain life should be recognised and upheld at all times. This would suggest that governmental plans for resource development take precedence over the human rights and needs of affected peoples.

Moreover, although the CBD encourages the participation of indigenous communities, this call rings somewhat hollow, in view of the fact that such communities are denied power of veto, and that there appears to be little attempt to further the pursuance of their rights within international law and policy. The CBD's principle agenda appears to concern the welfare of biological diversity within eight distinctly recognisable ecosystems.

Had the CBD intended to widen this agenda to achieve tangible improvement in the situation of indigenous communities, a far greater degree of collaboration and transparent information-sharing in respect of international legal and political rights, and developments furthering the recognition and enforcement of the rights of indigenous communities, over and above domestic implementations, would have been required. A necessary feature would have been the establishment of an international watchdog monitoring panel or ombudsman able to accept petitions directly from indigenous groups, providing access to professionals capable of communicating the paradigmatic rights and concerns of indigenous populations within the traditionally occidocentric international legal infrastructure.

There are a variety of international doctrines with which the CBD might have sought to align itself vocally in order to further the cause and improve the situation of indigenous populations, had this truly been the intention.The General Comment on the right to water, adopted by the Covenant on Economic and Cultural Rights (CESCR) in November 2002, states that:

> "The human right to water entitles everyone to sufficient, affordable, physically accessible, safe and acceptable water for personal and domestic uses". It required governments to adopt national strategies and plans of action which would allow them to "move expeditiously and effectively towards the full realisation of the right to water".

These strategies should, arguably, be based on human rights law and principles, and should cover all aspects of the right to water and the corresponding obligations of countries.

Within international legal doctrines as a whole, a general consensus of agreement on the definition of the term ‘indigenous person’ might serve to facilitate the development of rights specifically applicable to this group, neither opening the door to a flood of applicants, nor postulating impossibly narrow criteria, which would place half the world’s indigenous populations outside the scope of such provisions. Even a ‘loose’ definition, with recommendations for specific indigenous community recognition as a factor, would be beneficial.

In view of the fact that many of the areas believed to possess the highest biological diversity are inhabited by indigenous people, it can hardly come as a surprise that the CBD has made an effort to involve indigenous communities in the international dialogue regarding biological diversity; yet it appears that these attempts do not go far enough.

International law is in a constant state of evolution. An examination of the progress achieved in the course of the last century in law pertaining to indigenous communities or specific environmental human rights reveals considerable development.

Fundamentally, there has been recognition that traditional attempts to eliminate discrimination and to provide indigenous communities with the same

general rights as the rest of society were insufficient, and that the establishment of specific rights for indigenous peoples were, and are, required: these should, firstly, ensure that indigenous people enjoy the same rights as everyone else, i.e. special provisions may be required in order to overcome obstacles faced specifically by indigenous communities, before they can enjoy more universal rights.

Secondly, international legal and political doctrines need to take on board the specific paradigms of indigenous communities, rather than prescribing legal provisions from the standpoint of a system based on what may often be very different foundations

Thirdly, indigenous communities should be ‘allowed’ greater participatory involvement in the design of international legal and political doctrines: ultimately, no other group is more familiar with their specific needs and concerns.

Fourthly, with the participation of indigenous communities, a system should be established to inform indigenous communities of their rights and to ensure the enforcement of these rights so as to achieve their practical implementation.

The formulation of international legal documents is ineffectual as it lacks proactive methodologies and stratification to ensure that they are carried out in practice.

Globally there is a dawning realisation of social and environmental responsibility. This includes human rights and the rights of communities ‘outside’ the mainstream. At the same time, there is an increasing demand for greater transparency as regards the operations of conglomerates, and much greater corporate social responsibility. However, despite the current trend whereby conglomerates wish to be ‘seen as green’, at present such corporations can dodge the issue by paying lip service to this ethos in the form of minor token concessions, thereby

distracting attention from what may be interpreted as a fundamental disregard for human and environmental rights.

The message needs to be passed down to the customer, who, in the final analysis, has the vote; it is in the power of the electorate to influence the introduction of greener policies, commensurate with the green trends currently observed, many of them directly attributable to customer demand. Should customer and political demands coincide, this will lead to the inclusion of issues relating to environmental and social responsibility on future political manifestos and platforms. All in all, there has certainly been a measure of progress in respect of the recognition of the parlous state of inland water and the plight of indigenous communities.

However, there remains much to be done to address the situation in which we currently find ourselves: the current status and trends affecting both inland water ecosystems and indigenous communities will inevitably become increasingly urgent in view of the increasing demands on the environment, combined with the irreversible degradation suffered in the past, which has led to climate change and irregular water patterns.

This is an exciting time, partly because of the revolution in awareness which has led to a recognition of global problems; but the daily toll on the environment is both wasteful and unsustainable; environmental degradation occurs at a faster rate than that at which damage already suffered can be reversed; key factors are the growing world population and the rise in consumption as nations become increasingly industrialised. Unfortunately, many inhabitants of the developed nations, which currently far exceed all others in respect of wasteful consumption, remain blissfully unaware of the effect their way of life has on the planet as a whole, and of the unequal burden placed on indigenous communities.

There is a crying need for education so as to increase awareness of social responsibility; and of the fact that every individual has a responsibility and a role to play in improving the situation and exerting political pressure to achieve solutions. However, at present there is a genuine lack of understanding on the part of many individuals about the resources to whose degradation they are contributing, and what they can do about it. At present, the focus on the part of countries, which are the chief over-consumers, on terrorist threats rather than the environment may delay the process.

It is to be hoped that in future the instruments already in place will be developed and built upon so as to improve the status and trends which affect both inland water ecosystems and indigenous people; the danger is that some indigenous communities today are already facing a daily battle for survival; changes in the law may not occur in time to prevent their extinction.

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