EXPLORING THE LEGAL FOUNDATIONS OF THE CBD REGIME

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
THE DEPARTMENT OF INTERNATIONAL RELATIONS

JUNE 2019

Approval of the Graduate School of Social Sciences

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ABSTRACT

EXPLORING THE LEGAL FOUNDATIONS OF THE CBD REGIME

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June 2019, 222 pages

The aim of this thesis is to explore legal foundations of the global biodiversity regime established within the scope of the Convention on Biological Diversity (CBD) including a historical background and pre-CBD conventions on the conservation of biological diversity. In addition, the post-CBD era including Protocols on biosafety; liability and redress on biosafety and access and benefit-sharing established under the CBD regime are also explained to have a comprehensive understanding on the particular issue area: "Biological Diversity". For this purpose, the significance and concepts of biological diversity, features of the CBD and its three Protocols are examined. These Protocols are: i) The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, ii) The Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Liability and Redress and iii) The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

Keywords: Biological Diversity, Biosafety, Liability and Redress, Access and Benefit-sharing.

ÖZ

BİYOLOJİK ÇEŞİTLİLİK SÖZLEŞMESİ (BÇS) REJİMİNİN YASAL TEMELLERİNİN İNCELENMESİ

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Yüksek Lisans, Uluslararası İlişkiler Bölümü
Tez Yöneticisi : Doç. Dr. Şule Güneş

Haziran 2019, 222 sayfa

Bu tezin amacı Biyolojik Çeşitlilik Sözleşmesi (BÇS) kapsamında oluşturulan küresel biyolojik çeşitlilik rejimini bir tarihçe ve BÇS öncesi kabul edilen biyolojik çeşitliliğin korunmasına yönelik sözleşmeleri de içeren şekilde incelemektir. Ayrıca, biyogüvenlik; biyogüvenliğe ilişkin sorumluluk ve telafi ve erişim ve yararların paylaşımına ilişkin BÇS kapsamında oluşturulan Protokolleri de kapsayacak şekilde, BÇS sonrası dönem de belirli bir konu alanında kapsamlı bir anlayışa sahip olmak amacıyla açıklanmaktadır ki bu alan 'Biyolojik Çeşitlilik'tir. Bu amaçla, biyolojik çeşitliliğin önemi ve kavramları, BÇS ve üç Protokolü'nün özellikleri incelenecektir. Bu Protokoller: i) BÇS'ye Ek Cartagena Biyogüvenlik Protokolü, Cartagena Protokolü'ne Ek Sorumluluk ve Telafiye ilişkin Nagoya-Kuala Lumpur Protokolü ve BÇS'ye Ek Genetik Kaynaklara Erişim ve Bunların Kullanımından Doğan Yararların Adil ve Hakkaniyetli Paylaşımı Sözleşmesi'dir.

Anahtar Kelimeler: Bioyolojik Çeşitlilik, Biyogüvenlik, Sorumluluk ve Telafi, Erişim ve Yarar Paylaşımı

To My Beloved Son,

ACKNOWLEDGMENTS

I would like to express my deepest appreciation to my supervisor Assoc. Prof. Dr. Şule Güneş for her guidance, deep knowledge, motivation, advice, patience and support while writing this thesis. Without her guidance and continuous support, completion of this thesis would not seem possible.

I would also like to thank to rest of the Examining Committee members Prof. Dr. Oktay F. Tanrısever and Assoc. Prof. Dr Ülkü H. Ulusoy for their constructive comments and encouragement.

I am grateful to my husband Mr. Cemal Yazır for his invaluable support and understanding and to my Dearest Ömer Çağrı Yazır for his patience and sacrifice for his computer times during this thesis. I also would like to extend my special thanks to my family for their continuous support and prayer for me.

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LIST OF ABBREVIATIONS

ABS	Access and Benefit-sharing
AHWG	Ad Hoc Open-ended Working Group
AIA	Advance Informed Agreement
BCH	Biosafety Clearing-House
BSWG	Ad Hoc Working Group on Biosafety
BS COP-MOP	The Conference of the Parties to the CBD serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety
CBD	Convention on Biological Diversity
CHM	Clearing-House Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on Migratory Species
CNA	Competent National Authority
COP	Conference of the Parties
COP-MOP	Conference of the Parties serving as the meeting of the Parties to the Protocols
EIA	Environmental Impact Assessment
EU	European Union
ExCOP	First extraordinary meeting of the Conference of the Parties
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GMO	Genetically Modified Organism
ICCP	Intergovernmental Committee for the Cartagena Protocol
ILCs	Indigenous and Local Communities
INC	Inter-governmental Committee for the Convention on Biological Diversity
IPR	Intellectual Property Right

ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
LMO	Living Modified Organism
LMO-FFPs	Living Modified Organisms Intended for Direct Use as Food or Feed, or for Processing
MAT	Mutually agreed terms
MEA	Multilateral environmental agreement
MOP	Meeting of the Parties
NBSAP	National Biodiversity Strategy and Action Plan
NFP	National Focal Point
NP COP-MOP	The Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol
PIC	Prior Informed Consent
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNGA	United Nations General Assembly
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

> The air you breathe, the water you drink and the food you eat all rely on biological diversity... Without plants there would be no oxygen and without bees to pollinate there would be no fruit or nuts…[1]

In this thesis, my aim is to explore legal foundations of the global biodiversity regime established by the Convention on Biological Diversity (CBD) with a historical background, including pre-CBD conventions on conservation of biological diversity as well as agreements on biosafety; liability and redress on biosafety and access and benefit-sharing stemming from the utilization of genetic resources established under the CBD regime. For this purpose, I have firstly examined the significance and concept of biological diversity in Chapter I. Afterwards, I have went on reviewing the major conventions adopted before the CBD concerning the protection of biological diversity and the role of international cooperation, particularly the role of the IUCN and UNEP, on the way to establish a global regime for conservation of biological diversity. At the last part of the 1st Chapter, I have examined the text of the CBD in terms of its objectives, obligations and treaty bodies established to achieve these objectives.

The second chapter is dedicated to the key features of the CBD which make it unique in the field of conservation of biological diversity. While deciding on which features of the CBD are significant and peculiar to it, I have taken into account the features that bring novelties to the conservation of biological diversity that are unprecedented, such as comprehensiveness, recognition of sovereign rights of states on their

[1] Damien Carrington, "The Briefing: What-is-Biological Diversity-and-Why-does-It-Matter-to-Us," *The Guardian,* March 12, 2018, Environment Section. https://www.theguardian.com/news/2018/mar/12/what-is-biological diversity-and-why-does-it-matter-to-us (June 13, 2018).

biological resources and recognition of traditional knowledge of indigenous and local communities (hereinafter ILCs) in relation to biological diversity and those having significant importance for the implementation of the CBD such as adoption of framework agreement approach. While examining these features, each characteristic is addressed both within general concept and the CBD in particular. Thus, it is considered that it may become possible to see other related arguments on the protection of biological diversity and to gain a complete understanding on the issues concerned.

The third and fourth Chapters address the Protocols adopted as a part of global biodiversity regime under the CBD to comprehend this regime in its entirety. It would not be wrong to say that the CBD is the parent convention of these protocols. There are three Protocols operating within the context of the CBD: i) The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, ii) The Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Liability and Redress and iii) The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

As quoted at the very beginning of the Introduction, biological diversity is as important as air, water and food for survival of humanity; however, its rapid loss is one of the most prominent environmental problems of our era. Here, it is worth noting that the concept of biological diversity refers to the "variability" among living organisms and it is addressed at three levels: i) genetic diversity, ii) species diversity and iii) ecosystem diversity.

Our planet has never lost its biological resources as fast as today throughout history. While the Earth has experienced mass extinctions several times, they have occurred as part of natural processes. Therefore, the nature itself was capable of recovering the damages stemming from such destructions. However, current extinction is mainly caused by human activities at unprecedented rapid rates and nature does not have any ability and capacity to remedy their devastating impacts on its own. The five main

causes of biological diversity loss were identified as habitat change, overexploitation, invasive alien species, pollution, and climate change in the Millennium Ecosystem Assessment (MEA) published in 2005. BBC has reported a very recent scientific study on 1 February 2019 that was published in the Journal Biological Conservation.[2] This study showed that the main causes of loss of biological diversity are still valid as stated in the MEA. According to this study, while bees, ants and beetles doing vital jobs for disposal of animal wastes are being lost at dramatic rates, some other species like houseflies and cockroaches are likely to blast as they can live in a human-made environment and have gained the ability of resistance to pesticides.[3] Experts find the findings of the study as "gravely sobering" and not consolatory for future generations.[4]

After experiencing adverse impacts of rapid loss of biological diversity or may be rather recognizing its economic value as a result of new developments in biotechnology, the countries started to search new approaches to find solutions to these problems. Past experiences showed that global environmental problems cannot be solved by each individual state or even by regional cooperation; their solution rather requires a holistic approach. It is the case for the conservation of biological diversity and ecosystems, as well.

Furthermore, as the environmental problems have transboundary effects and do not recognize borders of sovereign states, nation states recognized that they are interdependent to each other for the solution of environmental problems. As a result of searching how to govern such interdependence for the solution of environmental problems, the basis of international environmental regimes was started to be built, particularly in the form of international agreements. States have signed many international environmental agreements concerning biological diversity for the

[2] Matt McGrath, "Global insect decline may see "plague of pests," *BBC,* https://www.bbc.com/news/science-environment-47198576 (May 8, 2019).

[3] Ibid.

[4] Ibid.

protection of specific species and areas as well as the regulation of the certain activities, however, most of them have limited scope or cover limited regions.

The United Nations Conference on the Human Environment (the Stockholm Conference) in 1972 constituted a basis for the governance of environmental issues at global level. Its output, the Stockholm Declaration provided a sound legal framework for biological diversity protection at international level. Therefore, after the Stockholm Conference, major international conventions regarding conservation of biological diversity were developed and adopted one after another. Establishment of the United Nations Environment Programme (UNEP) after the Stockholm Conference also made a positive impact to tackle with the problems encountered in the field of conservation of biological resources.

The CBD is the first global and most comprehensive agreement addressing all aspects of biological diversity. It does not only aim at conservation of all biological diversity but also equitable sharing of benefits arising from the use of genetic resources for sustainable development. Conservation of biological diversity is also one of the most contentious issues in the North and South controversy. The primary reason behind this conflict is the unequal distribution of biological diversity on the Earth as the vast majority of biological diversity is located in tropical countries of the South. Therefore, the main controversy focuses on the access to genetic resources and equal benefit-sharing stemming from the utilization of genetic resources used such as pharmaceuticals or biotechnological products. In terms of North-South controversy, the CBD is regarded as a compromise between the interests of the North and the South in relation to access to genetic resources and equal benefit-sharing stemming from their utilization through biotechnology.

Recognition of significant contributions of indigenous and local communities embodying traditional life styles to the conservation and sustainable use of biological diversity in the CBD is one of the landmarks of the CBD. The CBD accepts that traditional communities are dependent on biological diversity and their unique role is vital for the continuation of the life on Earth. Traditional knowledge has gained

much importance in the sectors such as pharmaceuticals, cosmetics, and food. For example, almost all plant-based drugs we are using today have been developed by using traditional methods of traditional communities.

Genetically modified organisms (GMOs) have led to endless environmental, ethical and health concerns throughout the world. In the case of GMOs, genetic material of organisms has been modified through genetic engineering methods to have desired characteristics from irrelevant organisms. For this purpose, for example, a gene from an insect is injected to the crops, tomatoes or chickens to improve their resistance to the diseases, ability to adapt to the environmental conditions or productivity. There are two opinions fundamentally opposite to each other. On the one hand, proponents of GMOs have been highlighting the potential benefits of GMOs; on the other hand, opponents have been expressing serious concerns about the potential risks of GMOs especially to the human health and environment. The main reason of this polarization is "scientific uncertainty" resulting from the application of the genetic engineering techniques modifying the genetic structure of organisms.

The Cartagena Protocol on Biosafety was the first attempt to form a binding global regime to address risks resulting from biotechnology by contributing to its potential for the improvement of human well-being on a global scale. The CBD had already laid down the legal basis for a protocol on biosafety in its Article 19(3). According to this provision, the Party States would consider the need and formation of a protocol to address safe transfer, handling and use of living modified organisms (LMOs) arising from biotechnology that may possess the risk of adverse effects on the conservation and sustainable use of biological resources. However, the CBD did not use the term "GMOs", instead, it used the term of "living modified organisms" or "LMOs" in its contracted form.

During the negotiations of the Cartagena Protocol, the positions of the countries were different from those in the CBD. During the CBD negotiations, controversies had occurred between developed countries having advanced biotechnology to use genetic resources and developing countries possessing those genetic resources (the North -

South controversy). However, in the course of negotiations of the Biosafety Protocol, controversies have occurred among the countries which are major Exporters of genetically modified crops; the countries which are concerned about the risks of genetically modified crops on the environment and human health and the countries whose economies are intensively based on agriculture.

The Cartagena Protocol on Biosafety (hereinafter the Cartagena Protocol) was adopted on 29 January 2000 and entered into force on 11 September 2003. It is a supplementary treaty to the CBD that addresses the transboundary movements of LMOs stemming from modern biotechnology. It is formulated on the basis of "precautionary principle". It incorporates "precautionary principle" as contained in the Rio Declaration into the Protocol, which is regarded as its most prominent achievement. In the international environmental law, the precautionary principle applies to decision-making on the environmental issues if there is “scientific uncertainty” or “lack of consensus” concerning a significant threat. The Cartagena Protocol established an international biosafety regime focusing specifically on transboundary movements of LMOs. The scope of the Protocol covers the safe transfer, handling and use of living modified organisms resulting from biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health.

However, a legally-binding provision was not included in the Cartagena Protocol for the compensation of the damages caused by the transboundary movements of LMOs since no agreement had been reached. Because of strong opposition of developed countries for inclusion of any provision on liability in the Cartagena Protocol, this issue was postponed to a later date in order not to jeopardize the other agreed issues on biosafety. As a conclusion, Article 27 of the Cartagena Protocol was inserted for the development of “international rules and procedures” regarding liability and redress for damage stemming from international movements of LMOs no later than four years of its ratification.

The issue of liability and redress is the key but the most controversial issue in the international environmental law as it requires taking necessary response measures to remedy and compensate damage caused by pollutant activities, in our case damage caused by modern biotechnology. Without a binding liability and redress regime, the Cartagena Protocol remains incomplete, since it could not protect the countries that import LMOs or people from the likely adverse effects of the LMOs. The Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety was adopted to complete the missing part of the Cartagena Protocol, which is the liability and redress of damage caused by transboundary movements of LMOs on 15 October 2010 in Nagoya, Japan, and it entered into force on 5 March 2018.

The Supplementary Protocol is the first global agreement defining the "damage to biodiversity" and establishing legal consequences stemming from such kind of damage. Its scope covers "*damage resulting from living modified organism which finds their origin in a transboundary movement*". Therefore, while the Cartagena Protocol only deals with damage that happens *at the time of* the transboundary movements of the LMOs, the Supplementary Protocol can also apply after long years following the introduction of a LMO into the environment. This is very important because a damage stemming from a LMO will probably occur after long years following its introduction into the environment.

However, determining the legal approach of such liability regime was the most contentious issue during the negotiations. As a result, the liability and redress regime of the Supplementary Protocol was formed on the basis of on an administrative approach instead of a civil liability regime. In the case of administrative approach, the competent national authority is responsible for monitoring the movements of LMOs within the borders of the country and taking required actions against damage or risk of damage. However, a civil liability regime allows countries that have been exposed to damage to demand from exporter countries to bear costs to remedy the damage stemming from LMOs. However, the Supplementary Protocol does not completely exclude the option of civil liability rules and procedures. The Party States

have the option of applying their existing civil liability laws, rules and procedures or even they can develop and apply civil liability laws, rules and procedures.

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (hereinafter the Nagoya Protocol) was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014. It is the second supplementary treaty to the CBD and supports the achievement of third objective of the CBD: the fair and equitable sharing of benefits arising from the utilization of genetic resources. Although the CBD did not specify the issue of access and benefit-sharing (ABS) as an issue to be addressed under a separate Protocol, the problems encountered during the implementation of the ABS regime of the CBD revealed the need for a separate Protocol regarding ABS.

The scope of the Nagoya Protocol covers all genetic resources that are covered by the CBD and applies to the benefits stemming from the utilization of these resources. According to the Nagoya Protocol, "utilization of genetic resources" refers to research and development activities (R&D activities) on the genetic and biochemical composition of living organisms to find their genetic traits and possible usage areas. For example, the Nagoya Protocol applies if a research will be conducted to explore biochemical composition of genetic resources to develop a drug. However, for example, genetic resources that are traded for direct consumption or as an ingredient in a drinking product are not covered under the Nagoya Protocol. The Nagoya Protocol also applies to traditional knowledge associated with genetic resources and the benefits arising from the utilization of this knowledge.

The Nagoya Protocol establishes obligations on access, benefit-sharing and compliance. Anyone who wants to get access to genetic resources of a provider country needs to obtain prior informed consent (PIC) of this country. Countries hosting the genetic resources should establish clear and transparent access legislation and regulations. Benefit-sharing obligations of the Nagoya Protocol aim at providing a fair and equitable share of the benefits stemming from the use of genetic resources or traditional knowledge with the countries and traditional communities on the basis

of mutually agreed terms (MAT). A compliance regime is established with the expectation of preventing bio-piracy. Indeed, developing countries enthusiastically welcomed the Nagoya Protocol considering that it could be an opportunity to prevent bio-piracy and make contribution to their development process. It establishes specific obligations to support compliance with the domestic regulations of the provider country and provides contractual obligations to be reflected in MAT. The Nagoya Protocol is applicable when genetic resources are not covered by another specific access and benefit-sharing instrument.

Biodiversity regime of the CBD contains text of the CBD, its Protocols, their decision-making bodies, secretariat, financial mechanism and subsidiary organs and considerations of these organs. This regime functions on the basis of the organs of the CBD. For example, the Conference of the Parties to the CBD is serving as the meeting of the Parties to these Protocols. The Secretariat of the CBD in Montreal is also functioning as the Secretariat to these Protocols. This biodiversity regime was also constituted on the basis of international environmental legal principles. They are included in the texts of the CBD and in its Protocols either implicitly or explicitly such as the principles of sovereignty of states over biological resources, common concern of humankind, prevention principle, precautionary principle, cooperation principle, inter-generational and intra-generational equity, and no harm principle. In order to form standards of behavior, guidelines, guiding principles, best practices and model contractual clauses were developed. Comprehending such a global regime in its entirety does not only provide us with a whole picture including the aspects need be strengthened but also may provide us with future perspectives to which extent this regime can evolve.

CHAPTER 2

A HOLISTIC APPROACH WITH HISTORICAL BACKGROUND TO THE CONSERVATION OF BIOLOGICAL DIVERSITY

2.1 The Concept of Biological Diversity

The concept of biological diversity refers to "the number, variety and variability of living organisms."[5] On the one hand, it measures the total number of different types of living organisms and on the other hand, to which extent they are different from each other.[6] Article 2 of the Convention on Biological Diversity (hereinafter the CBD) defines biological diversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."

Differing from the concept of "biological resources" consisting of physical elements of ecosystem like a certain species of bird, "biological diversity" is mostly related to the variations among living organisms, for example, the variety of dog species, the genetic variability of a particular crop like rice and types of forests.[7] Wood argues that "*biological diversity is a concept on a higher logical plane than biological*

[5] Luc Hens and Emmanuel K. Boon," Causes of Biodiversity Loss: a Human Ecological Analysis," *MultiCiencia* 1, (2003): 2. https://www.researchgate.net/publication/242213748_Causes_of_Biodiversity_Loss_a_Human_Ecological_Analysis (May 31, 2019).

[6] Ibid., 2.

[7] Belgian Clearing House Mechanism, "What is Biological Diversity," http://www.biodiv.be/biodiversity/about_biodiv/biodiv-what (April 4, 2018).

resources."[8] Hence, he claims that biological diversity is the "source of biological resources" and that is the critical point of its value for human being.[9]

Similarly, definition of biological diversity in the CBD refers to the "variability" rather than aggregation of biological resources. Biological diversity encompasses diversity at three levels: i) genetic diversity, ii) species diversity and iii) ecosystem diversity. The first level diversity is "genetic diversity" that refers to the diversity of genes within a species.[10] A gene is the basic unit of heredity and its combinations generate the characteristics unique to a living organism.[11] Genetic factors including genes, chromosomes and DNA are not only responsible for similarities of organisms but also determine the uniqueness of each individual within each species.[12]

A species is formed by individuals possessing genetic composition unique to them, which means a species may have different populations each of which carries different genetic combinations.[13] Thus, conservation of genetic diversity requires preservation of different populations of a species.[14] As one of the key pillars of the CBD, conservation of genetic diversity plays a vital role for human well-being since the higher levels of genes' variations means that individuals of a population may possess the more diversified genes that are needed for the adaptation to an

[8] Paul M. Wood, "Biodiversity as the Source of Biological Resources," *Environmental Values* 6 no. 3 (1997): 251. http://www.environmentandsociety.org/node/5723 (October 3, 2018).

[9] Ibid., 251.

[10] D.K. Belsare, *Introduction to Biodiversity* (New Delhi: APH Publishing Corporation, 2007), xii.

[11] Regine Andersen, "Conceptualizing the Convention on Biological Diversity: Why is it difficult to determine the "country of origin" of agricultural plant varieties," *Fridtjof Nansen Institute (FNI) Report* 7 (2001): 9, 10. https://www.fni.no/getfile.php/131834-1469869183/Filer/Publikasjoner/FNI-R0701.pdf (June 1, 2019).

[12] Secretariat of the Convention on Biological Diversity, *Sustaining Life on Earth: How the Convention on Biological Diversity promotes nature and human well-being (*2000): 2. https://www.cbd.int/doc/publications/cbd-sustain-en.pdf (June 7, 2019).

[13] Belsare, xii.

[14] Ibid., xii.

environment.[15] In other words, the more uniform genes contained in organisms may result in the more vulnerable species to diseases which may end up with tragic results. A well-known example is the Great Irish Potato Famine in 1840s. The new potato varieties had low genetic diversity lacking of resistance to the leaf blight disease, therefore, the potato crops had been almost completely destroyed by that disease in consecutive years.[16] During the *Great Famine* approximately one million people in Ireland are estimated to have died of starvation and epidemic diseases, which corresponds to almost one-eighth of the whole population and it was much more destructive comparing to the majority of famines of contemporary world.[17] The genetic diversity contains basic traits of organisms for the benefit of human being for nutrition, medication and adaptation abilities. 10^9 (ten to the power nine) different genes are estimated to exist on the Earth with countless combinations of gene-sequence variations in a population, through which evolution, survival, adaptability and formation of new species becomes possible.[18]

The second level diversity is the "species diversity" that refers to the variety of different species like plants, animals, and micro-organisms. Being the basic unit of biological classification, a species can be defined as "a group of similar organisms that interbreed or share a common lineage of descent" in spite of the fact that there is no universally agreed definition of "a species."[19] A species is made up of populations of which members can interbreed under natural circumstances without any intervention.[20]

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[15] Greentumble Editorial Team, "Why is Genetic Diversity Important for Survival" https://greentumble.com/why-is-genetic-diversity-important-for-survival/ (June 1, 2019)

[16] V. Ramanatha Rao and Toby Hodgkin, "Genetic Diversity and Conservation and Utilization of Plant Genetic Resources," *Plant Cell, Tissue and Organ, Culture,* 68 (2002): 2. https://www.cbd.int/doc/articles/2002-/A-00109.pdf (April 5, 2018)

[17] Jim Donnely, "The Irish Famine," *BBC,* http://www.bbc.co.uk/history/british/victorians/famine_01.shtml (June 13, 2019).

[18] Hens and Boon, 5.

[19] Ibid., 4.

[20] Kai Koko, "Biological Diversity Law," *Working Papers of the Finnish Forest Research Institute* 1, 2004: 158.

Until today, 1.75 million species is estimated to have been identified, it is assumed that there are actually about 13 million species, ranging from 3 to 100 million.[21] Biological diversity hotspots have the highest level of biological diversity on Earth. Myers *et al* describes "biological hotspots" as places "where exceptional concentrations of endemic species are undergoing exceptional loss of habitat" and these 25 hotspots comprising only 1.4% of the land surface of the Earth are the habitats of almost 44% of all species of vascular plants and 35% of all species animals with backbones.[22]

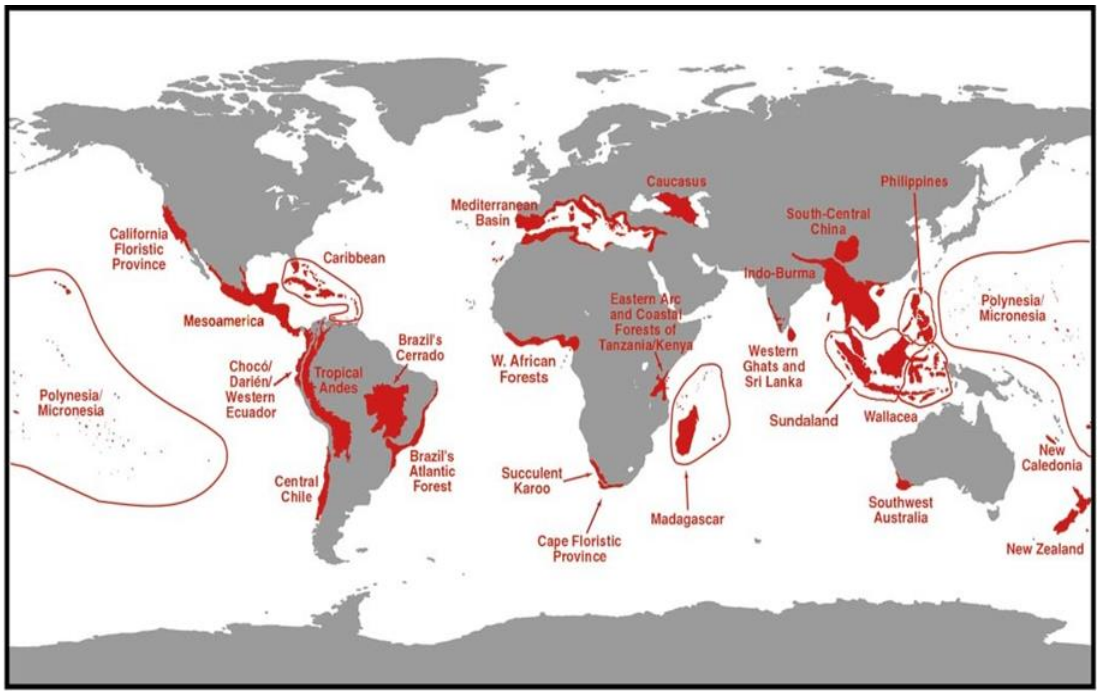

Figure 1. The twenty-five (25) hotspots. The hotspot areas consist of 30±3% of the red fields.[23]

Indeed, what is meant by loss of biological diversity in practice is usually the loss of species diversity. Although it is criticized that activities on protection of species diversity have mostly focused on large and charismatic species living in large

[21] Secretariat of the CBD, *Sustaining Life on Earth,* 2.

[22] Norman Myers et al., "Biodiversity hotspots for conservation priorities," *Nature*, 403 (2000): 853. http://www.cienciaviva.pt/divulgacao/cafe/World_biodiversity_hotspots.pdf (June 14, 2019).

[23] Ibid., 853.

habitats (i.e. elephants, pandas etc.), in turn, it can be said that thanks to this approach it may be possible to protect other smaller species sharing the same habitat with these large species.[24]

The third level is the most inclusive one, which is the "ecosystems diversity" referring to the communities of living organisms namely plant, animal and micro-organism and their non-living environment like rain forests, deserts and oceans.[25] Odum describes ecosystem as "a unit of biological organization made up of all of the organisms in a community interacting with the physical environment…"[26] Article 2 of the CBD defines ecosystem as a functional unit where communities of living organisms and their non-living environment interacting with each other. An ecosystem contains all living and non-living constituents required for its organisms' functioning and their long-term survival.[27] The tremendous range of terrestrial and aquatic environments on Earth has been classified into a number of ecosystems including tropical rain forests, grasslands, wetlands, coral reefs and mangroves.[28] The loss of any species may not necessarily mean a drastic impact on the ecosystem because the significance of a species varies in a community, however, still, it is not yet clearly known which of these species is key to ecosystem, therefore, as a beginning, all species are regarded to be crucial for sustainability of the ecosystems and conserving biological diversity.[29]

[24] Secretariat of the CBD, *Global Biodiversity Outlook 1 (GBO 1),* (Canada: Secretariat of the CBD, 2001):70. https://www.cbd.int/gbo1/chap-01-02.shtml (June 25, 2019).

[25] J. Whitfield Gibbons and Karen L. McGlothlin, "A Changing Balance," in *Loss of Biodiversity*, eds. Sharon L. Spray and Karen L. McGlothlin (Lanhman: Rowman&Littlefield Publishers, Inc. 2003), 30.

[26] Eugene P. Odum, "The Strategy of Ecosystem Development," *Science* 164 no. 3877 (1969): 262. http://habitat.aq.upm.es/boletin/n26/aeodu.en.html#fntext-1 (October 3, 2018).

[27] Andersen, 5.

[28] Southeast Asian Fisheries Development Center, Aquaculture Department, *Genetic, species, and ecosystem diversity*. Aqua Farm News, 12(3) (1994): 2-3.
http://hdl.handle.net/10862/2511 (March 8, 2018)

[29] Koko, 158.

2.2 Significance of Biological Diversity

Biological diversity is the basis of life. The survival and future of humankind entirely depends on biological diversity. It constitutes "the web of life" in which all life forms are interacting with each other and their surrounding environment since it provides goods and services for the maintenance of human life.[30] According to Chazournes biological diversity is the *"sine qua non"* for the ecological sustainability and for all living organisms to overcome disasters, diseases and detrimental conditions.[31] Therefore, loss of biological diversity results in destructive consequences for humankind. It means food and clean water shortage that would result in malnutrition and epidemic diseases and absence of livelihood possibilities. Furthermore, it also means lack of medicinal products since most of modern medicines are gained from the tropical plants to treat some critical diseases like cancer. That is to say, loss of any plant species used in the treatment of a particular disease may lead the disease to become untreatable. Use of biological diversity for the development of medicines is immense that can be expressed in billion dollars. For example, annually more than $6 billion are spent for medicines derived from tropical plants in the United States.[32]

Furthermore, biological diversity plays an important role in the spiritual and cultural life of societies.[33] Cultural values of the societies are shaped on their biological environment. Human beings always interact with their surrounding nature and they are impressed by its excellence and power and reflect their connections with nature in arts, lifestyles and values, for instance, they use plants and animals as symbols of their identity, such as by using them in flags, figures and other visual arts.[34]

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[30] Secretariat of the CBD, *Sustaining Life on Earth,* 2.

[31] Laurence B. De Chazournes, **"**Convention on Biological Diversity and Its Protocol on Biosafety," *Audiovisual Library of International Law,* (2009), 1. http://legal.un.org/avl/pdf/ha/cpbcbd/cpbcbd_e.pdf (June 1, 2019).

[32] Andrew W. Torrance, "Bioprospecting and the Convention on Biological Diversity (Third Year Paper)," *Digital Access to Scholarship at Harvard* (2000): 1. http://nrs.harvard.edu/urn-3:HUL.InstRepos:8965586 (April 18, 2019).

[33] De Chazournes, 1.

[34] Secretariat of the CBD, *Sustaining Life on Earth,* p.6

According to many scientists, with the current rapid rate of biodiversity loss, the Earth experiences the sixth mass extinction event, but it is not similar to past extinction events that occurred as part of natural evolution processes by natural disasters and Earth's changes.[35] This extinction is driven by human activities and even it is much bigger than the extinction event that led to the disappearance of dinosaurs on the planet [36] In fact, current rapid loss of species is at the fastest rate, which is estimated to be between 1000 and 10,000 times higher than that of in the history of the Earth or expected natural extinction rate.[37]

In 2001, Kofi Annan, Secretary General of the United Nations launched the "Millennium Ecosystem Assessment (MEA)" upon the requests of governments for scientific information on the impacts of ecosystem change for human well-being and how to respond to these impacts. The MEA aiming at evaluating the results of the ecosystem change and finding a scientific basis for actions on the protection and sustainable use of ecosystems for human well-being and to provide assistance to decision makers and public was completed in four years between 2001 and 2005. More than 1,360 experts from 95 countries participated in the assessment and the experts' findings were presented in seven-volume reports.[38] The Reports include scientific evaluation of the present conditions and future prospects of the ecosystems and their services (such as food, fresh water, forest products, natural resources, climate and flood control and provision of habitat) together with their implications for human well-being and the recipes for the restoration, protection or improvement

[35] Kieran Noonan-Mooney and Christine Gibb, "How are People Affecting Biodiversity, The Major Threats to Biodiversity and the Role of People," in *the Youth Guide to Biodiversity,* eds. Christine Gibb et al., (Rome: FAO, 2013), 14. http://www.fao.org/docrep/017/i3157e/i3157e02.pdf (April 17, 2019).

[36] Ibid., 14.

[37] Species Extinction – The Facts, https://cmsdata.iucn.org/downloads/species_extinction_05_2007.pdf (January 8, 2018)

[38] Millennium Ecosystem Assessment (MEA), *A Toolkit for Understanding and Action: Protecting Nature's Services. Protecting Ourselves,* (Island Press, 2007), 1. https://www.unpei.org/sites/default/files/PDF/ecosystems-economicanalysis/MEA-A-Toolkit.pdf (July 9, 2018).

of the sustainable use of ecosystems with an integrated and holistic view.[39] Ecosystems and Human Well-Being: Synthesis Report of the MEA revealed that the most important five direct drivers of biological diversity loss and ecosystem change are human-induced factors: habitat change (such as conversion of forests to agricultural fields, physical modification of river bed or water withdrawal from rivers and loss of coral reefs), overexploitation, invasive alien species, pollution, and climate change.[40] As an example, it is demonstrated in the *Global Biodiversity Outlook 2* that annual decrease in forests is estimated as 6 million hectares mainly due to converting forests to agricultural land and the number of large fish has declined by 2/3 in 50 years.[41] In the case of continuation of this situation at this level, humans will be unable to meet their needs to survive.

Global Biodiversity Outlook 3 reaffirmed that the five direct drivers still remain as the main reasons of biological diversity loss even in an increasing intensity.[42] Moreover, owing to the (bio)technological developments, the alteration of species diversity through biotechnology have loomed on the horizon as an important new reason for biological diversity loss.[43]

2.3 Towards a Global Regime for the Conservation of Biological Diversity from Stockholm to Rio

The modern international system is based on Westphalian model which was built upon sovereign nation-states.[44] However, environmental problems have

[39] Ibid., 1.

[40] Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Biodiversity Synthesis.*, (Washington DC: World Resources Institute, 2005), 8. https://www.millenniumassessment.org/documents/document.356.aspx.pdf (April 17, 2019).

[41] Secretariat of the CBD, *Global Biodiversity Outlook 2 (GBO 2)* (Montréal: Secretariat of the CBD, 2006), 2. https://www.cbd.int/doc/gbo/gbo2/cbd-gbo2-en.pdf (May 12, 2019).

[42] Secretariat of the CBD, *Global Biodiversity Outlook 3 (GBO 3)* (Montréal: Secretariat of the CBD, 2010), 9. https://www.cbd.int/doc/publications/gbo/gbo3-final-en.pdf (May 12, 2019).

[43] Sharon L. Spray and Karen L. McGlothlin, "The Global Challenge," in *Loss of Biological Diversity* ed. Sharon L. Spray and Karen L: McGlothlin (Lanham: Rowman&Littlefield Publishers, 2003), 150.

transboundary effects and do not recognize borders of sovereign states. Therefore, a nation-state cannot have entire control on the environmental problems which causes damage on the territory of other states within its jurisdiction.[45] Therefore, having recognized that states are interdependent to each other the solution of environmental problems, they started to seek the ways of managing such interdependence, as a result of which the basis of international environmental regimes was built.[46] For example, as many rivers cross the borders of states, they are interdependent to each other and should act together to prevent river pollution that causes damage to the biological diversity of other states.

2.3.1. Early Examples of Environmental Regimes for the Conservation of Biological Diversity

There have already been international efforts to safeguard biological diversity even in nineteenth century for the protection of some species and ecosystems on the basis of economic concerns of states.[47] However, starting from the early years of twentieth century, international treaties have increasingly started to concentrate on the conservation of species for the benefit of wildlife and conservation of ecosystems.[48] So far, states have adopted approximately one hundred international environmental agreements related to biological diversity most of which focus on protecting particular species and areas in addition to regulation of the certain activities.[49] However, these efforts were not addressed through a holistic approach and did not constitute a global biodiversity regime.

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[44] Edith Brown Weiss, "The Rise or the Fall of International Law?," *Fordham Law Review* 69 no. 2 (2000): 346. http://ir.lawnet.fordham.edu/flr/vol69/iss2/2 (July 3, 2018).

[45] Alara İstemil, "The Black Sea Environmental Regime: Challenges&Opportunities," (Unpublished Master's Thesis, Middle East Technical University, 2004), 17.

[46] Ibid., 17.

[47] De Chazournes, 1.

[48] Ibid., 1.

[49] Desiree M. McGraw, "The CBD - Key Characteristics and Implications for Implementation," *RECIEL* 11 no. 1 (2002): 20.

International regimes emerge as a form of collective behavior to obtain expected results by means of common principles, norms, rules and decision-making procedures for a specific issue area and restrict the actions of sovereign states.[50] Krasner defines "regimes" as "sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of facts, causation and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice."[51] Regimes and agreements are not similar to each other; agreements are *ad hoc* and mostly "one-shot" arrangements, however, regimes are built to facilitate these arrangements.[52] A regime contains formal agreements signed by the states as the main actors of international system, international organizations, and accepted norms of international behaviour, private international law or a composition of all these structures.[53]

Regimes on the conservation of biological diversity have been mostly formed within the framework of international environmental regimes of the United Nations.[54] International environmental regimes have emerged in many different types, for instance whaling, conservation of endangered species, desertification, fisheries, forests, climate change and biological diversity.[55] The biodiversity regime of the

[50] İstemil, 17.

[51] Stephen D. Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," *International Organization* 36, no. 2, (1982), 186. http://www.ir.rochelleterman.com/sites/default/files/krasner%201982.pdf (May 13, 2019). (May 13, 2019).

[52] Ibid., 187.

[53] David L. Downie, "International Environmental Regimes and the Success of Global Ozone Policy," in *The Global Environment: Institutions, Law & Policy* 4th edition eds. Regina S. Axelrod and Stacy VanDeveer, (USA: CQ Press, 2015), 83.

[54] Roslina Ismail, "Policy Convergence in International Biodiversity Regimes: A Perspective from Malaysia," *International Journal of Humanities and Social Science* 2 no. 19 (Special Issue 2012): 310. http://www.ijhssnet.com/journals/Vol_2_No_19_Special_Issue_October_2012/34.pdf (May 9, 2019).

[55] Pamela Chasek, David L. Downie, and Janet W. Brown, *Global Environmental Politics (5th Edition)*, (Boulder: Westview Press 2010), 205.

CBD is created in the form of framework agreement. In this case, there is a main convention including general principles and obligations and its mandate stipulates making further Protocols on specific issues through COP decisions. Each Protocol to the main convention is a new treaty that is needed to be ratified by the states. Interestingly, while regimes formed for pollution control like regimes for ozone, air pollution, persistent organic pollutants or climate change set forth clear and measurable targets to be achieved within a foreseen timetable, regimes for biological diversity do not impose such kind of rules on the Party States.[56]

The text of the CBD, its Protocols, organs and considerations of these organs form an international regime for a specific issue area: Biodiversity.[57] Some of the most important principles of the biological diversity regime included in the texts of the CBD and its Protocols either implicitly or explicitly. They contain statements that affirm the conservation of biological diversity as a "common concern of humankind"; loss of biological diversity should be prevented at source; lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat (precautionary principle is explicitly stated in the Cartagena Protocol); international cooperation should be promoted (cooperation principle); biological diversity should be conserved and used sustainably for the benefit of present and future generations (inter-generational and intra-generational equity); and activities of States within their jurisdiction do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction (no harm principle).

The norms that refer to the standards of behavior do not have the binding nature of rules.[58] For instance, while a rule is formulated through the expressions of "Parties

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http://faculty.washington.edu/litfin/100/Biodiversity_Regimes_Chasek.pdf (June 20, 2019). See also Ismail, 310.

[56] Chasek, Downie and Brown, 204.

[57] Gudrun Henne and Saliem Fakir, "The Regime Building of the Convention on Biological Diversity on the Road to Nairobi," in *Max Planck Yearbook of United Nations*, 1999), 320. http://www.mpil.de/files/pdf2/mpunyb_henne_fakir_3.pdf (June 6, 2019).

[58] Downie, International Environmental Regimes and the Success of Global Ozone Policy, 90.

shall" "Parties are obliged to" or "Parties are required to"; a norm is intended to be created through the expression of using "Parties should" or "Parties are requested to" to form the standards of behavior.[59] In this sense, the biodiversity regime have developed norms in the forms of guidelines, guiding principles, best practices in several biodiversity-related fields to form the standards of behavior.[60]

The CBD has been criticized for not containing rules that are the specific prescriptions or proscriptions for actions.[61] It obliges Party States to record or monitor biological diversity, integrate conservation and sustainable use into national plans, policies and strategies and maintain traditional knowledge and practices in relation to conservation of biological diversity.[62] However, it does not set up binding specific targets and timetables for the states to prevent rapid loss of biological diversity.[63] In order to compensate this deficiency, the COP-10 to the CBD adopted the Strategic Plan for Biodiversity for 2011-2020 with its decision X/2 in Nagoya, in 2010[64]. This plan contained concrete specific biodiversity targets for the first time. They are called as the 20 Aichi Biodiversity Targets. The Aichi Biodiversity Targets consist of 5 strategic goals and 20 targets to be used as an overarching framework for national obligations of Party States to achieve objectives of the CBD. Party States are requested develop their own national targets in their national biodiversity strategies and action plans (NBSAPs) by using the Strategic Plan and Aichi Targets.[65]

The 2011-2020 Strategic Plan for Biodiversity was a significant achievement; however, an analysis conducted to assess achievements and commitments towards

[59] Ibid., 90.

[60] Henne and Fakir, 340.

[61] Ibid., 320.

[62] Chasek, Downie and Brown, 228.

[63] Ibid., 230.

[64] UNEP/CBD/COP/DEC/X/2 of 29 October 2010, *The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets*, https://www.cbd.int/decision/cop/?id=12268 (May 12, 2019).

[65] Ibid.

the Aichi Biodiversity Targets in 2016 revealed that although many Party States to the CBD set up national targets in their National Biodiversity Action Plans, their progress and commitments are not sufficient to attain the targets by 2020.[66] According to an assessment made on the basis of national reports by five prominent NGOs in the field of conservation, only about 5% of countries show progress in line with their commitments towards the global target.[67] Looking at the overall picture, it also indicates that while developed countries are less adaptable in setting national targets than developing countries, developed countries have made more progress than developing countries.[68] Even though these targets are far from to be achieved, as they will expire in 2020; Party States to the CBD need to revise these targets for the post-2020 era for global biodiversity protection.

Decision-making procedures consist of all governmental practices consisting of amendments to the CBD, considerations and decisions of the COP, standard operations of the institutions of the regime which are the COP, Secretariat, SBSTTA, GEF, CHM and other institutions and programmes.[69] Decisions of the COPs provide explicit principles, norms and decision-making procedures.[70]

The CBD forms one of the most important pillars of global biodiversity regime but it is not the only one.[71] The global biodiversity regime includes other conventions such

[66] Stefan Jungcurt, "CBD Analysis Shows More Efforts Needed to Achieve Aichi Biodiversity Targets," *IISD, SDG Knowledge Hub*, http://sdg.iisd.org/news/cbd-analysis-shows-more-efforts-needed-to-achieve-aichi-biodiversity-targets/ (27 July 2016).

[67] See *Convention on Biological Diversity Progress Report towards the Aichi Biodiversity Targets*, prepared by Birdlife International, Conservation International, the RSPB, the Nature Conservancy and WWF in 2016. https://www.nature.org/content/dam/tnc/nature/en/documents/CBD-Aichi-Targets-Progress-Dec2016.pdf (June 26, 2019).

[68] Ibid.

[69] Henne and Fakir, 323; Downie, International Environmental Regimes and the Success of Global Ozone Policy, 90.

[70] Henne and Fakir, 320.

[71] Cristina Y. A. Inoue, "Global Biodiversity Regime as an Approach to Study Local Level Experiences: The Mamirauá Case," (Paper presented at the Open Meeting of the Global Environmental Change Research Community, Montreal, Canada, 16-18 October, 2003), 6. http://sedac.ciesin.columbia.edu/openmtg/docs/Inoue.pdf (April 17, 2019).

as CITES, the Convention on Migratory Species, the Ramsar Convention, the World Heritage Convention, all of which addresses biodiversity regime from different aspects.[72] Evolution process of global biodiversity regime with major milestones and actors is briefly addressed in order to provide a holistic approach and understand the dynamics of this regime.

Table 1. Global Biodiversity Regimes[73]

Regime	**Key instruments/institutions** *(not exhaustive)*
Global Biodiversity Regime	1992-Convention on Biological Diversity 2000-Cartagena Protocol on Biosafety 2010-Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress 2010-The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits COP and its subsidiary bodies Associated funding activities by the GEF
World Heritage	1972- World Heritage Convention[74] The World Heritage Committee and its tools including World Heritage Lists and the List of World Heritage in Danger
Trade in endangered species	1973- Convention on International Trade in Endangered Species CITES Standing Committee Animal and Plant Committees CITES Secretariat
Migratory Species	1979-The Bonn Convention on the Conservation of Migratory Species of Wild Animals
Wetlands	1971-The Ramsar Convention on Wetlands

[72] Ibid., 9.

[73] Table 1 was quoted from Downie, International Environmental Regimes and the Success of Global Ozone Policy, 87.

[74] Stefania Ferrucci, "UNESCO's 'benign organism': The 'World Heritage regime' and its international influence" (Master's Thesis, Victoria University of Wellington, 2011), 5, 18 and 21, https://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/4523/thesis.pdf?sequence=1 (May 12, 2019).

2.3.1.1 The Role of the International Union for the Conservation of Nature (IUCN)

IUCN was founded in 1948 as the International Union for the Protection of Nature, (IUPN), however, in 1956 its name was changed as the International Union for Conservation of Nature and Natural Resources (IUCN) based on the consideration that protection not including human-being was not efficient.[75] It aims at promoting international cooperation through provision of scientific knowledge and tools for the conservation of nature and sustainable use of natural resources. "Union" is a key term for the IUCN because it is a "Union" of states and environmental organizations, staff and volunteers.[76] IUCN provides an open-minded working environment for diverse stakeholders such as governments, NGOs, scientists, businesses, local communities, indigenous peoples' organizations and volunteers in order to find and implement solutions to environmental problems and achieve sustainable development. [77]

Only the IUCN have the status of observer at the United Nations General Assembly as an environmental organization.[78] The Red List of Threatened Species was created by the IUCN in 1964, which provides reliable data and comprehensive evaluation on the status of global biological diversity and guidance for efforts for the conservation of biological diversity at all levels throughout the world.[79] One of the resolutions of the UNESCO conference in 1949 had listed 13 birds and 14 mammals as "threatened

[75] Frits Heselink and Wendy Goldstein, "The Role of IUCN—the World Conservation Union—in Shaping Education for Sustainability," in *Education for a Sustainable Future.* Innovations in Science Education and Technology, eds. Keith A.Wheeler and Anne Perraca Bijur, vol 7. (Boston, MA: Springer, 2000): 123. https://link.springer.com/chapter/10.1007/978-1-4615-4277-3_9 (June 21, 2019).

[76] Ibid., 123-124.

[77] IUCN, *An Introduction to the IUCN Red List of Ecosystems: The Categories and Criteria for Assessing* Risks *to Ecosystems* (Gland, Switzerland: IUCN, 2016), iv.

[78] "About IUCN Global Policy," https://www.iucn.org/theme/global-policy/about (accessed April 4, 2018).

[79] "Species Extinction – The Facts," *IUCN Red List*, https://cmsdata.iucn.org/downloads/species_extinction_05_2007.pdf (accessed April 4, 2018).

animals of international importance", however by the end of 2011, the IUCN Red List included data for 61,914 species of which 20,435 are Threatened, Extinct in the Wild, or Extinct.[80]

Although the IUCN is a non-governmental international organization and it plays a very important role as initiator and concept creator in several international environmental treaties.[81] One of the most prominent achievements of the IUCN is the preparation of World Charter for Nature in terms of development of international environmental law.[82] IUCN also played a key role in the preparation and development of significant international environmental conventions, including the Ramsar Convention on Wetlands, the World Heritage Convention, the Convention on International Trade in Endangered Species, (CITES) and the CBD.

2.3.1.2 Impact of the United Nations Conference on the Human Environment (Stockholm Conference)

During the 1970s, Europe and North America have witnessed an increased public concern and awareness about the environmental degradation, which was led by non-governmental organizations (NGOs).[83] As a result of experiencing adverse impacts of industrialization, the most vocal environmental concerns were primarily expressed by developed countries. Therefore, in 1972, developed countries asked the UN to hold an environmental conference concentrating on the environmental destruction

[80] Claire Santer and Simon Stuart, "Presentation: IUCN Species Survival Commission (SSC,)" ed. Gaëll Mainguy, *Surveys and Perspectives Integrating Environment and Society, (S.A.P.I.EN.S)* 5 no. 2 (2012): 72. https://portals.iucn.org/library/sites/library/files/documents/Rep-2012-003.pdf (June 6, 2019).

[81] Alexandre Kiss and Dinah Shelton, *International Environmental Law* (USA: Transnational Publishers, Inc,, 1991), 45.

[82] Ibid., 46.

[83] Marvin S. Soroos, "Global Institutions and the Environment: An Evolutionary Perspective" in *The Global Environment: Institutions, Law and Policy,* eds. Norman J. Vig and Regina S. Axelrod, (Washington D.C.: CQ Press, 1999), 30.

and required international actions to solve environmental problems.[84] The United Nations Conference on the Human Environment (hereinafter "the Stockholm Conference") was held in Stockholm in June 1972 with the main purpose of serving as a practical means to encourage and provide guidelines for action by governments and international organizations for the protection and improvement of the human environment and remedy and prevention of its impairment.[85] This Conference constituted a basis for governance of environmental issues at the international level.

During the Stockholm Conference, there were two conflicting views; while the primary concern of industrialized countries (mostly located in the Northern hemisphere) was on the impacts of human activities to the environment with emphasis on the control of pollution and conservation of resources, the main focus of developing and poorer countries (mostly located in the Southern hemisphere) was on the social and economic development.[86] As the strongest environmental concerns were voiced by developed countries, developing countries hesitated about the purpose of developed countries whether the movement that is said to be aimed at protecting environment is a disguise of their neo-imperialist intention for preventing economic growth of developing countries and keeping them as just suppliers of cheap raw materials and customers of the industrial products of developed countries.[87] The Southern countries asserted that measures required to be taken to conserve environment and control pollution would retard their economic development process.[88] According to them, industrialized countries were primarily

[84] It is Sweden that officially initiated such a conference with a letter dated 20 May 1968 to the Secretary-General of the UN. See Lynton K. Caldwell, *International Environmental Policy: From the Twentieth to the Twenty-First Century*, revised and updated with the assistance of Paul Stanley Weiland (Durham: Duke University Press, 1996), 57.

[85] UNGA Resolution 2398 (XXIII), *The problems of the human environment*, (3 December 1968), https://daccess-ods.un.org/TMP/3530736.26756668.html and UNGA Resolution 2581 (XXVI), *United Nations Conference on the Human Environment*, (15 December 1969), https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/257/15/IMG/NR025715.pdf?OpenElement (May 2, 2019).

[86] Caldwell, 64.

[87] Ibid., 57.

[88] Rebecca A. Hoelting, "After Rio: The Sustainable Development Concept Following the United Nations Conference on Environment and Development," *Georgia Journal of International and*

responsible for environmental pollution during their economic development process; therefore, it is not regarded as an urgent issue to be the first concern for them.[89] Indeed, this view is not unfair. For example, the global warming process to which pollutant industrial activities of developed countries made significant contributions had severe destructive impacts on the ecosystems and the South lived much more direct adverse impacts of climate change comparing to the North.[90] Therefore, the Southern countries considered that it is unfair to be requested to take into account environmental concerns during their economic and industrial development process since it was not the case for the developed counties during their industrialization process.

In spite of divergent opinions, the Stockholm Conference can be regarded as a success in terms of its achievements namely, Declaration of the UNCHE (Stockholm Declaration) consisting of 26 principles and an Action Plan with 109 recommendations. The Stockholm Declaration emphasizes the necessity of collaboration between the states on the environmental issues and shows the understanding between developed and developing countries that without controlling and improving the environment it is not possible to gain a long-term wealth, thus it recognizes the interrelationship between economic development and environmental safeguarding. Conservation of biological diversity represents a priority area in the Stockholm Declaration.[91] Principle 2 requires safeguarding of the natural resources including the air, water, land, flora and fauna and representative samples of natural ecosystems. Principle 4 requires safeguarding of wildlife and principle 7 stipulates prevention of pollution damaging oceans. The Action Plan for Human Environment

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Comparative Law 24 no. 117 (1994): 124.
http://digitalcommons.law.uga.edu/gjicl/vol24/iss1/5 (October 3, 2018).

[89] Ulrich Beyerlin, "Bridging the North-South Divide in International Environmental Law," *Heidelberg Journal of International Law (HJIL)* 66 (2006): 262.
http://www.zaoerv.de/66_2006/66_2006_2_a_259_296.pdf (February 12, 2018).

[90] Ibid., 264.

[91] CBD Secretariat, *GBO 1*, 119.

adopted at the first session of the UNEP Governing Council in 1973 identified the "conservation of nature, wildlife and genetic resources" as one of the priority areas.[92]

Being regarded as the foundation of modern initiatives for global management of biological diversity, the Stockholm Declaration constituted a well-constructed legal framework for the international biological diversity protection. Therefore, it is not surprising that following the Stockholm Conference, major international conventions regarding conservation of biological diversity including the Convention on Biological Diversity (CBD) were developed and adopted consecutively.

2.3.1.3 Contribution of the United Nations Environment Programme (UNEP)

The UN General Assembly (UNGA) established the United Nations Environment Programme (UNEP) as foreseen by the Stockholm Conference to meet the "urgent need for a permanent institutional arrangement within the United Nations system for the protection and improvement of the environment" in 1972.[93] The Stockholm Declaration recommended the establishment of a small secretariat within the United Nations as a focal point for environmental action and coordination within the UN system for the effective management.[94] Considering together with Resolution 2994 (XXVII) approving the Declaration and Action Plan of the UNCHE, this resolution is considered one of the most prominent accomplishment of the 1972 General Assembly since this resolution builds all the existing structures of UNEP comprising the Governing Council, the Environment Secretariat, the Environment Fund and

[92]UNEP, *Report of the Governing Council on the Work of its First Session,* (New York: UN, 1973), 43. https://wedocs.unep.org/bitstream/handle/20.500.11822/17274/73_06_GC1_report_%20K7309025.pdf?sequence=1&isAllowed=y (March 6, 2019).

[93] Bharat H. Desai, "UNEP: A Global Environmental Authority?," *Environmental Policy and Law,* 36 no. 3-4 (2006): 137. http://cmsdata.iucn.org/downloads/cel_op_desai3.pdf (June 28, 2018).

[94] UNGA Resolution 2997 (XXVII), *Institutional and Financial Arrangements for international environmental cooperation,* A/RES/27/2997, (December 15, 1972), https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/270/27/IMG/NR027027.pdf?OpenElement (May 3, 2019).

Environment Co-ordination Board. [95] Thus, UNEP was created as a subsidiary organ of the UNGA and it is responsible for monitoring, coordinating and guiding rather than performing extensive operational role.[96] As a primary body in the UN responsible for the environment, it coordinates environmental activities and provides guidance to governments in dealing with their local and regional environmental problems as well as global environmental issues.

Being a catalyst in the environmental law-making process, UNEP has played a significant role in the development of international environmental law including adoption of binding international agreements such as 1985 Vienna Convention for the Protection of the Ozone Layer, 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), as well as non-binding environmental law guidelines and principles.[97]

Establishment of the UNEP had a positive impact to tackle with the problems encountered in the field of conservation of biological diversity. Indeed, at the time of Stockholm Conference, the FAO was considered to be "too politicized"; UNESCO was not regarded to be eligible for biological diversity issues because of its very limited coverage on biological diversity, and the IUCN was not considered to be sufficiently credible by the governments taking into account that it was not an intergovernmental organization.[98] In addition, UNEP played a major role in the

[95]Stanley Johnson, *UNEP: The First 40 Years –A Narrative,* ed. Jonathan Clayton (Nairobi: United Nations Environment Programme, 2012), 28. http://wedocs.unep.org/bitstream/handle/20.500.11822/8751/-UNEP_The_first_40_years_A_narrative_by_Stanley_Johnson-2012UNEP_The_First_40_Years_A_Narative.pdf.pdf?sequence=2&isAllowed=y (June 6, 2019).

[96] Andrew Hurrel and Benedict Kingsbury, "The International Politics of the Environment: An Introduction," in *The International Politics of the Environment: Actors, Interests and Institutions,* eds. Andrew Hurrel and Benedict Kingsbury (Oxford: Clarendon Press, 1992), 31-33.

[97] Carol Annette Petsonk, "The Role of the United Nations Environment Programme (UNEP) in the Development of International Environmental Law," *American University International Law Review* 5, no. 2 (1990): 353. http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1585&context=auilr&embedded=true (June 25, 2018).

[98] Hasrat Arjjumend et al., "Evolution of International Governance of Biodiversity," *Journal of Global Resources,* 3 (2016): 5. http://www.cisdl.org/wp-content/uploads/2018/05/Evolution-of-International-Governance-of-Biodiversity.pdf (June 1, 2019).

formulation of major biodiversity-related conventions such as CITES, CMS and CBD and provides secretariat to these conventions.[99] In addition, UNEP provides technical assistance to developing countries in the formulation of their environmental legislation related to biological diversity issues and provides guidance on the implementation.[100] UNEP has also proven to be successful in catalyzing international environmental agreements both at the global and regional levels. [101]

2.3.2 Major International Conventions Related to the Conservation of Biological Diversity

The gradual development of international environmental law since the beginning of 1970s finally resulted in the creation of Convention on Biological Diversity.[102] At the beginning, conservation of endangered biological diversity was considered as technical issues within the scope of natural sciences by addressing extinction of certain species in specified regions, therefore, it did not receive much attention in social sciences.[103]

After the Stockholm Conference which have significant impacts on the creation and development of international environmental conventions, countries have continued to sign and adopt various international treaties for the purpose of conservation of biological diversity as well as various regional conventions. Thus, conservation of

[99] Decision I/4 of the COP 1 to the CBD designating the UNEP to implement the functions of the Secretariat of the CBD.
https://www.cbd.int/doc/decisions/cop-01/full/cop-01-dec-en.pdf (May 3, 2019).

[100] Petsonk., 357.

[101] Laurence D. Mee, "The Role of UNEP and UNDP in Multilateral Environmental Agreements," *International Environmental Agreements* 5 (2005): 227.
https://link.springer.com/article/10.1007/s10784-005-3805-8 (June 6, 2019).

[102] Susette Biber-Klemm *et al.*, "The Current Law of Plant Genetic Resources and Traditional Knowledge" in *Rights to Plant Genetic Resources and Traditional Knowledge: Basic Issues and Perspectives*, eds. Susette Biber-Klemm and Thomas Cottier (Wallingford, CABI, 2006), 59. http://www.ielrc.org/content/a0609.pdf (June 13, 2019).

[103] Ferhunde H. Topçu, "Biyolojik Çeşitlilik Sözleşmesi: Müzakereden Uygulamaya," *Marmara Avrupa Araştirmalari Dergisi,* Cilt 20, Sayı: 1, (2012), 60.
http://dergipark.gov.tr/download/article-file/1336 (October 4, 2018).

species started to become one of the subjects of international environmental law.[104] Koester identifies five international environmental treaties as the most significant global biodiversity-related conventions, which are[105]:

1. The Convention on Wetlands of International Importance especially as Waterfowl Habitat, (the Ramsar Convention adopted in 1971, entered into force in 1975),
2. The Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention, 1972),
3. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973),
4. The Convention on the Conservation of Migratory Species of Wild Animals (The Bonn Convention or CMS, 1979),
5. The Convention on Biological Diversity (CBD, 1992).

Being as the milestones in the conservation of biodiversity, the first four conventions paved the way for the birth and development of the CBD in 1992.

2.3.2.1 The Convention on Wetlands of International Importance especially as Waterfowl Habitat (The Ramsar Convention or the Convention on Wetlands, 1971)[106]

Being the oldest contemporary international environmental treaty, the original focus of the Convention on Wetlands (hereinafter the Ramsar Convention) was on the conservation and wise use of wetlands especially areas that have importance as waterfowl habitat in particular.[107] Wetlands are the ecosystems possessing one of the highest and fertile biological diversity. Therefore, throughout the years, the scope of the Ramsar Convention has been expanded in a way to encompass conservation and

[104] Ibid., 60.

[105] Veit Koester, "The five global biodiversity-related conventions: A stocktaking," *Review of European, Comparative & International Environmental Law (RECIEL)* 11: 1 (2002): 96. https://www.cbd.int/doc/articles/2002-/A-00334.pdf (April 15, 2018).

[106] *Convention on Wetlands of International Importance especially as Waterfowl Habitat,* Ramsar (Iran), 2 February 1971, *UN Treaty Series* No. 14583. https://treaties.un.org/doc/Publication/UNTS/Volume%20996/volume-996-I-14583-English.pdf (June 9, 2019).

[107] Ramsar Convention Secretariat, *The Ramsar Convention Manual: A guide to the Convention on Wetlands (Ramsar, Iran, 1971)*, 6th ed. (Gland, Switzerland: Ramsar Convention Secretariat, 2013), 6. https://www.ramsar.org/sites/default/files/documents/library/manual6-2013-e.pdf (June 6, 2019).

wise use of wetlands in its entirety since they are acknowledged as vital ecosystems for the conservation of biological diversity and for the human well-being.[108] The Ramsar Convention has been amended two times in 1982 and 1987.

The Ramsar Convention requires the Party States to list minimum one wetland of international importance to be included in a List of Wetlands of International Importance.[109] The Party States may add further appropriate wetlands within their territories to the List.[110] They are required to improve the conservation of the wetlands included in the List, to establish nature reserves on wetlands, provide wise use of these reserves, restore deterioration in wetland resources, promote increasing waterfowl populations on suitable wetlands and provide information concerning implementation measures on wetlands and their flora and fauna.[111]

According to data of Ramsar Bureau, as of August 2018, there are 170 Contracting Parties, 2.341 designated wetlands for inclusion in the List of Wetlands of International Importance, covering 252,489,973 hectares (2.48 million square kilometers).[112]. Unlike other major biological diversity treaties, Ramsar Convention is not part of the United Nations system. Its Secretariat is located at the headquarters of the IUCN in Gland, Switzerland. UNESCO is the Depositary for the Convention with the role of receiving the instruments of accession of each Contacting Party of the Convention without any administrative and executive responsibility.[113]

[108] Ibid., 6.

[109] Ramsar Convention, Article 2(4). As amended by the Paris Protocol, 3 December 1982, and Regina Amendments, 28 May 1987. https://www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf (June 13, 2019).

[110] Ibid., Article 2(5).

[111] Ibid., Article 4.

[112] Ramsar Convention Secretariat, About Ramsar. https://www.ramsar.org/ (As of June 6, 2019).

[113] Ramsar Convention Art. 9(3). Ramsar Convention Secretariat, *Ramsar Convention Manual*, 6.

2.3.2.2 The Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention, 1972)[114]

Widely known as World Heritage Convention, it was adopted in Paris in 1972 by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Currently, there are 193 Party States to the Convention.[115.]By signing this Convention, each Party State agrees that it is their primary responsibility to identify and preserve natural and cultural heritage possessing outstanding universal value,[116] which are situated on their territory and transmit these properties to future generations.[117]

The Convention is unique in terms of integrating the conservation of nature and preserving cultural properties under a single convention.[118] The Convention requires the Party States to protect collectively the heritage having outstanding universal value on the basis of the consideration that protection of these treasures is not assumed under the sole responsibility of a single nation.[119] For this purpose, the Convention prepared the World Heritage List to designate these special sites. For the Party States, inclusion in the Convention's list means an increased national prestige at international level, access to the international funds and benefits resulting from

[114] *Convention Concerning the Protection of the World Cultural and Natural Heritage,* Paris, 16 November 1972, *UN Treaty Series* No. 15511. https://treaties.un.org/doc/Publication/UNTS/Volume%201037/volume-1037-I-15511-English.pdf (June 15, 2019).

[115] UNESCO. The States Parties https://whc.unesco.org/en/statesparties/8 (last accessed June 6, 2019.)

[116] Outstanding universal value means having so exceptional cultural and/or natural significance which exceeds national borders and common importance for current and future generations of all humankind. See Jukka Jokilehto, "*What is OUV? Defining the Outstanding Universal Value of Cultural World Heritage Properties,"* (Berlin: Hendrik Bäßler verlag, 2008), 14. https://www.icomos.org/publications/monuments_and_sites/16/pdf/Monuments_and_Sites_16_What_is_OUV.pdf (May 13, 2019).

[117]. World Heritage Convention, Article 4.

[118] Lynn Meskell, "UNESCO's World Heritage Convention at 40: Challenging the Economic and Political Order of International Heritage Conservation," *Current Anthropology* 54, no. 4 (2013): 483.

[119] Ibid., 483.

increased awareness of public, tourism and economic gains. [120] In terms of biodiversity, a total of 209 sites were designated as natural heritage sites and an additional 38 sites were determined to be significant both as naturally and culturally.[121] For example, the Galapagos Islands were put under the guardianship of UNESCO as 'a natural university of unique species'[122]

2.3.2.3 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973)[123]

International trade of wildlife products represents an extremely profitable commercial activity, therefore, it has proliferated a huge illegal international market in wildlife products.[124] Huge profits gained from this trade can be measured in billions of dollars.[125] According to data of Commission to Study the Organization of Peace in 1972, in addition to "exterminated" 150 species of birds and animals, approximately 1.000 more were under the threat of extinction.[126]

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[120] Ibid., 483.

[121] United Nations Environment Programme (UNEP), *Global Environment Outlook 3(GEO-3): Past, Present and Future Perspectives* (London & Sterling, VA: Earthscan Publications Ltd, 2002), 5. https://wedocs.unep.org/bitstream/handle/20.500.11822/8609/GEO3%20REPORT_English.pdf?sequence=7&isAllowed=y (numbers were updated from https://whc.unesco.org/en/list/stat on July 2, 2018). (numbers were updated from https://whc.unesco.org/en/list/stat on June 13, 2019).

[122] Ibid., 5.

[123] *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, (Washington, 3 March 1973). *UN Treaty Series* No. 14537. https://treaties.un.org/doc/Publication/UNTS/Volume%20993/volume-993-I-14537-English.pdf (June 9, 2019).

[124]William C. Burns, "CITES and the Regulation of International Trade in Endangered Species of Flora: A Critical Appraisal," *Penn State International Law Review* 8 no. 2 (1990): 203. http://elibrary.law.psu.edu/psilr/vol8/iss2/3 (October 4, 2018).

[125] IUCN – The World Conservation Union, *Trade Measures in Multilateral Environmental Agreements: A Report by IUCN on the Effectiveness of Trade Measures Contained in The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*, (prepared for UNEP, 2000): 10. https://www.cites.org/sites/default/files/common/prog/economics/iucn-trademeasuresinCITES.pdf (October 5, 2018).

[126] UNEP, *GEO 3*, 6.

At the time of increase in illegal traffic in endangered wildlife species, in 1963, members of the IUCN adopted a resolution addressing conservation of individual species in Nairobi, which called for an international treaty for regulating the export, transit and import of rare or threatened wildlife species or their skins and trophies.[127] The text of CITES was drafted on the basis of this resolution and finally it was opened to signature in 1973 in Washington D.C and it entered into force in 1975.

CITES is an international agreement between governments that that addresses the issues of trade and wildlife concurrently in order to provide conservation of species of wildlife and their sustainable use. CITES aims to prevent overexploitation of species of wild fauna and flora with commercial purposes and to ensure their long term survival and for this purpose it establishes trade measures and export and import requirements to be taken into account in international trade.[128] Currently, there are 183 Party States[129] and the CITES regulates international trade of endangered species which approximately includes 5.800 species of animal and 30.000 plant species through either bans or controls.[130] As a legally binding document, all Party States are required to make necessary legislation and implement the requirements of the CITES and to provide regular data and reports concerning measures to ensure that CITES is implemented at the national level.[131] The CITES Secretariat is administered by the UNEP located at Geneva, Switzerland.[132].

[127] Burns, 204.

[128] IUCN, *Trade Measures in Multilateral Environmental Agreements*, 6.

[129] Number of the Party States as of May 10, 2019 available at https://www.cites.org/eng/disc/what.php.

[130] Last updated data as of January, 2017 available at https://www.cites.org/eng/disc/species.php (accessed May 10, 2019).

[131] Peter H. Sand, "Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment," *European Journal of International Law (EJIL)* 8 no.1 (1997): 35. http://www.ejil.org/pdfs/8/1/1424.pdf (October 5, 2018).

[132] CITES, Article XII.

2.3.2.4 The Convention on the Conservation of Migratory Species of Wild Animals (The Convention on Migratory Species (CMS) or the Bonn Convention, 1979)[133]

The Convention on Migratory Species (CMS) is an international treaty concluded under the aegis of the UNEP. As a result of international concern arising out threats against migratory species and sharp decline in the number of these species, the CMS was adopted in 1979 in Bonn, Germany but came into force in 1983. Migratory species encompassing a significant part of biodiversity moves regularly between locations frequently crossing borders throughout the year. Therefore, conservation of their habitats is not the only issue, their transboundary migration routes need to be safeguarded, too. The inevitable need for international cooperation to protect migratory species because of its transnational characteristics is the reason triggered the formulation of the Convention on Migratory Species (CMS). Today, there are 128 states Party to the Convention. [134] The Secretariat is provided by the UNEP.[135]
The CMS aims to protect all terrestrial, aquatic and avian migratory species along with their range[136] by enabling international cooperation.[137] Although the CMS is the only international treaty that focuses on migratory species in a broad sense, it does not have precise participation requirements for the Party States to the Convention.[138]

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[133] *Convention on the Conservation of Migratory Species of Wild Animals,* Bonn, 23 June 1979, *UN Treaty Series* No. 28395. 333-497.
https://treaties.un.org/doc/Publication/UNTS/Volume%201651/v1651.pdf (June 9, 2019).

[134] CMS, "Parties and Range States," https://www.cms.int/en/parties-range-states (accessed June 6, 2019).

[135] Article IX of the CMS.

[136] CMS defines *"Range"* as "all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration route." Accordingly, "Range State" is defined as - in relation to a particular migratory species – "any State that exercises jurisdiction over any part of the range of that migratory species, or a State, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species."

[137] UN Bonn, *Shaping a Sustainable Future, (*2017), 9.
https://www.unep-aewa.org/sites/default/files/publication/UN%20BRO%20English.pdf (June 6, 2019).

[138] Christopher M. Hensz and Jorge Soberon, "Participation in the Convention on Migratory Species: A Biogeographic Assessment," *J. Ambio* (2018). https://link.springer.com/article/10.1007/s13280-018-1024-0#citeas (October 5, 2018).

CMS consists of twenty (20) Articles and two Appendices. The CMS is a framework agreement built upon appendices and any amendment on the obligations of the Party States for migratory species are made on the basis of these appendices.[139] Appendix I lists endangered migratory species subjected to strict protection by imposing restrictions; especially by prohibiting taking, hunting, fishing capturing, harassing and deliberate killing of these species.[140] Appendix II includes migratory species to be conserved through international agreements. It lists species with unfavorable conservation status that may require international cooperation for their conservation, but their taking is not restricted.[141] To protect species listed in Appendix II, the range states are encouraged to conclude agreements in accordance with Article IV of the CMS.[142] Therefore, CMS gains the ability of proliferating new agreements either in the form of legally binding agreements or less formal instruments such as Memorandum of Understanding (MoU). The CMS together with its eight international Daughter Agreements and nineteen Memoranda of Understanding that have been concluded under the CMS constitute "the CMS Family".[143]

According to Koester, the CMS negotiators might be well aware of the difficulty in fulfilling its aims, especially conclusion of further agreements for specific migratory species in Appendix II and inclusion of all range states concerned based on the consideration that such actions requires political willingness, considerable time and substantial funds.[144] Furthermore, becoming a party to the CMS requires having

[139] Sebastian Oberthür and Ernesto Roessing, *"Implications of actions to enhance synergies: An independent analysis and report A report for the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals,"* (Bonn: Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals**,** 2015), 16.
https://www.academia.edu/20429175/Implications_of_actions_to_enhance_synergies_An_independent_analysis_and_report (June 13, 2019).

[140] Ibid., 16.

[141] Hensz and Soberón, op.cit.

[142] Nele Matz, "Chaos or Coherence? – Implementing and Enforcing the Conservation of Migratory Species through Various Legal Instruments," *ZaöRV* 65 (2005): 201.

[143] Oberthür and Roessing, 8.

[144] Koester, 100.

considerable expertise or making substantial investment for expertise.[145] Nevertheless, Koester states that although any alternative option was not found to overcome these challenges, the CMS adopts the right approach in terms of scientific, technical and legal perspectives.[146] It suffers from lack of participation of major economies like the USA, Russia and China, in spite of the fact that they are hosting significant number of CMS species.[147] Furthermore, there are countries hosting a large number of CMS and their participation requires low costs like Turkey, therefore, they is considered to be the most compliant countries to become a Party to the CMS.[148]

Table 2. A Summary of Global Agreements and Regimes related to the CBD according to Scope and Objective/Focus.[149]

SCOPE	ENVIRONMENT ⟷ ECONOMY/ TRADE			
Objective/ Focus	Conservation	Sustainable Use/ Development	Benefit Sharing	Other
TIME PERIOD 1970s-1980s	- CITES - CMS - Wetlands - World Heritage - UNCLOS	- CITES - ITTA	-FAO International Undertaking on PGRFA -UNCLOS Deep Seabed Mining	- Vienna Convention and Montreal Protocol - Basel Convention - Convention on Long-Range Transboundary Air Pollution

[145] Hensz and Soberón, op.cit.

[146] Koester, 100.

[147] Hensz, and Soberón, op.cit.

[148] Hensz, and Soberón, op.cit.

[149] Table 2 was quoted from McGraw, 22.

Table 2. (Continued)

1990s	- CBD - UNCLOS (Fish Stocks) - ICRI	- CBD - UNFCCC - UNCCD - UNCLOS (Fish Stock) - ICRI	- CBD - Revised Integrated pollution prevention and control (IPPC)	- WTO trade-related intellectual property (TRIPS) - Basel Protocol - Kyoto Protocol
2000 and beyond	- Potential Protocols under CBD	- Potential Protocols under CBD	- Nagoya Protocol - International Treaty on PGRFA	Cartagena Protocol - Rotterdam Convention - Stockholm Convention

2.3.3 Other International Cooperation Initiatives on the Way to the Convention on Biological Diversity (CBD)[150]

The legal efforts summarized above as well as other regional treaties are of vital importance for the protection of biodiversity, however, they address the conservation of species either in limited scope or area covered. During the 1980s, it has become evident that in order to arrest the rapid loss of biological diversity, the Earth needs to be treated as a single system. Two important international documents stressed the value of conservation of nature with a more comprehensive and holistic approach at the global level. The first one was the World Conservation Strategy, a report aiming at conservation of living resources to achieve sustainable development. It was prepared by the IUCN in collaboration with UNEP, the World Wildlife Fund (WWF), the Food and Agriculture Organization of the United Nations (FAO), and UNESCO and published in 1980. The second global document was the World Charter for Nature adopted in 1982 by the UN General Assembly.[151] The IUCN prepared the Charter in collaboration with the UNEP. The Charter reaffirmed the

[150] *Convention on Biological Diversity*, Rio de Janeiro, 5 June 1992, *UN Treaty Series No.* 30619. https://treaties.un.org/doc/Treaties/1992/06/19920605%2008-44%20PM/Ch_XXVII_08p.pdf (June 9, 2019).

[151] UNGA Resolution A/RES/37/7, *World Charter for* Nature, (28 October 1982), https://www.un.org/documents/ga/res/37/a37r007.htm (May 2, 2019).

importance of safeguarding the balance and quality of nature and the continuation of human-driven destruction on habitats, calling for promoting international cooperation to overcome the environmental problems.

In 1983, the General Assembly of the United Nations established a special independent commission, namely World Commission on Environment and Development (WCED) in charge of reporting on environmental and development issues including strategies for sustainable development.[152] This Commission published its report of "Our Common Future" or reputed as the "Brundtland Report", which is the name of the Commission's Chair, Norwegian Prime Minister Gro Harlem Brundtland in 1987. The report emphasizes that integration of economic and ecological concerns into decision-making and conservation of species diversity is of utmost important for the achievement of economic and sustainable development and environmental protection and recommends a convention on the conservation of species as a primary concern to overcome loss of species and degradation of ecosystems.[153] As summarized in Global Biological Diversity Outlook 1 (GBO-1) it discussed that for the achievement of sustainable development, a new global approach that goes beyond national sovereignty concerns, tailored nature of science disciplines and narrow-minded strategies prioritizing economic achievements is required.[154] However, it is worth noting that these global documents were motivating statements and they are not legally-binding.

[152] UNGA Resolution A/RES/38/161, *Process of preparation of the Environmental Perspective to the Year 2000 and Beyond*, (19 December 1983), http://www.un-documents.net/a38r161.htm (May 2, 2019).

[153] UNGA Resolution A/RES/42/187, *Report of the World Commission on Environment and Development,* (11 December 1987), http://www.un.org/documents/ga/res/42/ares42-187.htm. (March 4, 2019). See also De Chazournes, 2.

[154] CBD Secretariat, *GBO 1*, 120.

CHAPTER 3

THE CONVENTION ON BIOLOGICAL DIVERSITY AND ITS KEY CHARACTERISTICS

The CBD is the first global and comprehensive agreement to address all aspects of biological diversity: genetic resources, species, and ecosystems. It is not only a treaty aiming at conservation of all biological diversity but also aims at equitable sharing of benefits arising from the use of genetic resources for sustainable development.[155] It is a legally binding framework agreement providing general obligations for the Party States.

3.1 Negotiation Process of the Convention on Biological Diversity

In response to rapid loss of biological diversity, the IUCN had prepared draft articles several times between 1984 and 1989 for a treaty on the conservation of biological resources which focused on the global action to conserve biological diversity at three levels.[156] Draft versions of such a convention focused on *in situ*[157] conservation of flora and fauna together with a financing mechanism for sharing the costs of conservation activities between developed and developing countries.[158] Having conveyed it to the governments and international organizations, the UNEP and several states started to be interested in the idea of formulating a global convention to conserve biological diversity.[159]

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[155] De Chazournes, 3; McGraw, 17.

[156] Secretariat of the CBD, *GBO 1*, 121.

[157] *"In-situ conservation" means protecting* ecosystems and natural habitats and maintaining and recovery of viable populations of species in their natural surroundings. (CBD, 1992).

[158] Secretariat of the CBD, *GBO 1*, 121.

[159] De Chazournes, 2.

During the 14th Meeting of the UNEP Governing Council in 1987, the USA submitted an initial proposal combining the existing conservation conventions such as CITES, Ramsar, and others together under an "umbrella" convention and to create new rules to overcome inadequacies.[160] However, the proposal of the USA was not in comply with IUCN's drafted convention that promotes *in-situ* conservation of biological resources[161]. Then, UNEP formed an Ad Hoc Working Group of Experts on Biological Diversity (AHWGE) to seek the desirability and possible form of an umbrella convention to coordinate activities in the field of biological diversity conservation and to address other areas which might fall under such a convention.[162] At the end of its first session in 1988, the AHGWE revealed the absence of and need for a global regime for achieving conservation of biological diversity since existing international treaties have been limited in terms of scope focusing on specific issues of biological diversity.[163] The AHWGE also concluded that formulating an umbrella agreement to "absorb" or "consolidate" conventions currently in force was not workable because of legal and technical difficulties.[164]

At its fifteenth session, the UNEP Governing Council adopted Decision 15/34 of 25 May 1989, which requested the Executive Director to convene additional working sessions of AHGWE "to consider the technical content within a broad socio-economic context of a suitable new international legal instrument and other measures that might be adopted for the conservation of the biological diversity of the planet."[165] At its third session held in July 1990, the AHGWE agreed that a new

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[160] Pamela Chasek, *Earth Negotiations: Analyzing Thirty Years of Environmental Diplomacy, (New York: United Nations University Press,* 2001), 117, quoted from Fiona McConnell, *The Biodiversity Convention - a Negotiating History,* (London: Kluwer Law International, 1996).

[161] De Chazournes, 2.

[162] UNEP Governing Council Decision 14/26, *Rationalization of international conventions on biological diversity,* (17 June 1987), 78-79. http://wedocs.unep.org/bitstream/handle/20.500.11822/17274/87_06_GC14_report_N8723250.pdf?sequence=14&isAllowed=y (June 15, 2019).

[163] Chasek, *Earth Negotiations,* 118.

[164] CBD Secretariat, *GBO 1,* 121.

[165] UNEP Governing Council Decision 15/34, *Preparation of an international legal instrument on the biological diversity of the planet,* (25 May 1989), 161.

global convention on biological diversity should build on existing conventions in the form of a framework agreement.[166]

As authorized by its decision 15/34, during a special session of the UNEP Governing Council in August 1990, the Ad Hoc Working Group of Legal and Technical Experts (AHWGLTE) was established to prepare draft articles for an international convention including conservation issues in addition to social and economic aspects of biological diversity on the basis of the final report of the AHGWE.[167] The AHWGLTE gathered three times from November 1990 to July 1991 and negotiated and revised the elements that may be included in the future convention and made recommendations on the elements needed to be incorporated into the convention.[168]

It is worth noting that during the negotiations concerning the scope of the CBD, it was observed that majority of states did not tend to consider only the conservation aspects of biological diversity.[169] Therefore, the CBD's scope considerably enhanced to cover all aspects of biological diversity such as *in-situ* and *ex-situ* [170]conservation of species, sustainable use of biological resources, access to genetic resources[171] and

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http://wedocs.unep.org/bitstream/handle/20.500.11822/17274/89_05_GC15_report_N8922724.pdf?sequence=16&isAllowed=y (June 15, 2019).

[166] UNEP/Bio.Div.3/12, *Report of the AHGWE on the Work of Its Third Session in Preparation for a Legal Instrument on Biological Diversity of the Planet*, (13 August 1990). https://www.cbd.int/doc/meetings/iccbd/bdewg-03/official/bdewg-03-12-en.pdf (May 10, 2019).

[167] UNEP Governing Council Decision SSII/5, *International legal instrument on the biological diversity of the planet*, (3 August 1990), 29. http://wedocs.unep.org/bitstream/handle/20.500.11822/17274/90_GCSS_II_report_N9023171.pdf?sequence=17&isAllowed=y (June 15, 2019).

[168] Chasek, *Earth Negotiations*, 119.

[169] Lyle Glowka et al., *A Guide to the Convention on Biological Diversity*, (Gland and Cambridge: IUCN, 1994), 2. https://portals.iucn.org/library/efiles/documents/EPLP-no.030.pdf (May 31, 2019).

[170] According to Article 2 of the CBD, *ex-situ* conservation means protecting components of biological diversity outside their natural habitats.

[171] Article 2 of the CBD defines "genetic resources" as "genetic material of actual or potential value". Genetic material refers to "any material of plant, animal, microbial or other origin containing functional units of heredity."

biotechnology, sharing of benefits arising from biotechnology, safety of LMOs and financing of such activities.[172]

Having become apparent that the will of the majority of states is to form a convention that would contain not only conservation but also social and economic aspects of biological diversity including biotechnology, the leading defender of such a convention, the USA, altered its attitude and became the strongest opposing state to the convention.[173] The USA put forward some objections particularly on the intellectual property rights, transfer of technology and financing of the Convention.[174] In addition, biotechnology companies in the United States made harsh criticisms against the convention based on the considerations that being a Party to the convention may require the obligatory licensing for intellectual property products and retard pharmaceutical researches since it allows the Party States to use a sovereign property right in a genetic material.[175] They claim that, in turn, this would result in an effect discouraging discovery of new medicines.[176] On the other hand, contestants to these criticisms maintained that without such a Convention including incentives for biodiversity conservation to developing countries, there would be a small amount of biological diversity remained to carry out research for exploring new pharmaceuticals.[177]

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[172] CBD Secretariat, GBO *1*, 121.

[173] De Chazournes, 3.

[174] Melinda Chandler, "The Biodiversity Convention: Selected Issues of Interest to the International Lawyer", *Colorado Journal of International Environmental Law and Policy* 4 no. 1(1993): 141.

[175] Daniel T. Jenks, "A Convention on Biological Diversity-An Efficient Framework for the Preservation of Life on Earth?," *Northwestern Journal of International Law and Business* 15 no. 3 (1995): 638. https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1414&context=njilb (October 4, 2018).

[176] Ibid., 638.

[177] Ibid., quoted from Adam L. Streltzer, Comment, "U.S. Biotechnology Intellectual Property Rights As An Obstacle to the UNCED Convention on Biological Diversity: It Just Doesn't Matter", *TRANS-NAT'L LAW* 6 271 (1993).

In spite of opposing arguments particularly from the USA, efforts to finalize the Convention text have continued and the AHWGLTE became the "Intergovernmental Negotiation Committee for a Convention on Biological Diversity (INC)"[178] in 1991 and it held seven meetings to make the Convention ready in time to be signed by States at the United Nations Conference on Environment and Development (Rio Conference) in June 1992.[179] Nevertheless, negotiation process was quite challenging and negotiations frequently came to the point of break, therefore, adoption of the Convention was not clear even on the last day of the final negotiation meeting in Nairobi because of the North and South polarization [180] The INCs work reached a conclusion on 22 May 1992 and finalized the draft Convention on Biological Diversity. It was adopted during the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity convened by the UNEP.[181]

Eventually, the Convention on Biological Diversity was opened for signature at the United Nations Conference on Environment and Development (Rio Conference) in Rio de Janeiro in 5 June 1992. The Rio Conference was held to discuss environmental problems such as conservation of biological diversity, pollution, forests and climate change. At this significant conference, "Agenda 21", which is an Action Plan for the achievement of sustainable development during the twenty first century, "the Rio Declaration on Environment and Development", which is a statement including principles for the conservation of environment and guidelines for environmental protection and the Statement of Forest Principles for the preservation of forests were adopted.

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[178] UNEP Governing Council Decision 16/42, *Preparation of an international legal instrument.on biological diversity,* (31 May 1991), 116-117. http://wedocs.unep.org/bitstream/handle/20.500.11822/17274/91_GC16_proceedings_K9101200.pdf?sequence=18&isAllowed=y (June 15, 2019).

[179] CBD Secretariat, *GBO 1,* 121.

[180] Chasek, *Earth Negotiations,* 122.

[181] History of the Convention, *Convention on Biological Diversity,* https://www.cbd.int/history/ (June 16, 2019). See Appendix A showing the preparatory meetings held before the adoption of the CBD.

Not only the CBD, but also United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature at this Conference. Being the largest meeting of heads of the states and government representatives, 157 countries signed the CBD at Rio Conference as a record in the history.[182]. The Convention entered into force in 29 December 1993, which was ninety (90) days after the submission of the 30th instrument of ratification to the depositors. Currently, only Andorra, Holy See (Vatican), South Sudan and the USA are not the Parties to the Convention.[183] Turkey adopted the CBD on 29.08.1996 and it entered into force on 14 May 1997. [184]

3.2 Architecture of the Convention on Biological Diversity

This Convention has gained a rapid and broad acceptance and currently there are 196 Party States to the CBD including the European Union (the EU).[185] It comprises a Preamble, forty two (42) articles and two Annexes. Annex I with the title of "Identification and Monitoring" provides a list of categories to be identified and monitored by the Party States including ecosystems and habitats, species, communities and genes that possess social, scientific and economic value. Annex II sets the arbitration and conciliation procedures in the case of any disputes within the scope of the Convention.

The CBD starts with a Preamble where Party States' considerations and motivations are mentioned and it is the place that provides an outline of the issues to be dealt with

[182] McGraw, 17.

[183] Indeed, President Bill Clinton signed the CBD on behalf of the United States in 1993, however, the Senate has not ratified it, yet. On the other hand, according to Snape III, membership of the United States is much more required than as the US have the largest scientific knowledge and experience in the biological diversity related issues, possess necessary means for a legal and external aid system and a tradition of public involvement in biological diversity protection. See William J. Snape III, "Joining the Convention on Biological Diversity: A Legal and Scientific Overview of Why the United States must Wake up," *Sustainable Development Law & Policy*, 10 no. 3 (2010): 6. http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1043&context=sdlp (June 25, 2019).

[184] Turkey adopted the CBD on 29.08.1996 with law no. 4177. See Official Gazette dated 3 September 1996 with no 22746. http://www.resmigazete.gov.tr/arsiv/22746.pdf (June 20, 2019).

[185] CBD, "List of Parties to the CBD," https://www.cbd.int/information/parties.shtml (May 12, 2019).

and a justification on the necessity of such a convention without establishing any binding commitments.[186] First of all, the Preamble of the CBD starts with emphasizing the *"intrinsic value"* of biological diversity, which implies its protection for its own sake and that biological diversity needs to conserved due to having ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values for present and future generations. This "eco-centric" approach allows for the use of biological diversity but does not give a "moral right" for its destruction by the human-being.[187] In addition, the vital role of biological diversity for evolution and maintenance of the life-sustaining systems of the Earth is emphasized.

The Preamble introduces the concept of "common concern of humankind" for the conservation of biological diversity, recognizes the sovereign rights of the states over their biological resources and the responsibility of the states for conserving their biological diversity and for using their biological resources in a sustainable manner. It also expresses that Party States are concerned about the significant reduction of biological diversity led by the human activities and emphasizes the determination of the Party States to conserve and use sustainably biological diversity for the benefit of present and future generations. [188] Thus, it provides for the regulation of the principle of sustainable development comprising concerns of inter-generational equity.[189] The CBD's Preamble is written in detail and long since some principles previously placed in the draft of Article 3 were transferred to this part at the later stages of negotiations.[190]

[186] Glowka et al., 9.

[187] Cyrille de Klemm and Clare Shine, *Biological Diversity Conservation and the Law*, (Gland, Switzerland and Cambridge, UK: IUCN, 1993), 3. https://portals.iucn.org/library/sites/library/files/documents/EPLP-029.pdf (May 31, 2019).

[188] Summarized from the Preamble of the CBD.

[189] Koester, 101.

[190] Glowka et al., 9.

3.3. Objectives of the Convention on Biological Diversity

Article 1 of the Convention sets forth the objectives, which are "i) the conservation of biological diversity, ii) the sustainable use of its components and iii) the fair and equitable sharing of the benefits arising out of the utilization of genetic resources." These objectives are converted into obligatory commitments through Articles 6 to 20.[191] For example; [192]

> (1) conservation-related obligations are addressed in Articles 6, 7, 8, 9, 11, and 14;
> (2) obligations on sustainable use are addressed in Articles 6, 10, and 14; and
> (3) obligations on the fair and equitable sharing of the benefits are addressed in Articles 14, 15 (such as access to genetic resources); 16 and 19 (such as transfer of relevant technologies); 20 and 21 (funding mechanisms).

Definitional, judicial, procedural and organizational provisions of the CBD are stated in Articles 1-5 and Articles 21-42.[193] Objectives of the CBD do not contain precise targets. The CBD rather includes basic principles to guide the states for the conservation and sustainable use of biological resources and establishes general obligations for the Party States; therefore achievement of the objectives largely depends on the willingness and capability of the Party States. These objectives are spelled out as binding obligations throughout the provisions of the CBD.

3.4 Obligations of the Party States to Achieve the Objectives of the Convention on Biological Diversity

3.4.1 Obligations Related to the Conservation of Biological Diversity

General national obligations for conservation and sustainable use are addressed in Article 6. It sets for the national obligations on both for conservation and sustainable use of biological resources, including the development of national

[191] Secretariat of the CBD, *GBO 1*, 122.

[192] Glowka et al., 15.

[193] Robert Blomquist, "Ratification Resisted: F. Understanding America's Response to the Convention on Biological Diversity, 1989-2002," *Golden Gate University Law Review* 32 no 4 (2002): 5.

programmes for the conservation and sustainable use of biological diversity and integration of the conservation and sustainable use of biological diversity into relevant national plans and policies.

Article 7 addresses **identification and monitoring of biological diversity.** The Convention does not include a list of species or habitats requiring special protective measures at international level unlike some previous agreements because it focuses on national implementation.[194] Article 7 requires for identifying and monitoring components of biological diversity important for conservation and sustainable use by the Party States and identifying processes and activities which may have significant adverse impacts on the biological diversity.

***In-situ* and *Ex Situ* Conservation are stated in** Article 8. It provides for the most comprehensive list of national obligations for safeguarding biological diversity.[195] While the Convention recognizes both *in situ* and *ex situ* conservation, *in situ* conservation is recognized as the main approach for the conservation of biological diversity. Article 8 requires for the establishment of a system of protected areas or areas where special measures need to be taken and for the management of important components of biological resources within or beyond these areas.

Pursuant to this Article, Party States should establish or maintain instruments in order to control and manage risks associated with the use and release of living modified organisms (LMOs) resulting from biotechnology. In addition, it asks the Party States to prevent introduction, control and eradication of alien species threatening ecosystems, habitats or species. Furthermore, environmentally sound and sustainable development in areas neighboring to protected areas should be promoted. By recognizing the crucial role of ILCs embodying traditional lifestyles in the conservation and sustainable use of biological diversity, it entails that the knowledge, innovations and practices of ILCs be respected, preserved and maintained and

[194] Secretariat of the CBD, *GBO 1,* 130.

[195] Snape III, 9.

encourages their customary uses of biological resources based on the condition that they are in compliance with the conservation and sustainable use of such resources.

The CBD allows for the adoption of measures for the *ex situ* conservation of biological diversity, preferably in their countries of origin as complementary to the *in situ* measures. It also allows for the establishment of *ex situ* facilities like gene banks, botanical gardens, aquariums and zoos for the purpose of conservation and sustainable use of biological diversity, preferably in the country of origin of genetic resources.[196] It further stipulates adoption measures to recover threatened species and to reintroduce these species into their natural habitats and to arrange collecting biological resources for ex situ conservation purposes.

Incentive measures, research and training and public education and awareness are the important issues contained in the CBD**.** Party States to adopt reliable economic and social measures to be used as incentives to conserve and use of biological diversity in a sustainable manner (Article 11). Considering the insufficient human capacity especially in developing countries, Article 12 requires conducting scientific and technical training programmes, promoting research activities that contributes to biodiversity conservation and its sustainable use, and cooperating in the use of research results to develop methods to reach the objectives of the CBD with special emphasis on developing countries. The CBD also stipulates the importance of public awareness and educational programmes for the efficient implementation of the Convention.

Environmental Impact Assessment (EIA) was incorporated into a global treaty as a domestic instrument within a non-transboundary framework for the first time.[197] Article 14 requires introduction of appropriate EIA procedures in projects that may negatively affect biological diversity and making appropriate arrangements to ensure that the environmental consequences of governments' programmes and policies have

[196] Secretariat of the CBD, *GBO 1,* 132.

[197] Koester, 101.

been duly taken into account by themselves. Furthermore, the Party States should collaborate with other states on activities under their jurisdiction that may negatively affect the biodiversity of other states or areas beyond national jurisdiction.

3.4.2 Obligations Related to the Sustainable Use of Components of Biological Diversity

As being one of the main objectives of the CBD, sustainable use appears throughout the text of CBD. Although there exists a common understanding that the term of conservation implies to incorporate sustainable use of resources, both terms are mentioned separately and appear next to each other in the CBD.[198] Furthermore, a specific Article (Article 10) is dedicated to sustainable use of components of biological diversity as well as Articles 6 and 14 that contain requirements in relation to sustainable use. Incorporating the concept of sustainable use into the CBD text as one of the objectives demonstrates the importance attached to sustainable use of biological diversity by the states. "Sustainable use" requires using components of biological diversity in a way and at a rate which does not result in decline of biological diversity in the long-term, thus, its potential to meet the needs and desires of current and future generations can be maintained.[199] Article 10 requires for integrating the conservation and sustainable use of biological diversity into national decision-making; adopting measures for avoiding or minimizing adverse impacts on biological diversity; protecting and encouraging the customary uses of biological diversity in compatible with conservation and sustainable use; supporting local populations to develop and implement actions for remedying destructed areas; and cooperating between governments and private sector to develop methods for sustainable use of biological resources.

[198] Secretariat of the CBD, *GBO 1*, 132.

[199] CBD, Art. 2.

3.4.3 Obligations Related to the Fair and Equitable Sharing of the Benefits Arising from the Use of Biological and Genetic Resources

Access to genetic resources and the fair and equitable sharing of the benefits arising from the use of biological and genetic resources are addressed under Article 15. It recognizes the sovereignty of states over their genetic resources, and their authority to determine access to those resources.

Access to and transfer of technology issues are dealt with under Article 16. It charges each Party State - regardless of being developing or developed country - with providing access to and transferring of technologies relevant to the conservation and sustainable use of biological diversity or make use of genetic resources, without making any discrimination between "traditional" technologies and biotechnology.[200] Both terms "technology" and "biotechnology" appear throughout the text of the CBD but it explicitly states in the Article 2 that *"technology"* includes biotechnology. It defines biotechnology as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use."

Access to and transfer of technologies to developing countries is required to be provided under fair and most favourable terms, including on concessional and preferential terms, if agreed.[201] However, if the technology is subject to patent or intellectual property rights, access and technology transfer is to be provided based on terms that recognize and are in compliance with the protection of intellectual property rights. Party States should develop national regulations to ensure that developing countries have access to and transfer of technology on MAT, including technology patented or protected by other IPRs. They are also required to cooperate to ensure that utilization of such rights supports and do not contradict to the objectives of the CBD.

[200] Secretariat of the CBD, *GBO 1*, 134 and Article 16(1).

[201] CBD, Article 16(2).

In order to address how to **handle biotechnology and distribute its benefits**, it requires Party States to take all necessary measures to ensure that developing countries providing genetic resources effectively participate in biotechnological activities and obtain benefits arising from biotechnology using genetic resources.[202] In addition, consideration of a protocol for safe transfer, handling and use of living modified organisms (LMOs) by the Party States is foreseen.[203] The obligations of Party States on the provision of financial resources are addressed in Article 20 and establishment of a financial mechanism is addressed in Article 21.

3.5 Autonomous Institutional Arrangements (Treaty Bodies of the CBD)

The Convention sets up a standard organizational structure of a contemporary environmental treaty: a governing body, the Conference of the Parties; a Secretariat; a scientific advisory body; a clearing-house mechanism and a financial mechanism in order to transform the general obligations of the Convention to obligatory rules or guidelines, and provide assistance to the Party States in relation to the implementation.[204]

Conference of the Parties (COP) is the governing body of an international environmental agreement and consists of Party States' representatives with various functions such as making decisions, amending an international environmental treaty or adopting new protocols, dealing with cases of non-compliance and monitoring compliance with the obligations under such treaties.[205] Article 23 of the CBD establishes a Conference of Parties (COP) to conduct regular reviews on the implementation of the Convention through national reports. It establishes subsidiary bodies, where required. It adopts budget, protocols or amendments to the Convention. Hence, the COP can address specific issues such as biosafety or access

[202] Ibid., Article 19(1), (2).

[203] Ibid., Article 19(3).

[204] Secretariat of the CBD, *GBO 1,* 124.

[205] Beyerlin, 283.

to genetic resources beyond general framework of the CBD. The COP also functions as the meeting of the Parties (MOP) to the Cartagena Protocol on Biosafety and Nagoya Protocol on access and benefit-sharing.

Member states have the right to vote in the COP meetings but observers such as representatives of NGOs, indigenous people, UN organizations and non-member states can participate in COP meetings without having any right to vote. The COP can hold extraordinary meetings as well as ordinary meetings, when required.[206] To date, there have been fourteen ordinary meetings and only one extraordinary COP meeting (ExCOP) held in Cartagena, Colombia in 1999 to consider and adopt the first protocol on biosafety to the CBD.

The first session of the Conference of the Parties (COP-1) was held in 1994 in Nassau, Bahamas. The COP have held annual ordinary meetings between 1994 and 1996, however it has gathered less frequently from 1996 to 2000 and finally through a procedural change, the COP meetings have been held bi-annually since 2000. During the first three meetings of the COP, the Party States concentrated on the establishment of an institutional setting up including development of basic procedures and standard operating procedures of the institutions, determination of priorities and information gathering.[207] According to Henne and Fakir, the fourth meeting of the COP to the CBD (COP-4) brought a new implementation phase to the biodiversity regime of the CBD both at international and domestic level.[208] The COP-4 adopted "The Programme of Work" for further fifth, sixth and seventh meetings between the years 1999-2004.[209] The COP-6 adopted the Strategic Plan that requires Party States to implement three objectives of the CBD in a more effective

[206] CBD, Article 23 (2).

[207] Secretariat of the CBD, GBO 1, 127.

[208] Henne and Fakir, 321.

[209] COP 4 Decision IV/16, *Institutional matters and the programme of work,* https://www.cbd.int/decision/cop/default.shtml?id=7139 (June 6, 2019).

and coherent way and to reduce significantly the rapid rate of biodiversity loss by contributing to struggle with poverty and to the benefit of all living things.[210]

During the COP meetings substantial legislative achievements and guidelines were adopted. The Cartagena Protocol on Biosafety was opened for signature at the fifth meeting of the COP.[211] The COP-6 adopted Bonn Guidelines which aims at providing assistance to government to take measures for the management of access and benefit-sharing in 2002. During the tenth meeting of the COP (COP-10) held in 2010 the "Nagoya Protocol" aiming at fair and equitable sharing of the benefits stemming from the genetic resources was adopted. Raustiala argues that the creation of the COP as a permanent institution might be the main achievement of the CBD, thus biodiversity issues can be continuously handled at global level.[212] The last 14th meeting of the COP was held in Sharm El-Sheikh, Egypt in 2018.[213]

So far the COP has established 7 thematic work programmes: (a) Agricultural Biological diversity, (b) Dry and Sub-Humid Lands Biological diversity, (c) Islands Biological diversity, (d) Marine and Coastal Biological diversity, (e) Forest Biological diversity, (f) Mountain Biological diversity, and (g) Inland Waters Biological diversity.

As well as these thematic programmes, the COP also deals with cross-cutting issues in parallel to the issues addressed in Articles 6-20 of the CBD, such as biosafety; access to genetic resources and benefit-sharing; traditional knowledge, innovations

[210] COP 6 Decision VI/26, *Strategic Plan for the Convention on Biological Diversity,* https://www.cbd.int/decision/cop/default.shtml?id=7200 (June 6, 2019).

[211] COP 5 Decision V/1, *Work plan of the Intergovernmental Committee for the Cartagena Protocol on Biosafety,* https://www.cbd.int/decision/cop/default.shtml?id=7143 (June 7, 2019).

[212] Kal Raustiala and David G. Victor, "Biodiversity since Rio: The Future of the Convention on Biological Diversity," *Environment* 28 no. 4 (1996), 6. https://core.ac.uk/download/pdf/52946695.pdf (June 14, 2019).

[213] See Appendix B for the meetings of the Conference of the Parties to the CBD.

and practices (Article 8(j)); sustainable use; intellectual property rights; etc.[214] Cross-cutting issues establish connections between the thematic programmes, in this way, they provide a harmony for the tasks within the scope of the CBD.[215]

The Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) is established in accordance with Article 25 of the CBD. The SBSTTA is required to assess the status of biological diversity and the measures taken to implement the CBD; identify and promote innovative, efficient and modern technologies; make recommendations on the basis of the assessments and –provide information to the COP, when requested.[216]

All parties can participate in the SBSTTA meetings and they gather each two-year period before the COP meetings and it reports to the COP at each ordinary meetings of the COP.[217] The COP takes into account recommendations of the SBSTTA on the issues concerned before the adoption of its decisions, however, in some occasions the COP has made explicit endorsements of SBSTTA recommendations on specific issues as a whole or partly.[218] Being as the scientific, technical and technological advisory body, it establishes *ad-hoc* scientific and technical experts' groups on particular issues.

A Secretariat is established in accordance with the Article 24 of the CBD to carry out day to day operations such as organization of meetings, preparation of reports, collection and dissemination of information and coordination with other relevant international institutions. It is based in Montreal, Canada and works under the UNEP.

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[214] Secretariat of the CBD, *Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety*, 3rd edition (Montreal, Canada: Secretariat of the CBD, 2005)., xxiv. https://www.cbd.int/doc/handbook/cbd-hb-all-en.pdf (June 6, 2019).

[215] Thematic Programmes and Cross-Cutting Issues, https://www.cbd.int/programmes/ (28 September, 2018).

[216] CBD, Article 25(2).

[217] UNEP/CBD/COP/DEC/I/7, *Subsidiary Body on Scientific, Technical and Technological, Advice,* (28 February 1995), https://www.cbd.int/decision/cop/default.shtml?id=7067 (May 2, 2019).

[218] Secretariat of the CBD, *Handbook of the Convention on Biological Diversity*, xxv.

The Secretariat has a key role in the coordination of activities with other related organizations and conventions. Providing coordination is a challenging task in such a comprehensive and complicated structure; for instance, each convention has its own State Parties that may or may not be party to the CBD and each Convention has its own institutions.[219] Similar difficulties may also emerge regarding coordination with international organizations.[220] For instance, upon the request of the CBD-COP 3, a study was prepared for the CBD-COP 5 in cooperation with the Secretariat of the CMS to assess the possible ways of implementation of the CMS to supplement the implementation of the CBD.[221] Furthermore, at the meeting of CBD-COP 5, the Secretariat was requested to submit a proposal on the methods of integrating migratory species into the work programme of the CBD and on the role of the CMS in relation to cross-cutting issues of the CBD.[222]

Article 21 establishes **a financial mechanism** to provide financial resources on a grant or concessional basis to developing countries to implement the Convention. The mechanism works under the authority and guidance of the COP and it is responsible to the COP. Its institutional structure was determined by the first meeting of the COP (COP 1).[223] The policies, strategy, priorities and eligibility criteria relating to the access to and utilization of the financial resources are determined by the COP. However, while outlining a general framework for the financial mechanism, the Article mentions of "the contributions" and "voluntary contributions" without referring to the obligatory contributions to be made by developed countries in compliance with Article 20.[224]

[219] Glowka et al. 114.

[220] Ibid., 114.

[221] Secretariat of the CBD, *GBO1,* 153.

[222] Ibid., 153.

[223] UNEP/CBD/COP/DEC/I/2, *Decision I/2 Financial resources and mechanism*, (28 February 1995), https://www.cbd.int/decision/cop/default.shtml?id=7062 (June 6, 2019).

[224] Paul Roberts, "International Funding for the Conservation of Biological Diversity: Convention on Biological Diversity," *Boston University International Law Journal* 10 no. 2 (1992): 303-49 http://www.ciesin.org/docs/008-127/008-127.html (May 30, 2019).

Article 20 mainly addresses the national and international commitments of Party States to finance activities as required by the CBD. It charges the Party States with providing financial resources with regard to their national capabilities. It requires that developed countries to provide financial resources to developing countries should meet the agreed full incremental costs of implementing measures. Although the scope of incremental cost is not defined in the text of the CBD, the financing issue of incremental costs takes place in some environmental treaties, such as the conventions on climate change and protection of stratospheric ozone layer.[225] Since economic and social development and eradication of poverty was accepted as a priority for developing countries, the implementation level of obligations of developing countries would be proportionate to the implementation level of obligations of developed countries in relation to provide financial resources and transfer of technology.[226] This Article also requires recognition of specific needs and special conditions of developing countries, particularly small island states and those that are most environmentally vulnerable, such as those with arid and semi-arid zones, coastal and mountainous areas. Hey states that this is an indirect reference to the principle of "common but differentiated responsibilities" of the Party States.[227] Within this principle, while states are struggling for common goals, their responsibilities are varying according to their needs, contributions to environmental deterioration and access to technological and financial resources.[228]

In Article 39, **the Global Environment Facility (GEF)** was determined as the financial mechanism only as a temporary institution and on condition that it would be fully restructured to include a "democratic and transparent system of governance" as required by Article 20 (1).[229] In fact, there was a huge unwillingness of developing

[225] Raustiala and Victor, 4.

[226] Secretariat of the CBD, *GBO 1*, 135.

[227] Ellen Hey, Advanced Introduction to International Environmental Law, (Cheltenham, UK & Northampton, MA, USA: Edward Elgar Publishing, 2016), 69.

[228] Hey, 69.

[229] Raustiala and Victor, 4.

countries on the determination of the GEF as a financial mechanism since they considered that the GEF has not been operating in a transparent and democratic way under the control of its funding countries.[230] This was a very deep disagreement between the countries which might lead to a failure in concluding the convention even on the final negotiation meeting in May 1992.[231] At this point UNEP's Executive Director Mustafa Tolba took an initiative and proposed the GEF as an interim funding mechanism with more transparency and democracy.[232] As a result, Article 39 determined the GEF as an interim financial mechanism and the COP was assigned authority over the GEF. However, the GEF currently continues to perform this task.[233] Projects of the GEF are carried out by the Party States of the CBD and the Implementing Agencies of the GEF that consists of the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and the World Bank.[234]

Article 18(3) of the CBD sets forth the creation of a C***learing-House Mechanism* (CHM).** It is expected to provide all Party States with access to the scientific and technical information they require for biodiversity-related activities. The role of the CHM is not defined in the Article; however, determining the structure of such a mechanism to be established is left to the first meeting of the COP.[235] The second meeting of the COP (COP-2) decided to establish a pilot phase of the CHM for 1996-1997.[236] An independent review of the pilot phase of the CHM was launched at the

[230] Glowka et al, 6.

[231] Chasek,Downie and Brown, (2010), 229.

[232] Ibid., 229.

[233] COP-3 Decision III/8, *Memorandum of Understanding between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility that establishes legal basis for the relationship between the CBD and the GEF*, https://www.cbd.int/decision/cop/?id=7104 (May 2, 2019).

[234] Secretariat of the CBD, *Handbook of the Convention on Biological Diversity*, xxvii.

[235] UNEP/CBD/COP/DEC/I/3, *Clearing-House Mechanism for technical and scientific cooperation*, (28 February 1995), https://www.cbd.int/decision/cop/default.shtml?id=7063 (May 10, 2019).

[236] UNEP/CBD/COP/DEC/II/3 setting up a pilot phase for Clearing-House Mechanism, (30 November 1995), https://www.cbd.int/decision/cop/default.shtml?id=7076 (May 10, 2019).

end of 1998.[237] COP-5 Decision V/14 required that an Internet based global electronic platform for scientific and technical cooperation in relation to biological diversity be developed for matching the demands and needs of Party States to improve scientific and technical cooperation.[238] The COP-5 also adopted the Strategic Plan which was grounded on this independent review of the CHM together with a longer-term work programme for the CHM for the period of 1999-2004.[239]

Decision X/15 of the COP-10 stated the mission of the CHM as the provision of significant contribution to the implementation of the CBD and its Strategic Plan for Biodiversity 2011-2020.[240] The CHM operates on the basis of some principles such as, neutrality, cost-efficiency, accessibility, independence and transparency with a "bottom-up" and "decentralized" structure consisting of national focal points.[241] The Executive Secretary coordinates the CHM and an Informal Advisory Committee built up by the Party States to the CBD provides assistance to the functioning of the CHM.[242]

The COP also established several **other subsidiary organs** usually in the form of committees or working groups operating in accordance with specific terms of references on specific issues, such as biosafety, access and benefit-sharing, protected areas; Article 8(j) and related provisions.[243]

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[237] UNEP/CBD/COP/DEC/IV/2 requiring an independent review of the operations of the Clearing-House Mechanism, (15 June 1998), https://www.cbd.int/decision/cop/default.shtml?id=7125 (May 10, 2019).

[238] UNEP/CBD/COP/DEC/V/14, *Implementation of scientific and technical cooperation in accordance with Article 18 of the CBD*, (22 June 2000), https://www.cbd.int/doc/decisions/cop-05/cop-05-dec-14-en.pdf (June 7, 2019).

[239] Ibid., and Secretariat of the CBD, *GBO 1*, 156.

[240] UNEP/CBD/COP/DEC/X/15, *Scientific and technical cooperation and the clearing-house mechanism*, (29 October 2010), https://www.cbd.int/decision/cop/default.shtml?id=12281(May 10, 2019).

[241] Secretariat of the CBD, *GBO 1*, 156.

[242] CHM Background, https://www.cbd.int/chm/background/default.shtml. (March 4, 2019).

[243] Secretariat of the CBD, *Handbook of the Convention on Biological Diversity*, xxviii.

3.6 Key Characteristics of the Convention on Biological Diversity

3.6.1 Comprehensive Scope of the CBD (Comprehensiveness)

The CBD has the most comprehensive scope in comparison to any other international agreements on the conservation of biological diversity.[244] Its scope is comprehensive since it does not only addresses the conservation of all biological diversity on the global scale and addressing but also the issues in relation to sustainable use of its components and fair and equitable sharing of benefits derived from the use of biological diversity.

Comprehending "the web of life" from genes to ecosystems is an extremely complicated issue, and indeed forms a topic of endless research and discussions among scientists. Before the adoption of the CBD, governments have failed to adopt such comprehensive legal framework dealing with both conservation of biological diversity and sustainable use of biological resources. Previous international treaties have addressed certain aspects of the protection of biological diversity. For instance, while the CITES focuses on specific activities in relation to conservation of endangered species of wild life, the CMS aims to conserve certain species; in the similar vein, while the World Heritage Convention focuses on conservation of specific sites, the Ramsar Convention aims at protecting habitats of water birds.[245] Although these Conventions are significant international treaties, they did not constitute a global regime for protection of entire biological diversity.[246]

As defined in the CBD, biological diversity encompasses variability of life forms together with its all interactions at all levels i.e. genetic, species, population, habitat and ecosystems level.[247] Thus, through the CBD international community wanted to

[244] Torrance, 17.

[245] McGraw, 17.

[246] Secretariat of the CBD, *GBO 1,* 121.

[247] CBD, Article 2.

meet the need for establishing a global regime. With its comprehensive scope with regard to subject matter (biological diversity) and actions (conservation, sustainable use and equitable sharing of benefits), the CBD regime adopts a global approach to encompass all aspects of relationships between humankind and manifestations of life.[248] Therefore, the CBD does not only establish a conservation regime in a traditional sense, because of its very comprehensive nature it acts as a parent convention proliferating protocols, programmes and processes.[249] On the one hand, this makes the CBD "unique" as distinct from other international biological diversity agreements, but on the other hand, "vulnerable" against excessive-expansion.[250] Such comprehensive scope allows Party States to go further to conserve biodiversity in almost every aspect without arranging any additional international legal documents.[251]

3.6.2 Characteristics of Rule-Making of the CBD (Framework Agreement or Convention-Protocol Approach)

As proposed by the USA at the 14th Meeting of UNEP Governing Council in 1987, the initial purpose was to unite previous international agreements on conservation of biological diversity (CITES, Bonn, Ramsar, World Heritage and others) as a single convention and to fill the gaps by establishing new rules.[252] On the basis of the conclusion of the AHWGE in relation to the impossibility of adoption of an umbrella treaty at the global level, the CBD was formulated as a framework agreement, which is more flexible and looser than traditional conservationist treaties.

A framework agreement establishes principles, norms and overall goals for ensuring cooperation on a given particular issue and constitutes institutional mechanisms for

[248] Henne and Fakir, 316.

[249] McGraw, 23

[250] Ibid., 23.

[251] Koester, 101.

[252] Inoue, 5.

the implementation of the agreement instead of imposing significant binding obligations on the Party States.[253] A framework convention is formulated in the form of convention-protocol approach.[254] Framework agreements are followed by the negotiation of one or more protocols which stipulate more specific obligations on the Party States on the overall issue under consideration or on a limited sub-issue.[255] After reaching agreement on general principles, goals and obligations, Party States keep holding meetings on a regular basis for the adoption of more specific and binding obligations on specific issues in relation to the original convention.[256] Therefore, it does not contain specific obligations rather puts general objectives and policies. This convention-protocol approach provides Party States with several capabilities when a new legal arrangement associated with particular problem area that is addressed in the main convention is required.[257] Through this approach, instead of re-opening the main convention to the negotiation and starting the bargaining process from the beginning, which is a lengthy, challenging and complicated diplomatic procedure, the protocols to be annexed to the main convention enables the convention system to be improved and strengthened more practically within its integrity. [258]

According to McGraw, both framework and umbrella conventions may establish basic principles and general goals to be specified further by means of succeeding agreements.[259] In practice, both concepts are frequently used interchangeably

[253] Gareth Porter and Janet Welsh Brown, *Global Environmental Politics*, (Boulder, CO: Westview Press Inc., 1996), 16-17.

[254] Nicolas Pauchard, "Access and Benefit Sharing under the Convention on Biological Diversity and Its Protocol: What Can Some Numbers Tell Us about the Effectiveness of the Regulatory Regime?" Academic Editor: Takayuki Hiraki. *Resources* 6 no. 11 (2017): 4. https://www.mdpi.com/2079-9276/6/1/11/htm (June 6, 2019).

[255] Ibid., 4.

[256] Ibid., 4.

[257] Şule Anlar Güneş, *Uluslararası Hukuk Açısından Çevresel Etki Değerlendirmesi,* (Ankara: Siyasal Kitabevi, 2007), 126-127.

[258] Ibid., 127.

[259] McGraw, 18.

although they are distinct from several aspects. [260] The succeeding agreements have generally a regional coverage in the case of umbrella conventions, while framework conventions are mostly protocols on a specific issue.[261]

Furthermore, while both umbrella and framework conventions provide the basis for future agreements, an umbrella convention retroactively impacts previous agreements but a framework convention may have impacts on the agreements in future.[262] According to McGraw the main distinction between an umbrella and framework agreement is this "retroactivity".[263] Therefore, while a framework agreement does not have hierarchical supremacy on the other existing international conventions;[264] an umbrella convention is hierarchically superior to previous related conventions in effect.[265]

Although the CBD was not titled with the term of "framework", it is generally considered as a "framework agreement". Firstly, the CBD provides a framework including overall goals and principles with flexible obligations on biological diversity with the emphasis on the implementation at the national level depending on the national abilities and conditions of each Party State.[266] GBO 1 states that although the CBD is characterized as framework agreement which enables the Party States to implement the obligations according to their national regulations, it is "more than a framework agreement" that foresees cooperation for the development of more concrete norms for guiding the Party States on the governance of biological

[260] Ibid., 18.

[261] Ibid., 18-19.

[262] Ibid., 19.

[263] Ibid., 19.

[264] Alix Gowlland-Gualtieri and Philippe Cullet, *Key Materials in International Environmental Law,* (Aldershot, Hants, England: Ashgate. 2004): 167.

[265] McGraw, 19.

[266] CBD Secretariat, *GBO 1*, 124.

diversity.[267] It also obligates the Party States to implement measures for the conservation and sustainable use of biological diversity through Articles 5-11 and 14.

However, still, the CBD has been criticised for containing few precise binding obligations upon Party States. It does not establish absolute conservation obligations but frequently refers to qualifiers.[268] All of the conservation-related obligations are qualified with the phrase "as far as possible and as appropriate".[269] On the other hand, these obligations are stated with "shall" indicating that they are legally-binding rules to be implemented by each Party State. For example, Article 5 of the CBD states that "Each Contracting Party **shall**, **as far as possible and as appropriate**, cooperate with other Contracting Parties,..." It is apparent that use of these words together is leading to confusion about whether implementation of these provisions is obligatory or there is a flexibility given to Party States for not implementing these provisions. There are diverse opinions on the inclusion of ambiguous expressions in the CBD. Such a wording seems to allow for interpreting the situation as if implementation of the provisions is conditional upon the specific conditions and priorities of each Party State. Or if financial resources are provided to countries in need of financial assistance to fulfil conservation measures, they are not obligated to implement those measures. Furthermore, apart from these qualifiers, there are other expressions constraining the scope and implementation of the conservation obligations. Many of the provisions of the CBD contain other phrases with similar function such as "in accordance with its particular conditions and capabilities", "promote" or "taking into account special needs".[270] Qualifying the obligations in such a systematic manner weakens their merit and implications, since it is in the discretion of the countries to decide if conservation is possible and appropriate in view of other imperative needs.[271]

[267] Ibid, 124.

[268] De Klemm and Shine. 22.

[269] Ibid., 22.

[270] Ingvild Ulrikke Jakobsen, *Marine Protected Areas in International Law: An Arctic Perspective* (Leiden, The Netherlands: Koninlijke Brill, 2016). 146.

[271] De Klemm and Shine 22.

On the other hand, Jakobsen explains that it is not logical to consider that such phrase are solely included as a qualifier to deprive the fulfilment of legally-binding obligations for the Party States.[272] According to her, "as far as possible" and "as appropriate" perform different functions and have cumulative effects on the obligations.[273] She states that while "as far as possible" refers to the level of implementation by taking into account different capacities of states; "as appropriate" refers to the discretion that the countries use to decide on the manner of implementation.[274] Such phrases make the achievement of the objectives dependent upon the particular conditions and capabilities of the countries.[275] However, even though such phrases soften and make the obligations ambiguous, they do not have implications on the legal status of the obligations.[276] In other words, the Party States do not have an option not to implement a measure without evaluating if the measure concerned is possible and appropriate at first.[277] However, still, it seems that the success of the implementation of the obligations will mainly rely on the political adherence of all the Party States.[278]

Secondly, as a framework agreement, the CBD establishes legal basis and general obligations for further developments on specific issues in a separate Protocol to the Convention. Article 28 of the CBD explicitly contains provisions for the "Adoption of Protocols", Article 29 sets forth provisions on the "Amendment of the Convention or Protocols" and Article 30 lays down the provisions on the "Adoption and Amendment of Annexes." Prominent legislative achievements were concluded through this Convention-Protocol approach, namely; Cartagena Protocol on

[272] Jakobsen, 150.

[273] Ibid., 147.

[274] Ibid., 148, 149.

[275] Virginie Barral, "Sustainable Development and Equity in Biodiversity Conservation," in *Biodiversity and Nature Protection Law Volume III*, eds. Elisa Morgera and Jona Razzaque (Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing, 2017), 66.

[276] Jakobsen, 153.

[277] Ibid., 153.

[278] De Klemm and Shine, 22.

Biosafety and the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits.

Thirdly, the CBD is founded on the existing treaties not encompassing them.[279] According to Article 22, the provisions of the CBD do not have any retroactive impact on the rights and obligations of the Party States originating from any existing international agreements.[280] It means that the CBD does not make any alterations in the rights and obligations stemming from other existing international agreements to which the countries are Party since it does not have superiority on these agreements. However, the CBD is able to formulate new regulations that could also applicable to existing agreements as the same Article makes an exception by stating that "..except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity". Therefore, De Klemm and Shine argues that in the case of a conflict between the CBD and any other agreement -regardless of its subject- that may have serious negative impacts on biological diversity, the provisions of the CBD are prevalent.[281] In this sense, since the CBD is capable of making new norms that may impact previously existing conventions, it is treated as an umbrella convention even though it does not possess its legal status.[282]

3.6.3 Sovereignty of States over their Natural Resources within the Context of the CBD

3.6.3.1 The North-South Controversy within the Context of the CBD

The importance of safeguarding the environment was recognized after experiencing adverse impacts of environmental degradation resulting from industrialization.

[279] McGraw, 19.

[280] De Klemm and Shine, 24.

[281] Ibid., 25.

[282] McGraw, 19.

Likewise, the importance of conservation of biological diversity was noticed after realizing its economic value because of the rapid loss of biological diversity.[283] It has been recognized that the rehabilitation of destructed ecosystems' functions owing to the overexploitation or pollution may require much more resources; -even sometimes it is impossible to recreate them - than the prevention of the loss of such functions.

Conservation of biodiversity is a critical issue in the controversy of the North and Southern countries. The main discussion regarding biological diversity concentrates on the access to and equal benefit-sharing of biological resources arising from the utilization of genetic material as pharmaceutical or biotechnological products or for other commercial purposes. Having seen the potential of genetic material of organisms for improving agricultural crops and developing medicines, genetic resources and genetic knowledge have gained crucial importance for scientific research, agriculture and industrial products. Therefore, the strongest concern for biological diversity loss was voiced in the Northern countries having profound scientific knowledge on genetic materials and advanced (bio)technologies.[284]

In the case of biological diversity conservation, the position of the Southern countries was different from that of the Stockholm Conference since the Southern countries host the vast majority of valuable biological diversity.[285] It was apparent even at the beginning of the negotiations for conservation of biological diversity that economic disparities between the countries of the North holding sophisticated technologies and know-how to use and gain economic benefits from such resources and the countries of the South those are rich in terms of having biological diversity with economic value would dominate the negotiations.

[283] G. Kristin Rosendal, "Global Biodiversity Governance: Genetic Resources, Species and Ecosystems," in *The Global Environment: Institutions, Law, and Policy*, eds. Regina S. Axelrod and Stacy D. VanDeveer (USA: CQ Press, 2015), 289.

[284] Rosendal, *Global Biodiversity Governance*, 289.

[285] Beyerlin, 265.

The unequal dissemination of biological diversity on the Earth is the primary reason behind such conflicts as the vast majority of biological diversity is situated in tropical countries of the South, for example, out of the 12 richest biological diversity countries, 11 are in the developing world (Brazil, China, Colombia, Congo, Ecuador, India, Indonesia, Madagascar, Malaysia, Mexico and Peru), but the "biotechnology rich" countries are located in the North.[286] On the basis of this background, as can be expected, interests and needs of these two groups that are taking part in the utilization of biological resources and their genetic materials are deeply divergent from each other.

One of the most popular examples of this conflict is the case of rosy periwinkle (Catharanthus roseus). This plant is considered to be native to Madagascar, which contains two alkaloids, *vinblastine and vincristine,* used in the treatment of several cancers, such as Hodgkin's disease, brain tumors, breast cancer and leukemia.[287] Thanks to the drugs derived from the rosy periwinkle which was introduced by the Eli Lilly Company in the 1960s, approximately $200 million annual revenue flowed to the company without any benefit going to Madagascar.[288] Moreover, it is asserted that many of genetic inventions known as the products of the Northern countries are mainly invented by misusing traditional knowledge and genetic resources of the Southern countries[289]. In spite of this situation, the newly invented genetic products are subjected to patenting procedures by developed countries, which contribute to worsening of the controversy.[290]

[286] Inoue, 5.

[287] Torrance, 3.

[288] Ibid., 3.

[289] Jonathan Curci, "The New Challenges to the International Patentability of Biotechnology: Legal Relations between the WTO Treaty on Trade-Related Aspects of Intellectual Property Rights and the Convention on Biological Diversity," *BYU Int'l L. & Mgmt.* 2 no. 1 (2005): 40. https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?article=1022&context=ilmr June 1, 2019)

[290] Curci, 40.

The North and the Southern countries started with divergent views to the negotiations of the biological diversity. In general, -because of disastrous environmental experiences in the past - the Northern countries strongly emphasized their concerns on the conservation of biological diversity in parallel to their interest in preserving biodiversity and the Southern countries stressed their considerations on equitable sharing of benefits obtained from the use of biological diversity.[291] Therefore, during the CBD negotiations, the honesty of apparent aim of the industrialized countries for saving rapid disappearance of biological resources was intensively questioned by developing countries.[292] In spite of these arduous discussions, -even the countries hosting most of biological diversity considered to boycott the negotiations- the convention reached a compromise.[293] As a result, the text of the CBD consisted of several provisions on access to genetic resources and fair and equitable sharing of the benefits derived from biological resources and addressed the economic benefits of biological diversity.[294]

Practices of intellectual property rights (IPR) were a major issue on which critical discussions were made because even if developing countries or their traditional communities provide biological resources and its related knowledge that form the basis for many pharmaceutical, agricultural, and biotechnological innovations, they are subjected to the strict patenting requirements.[295] Until the CBD, bio-prospectors[296] from developed countries freely obtained biological resources from

[291] G. Kristin Rosendal, *The Convention on Biological Diversity and Developing Countries* (Dordrecht, The Netherlands: Kluwer Academic Publishers, 2000), 88.

[292] McGraw, 26.

[293] Torrance 19.

[294] Ibid., 19.

[295] Raustiala and Victor, 4.

[296] Bioprospecting is the contracted form of biodiversity prospecting and was defined as "the exploration of biodiversity for commercially valuable genetic and biochemical resources." *See* Walter V. Reid et al., "A New Lease on Life", in *Biodiversity Prospecting: Using Genetic Resources for Sustainable Development e*ds. Walter V. Reid et al., (Washington D.C: World Resources Institute, 1993), 1. https://zenodo.org/record/292998/files/biodiversityProspecting1993_OCRr.pdf (June 15, 2019).

the countries of origin[297] and used them to develop medicines and other commercial products; however, they sold these products under the protection of patents.[298]

CBD is regarded as a milestone managed by developing countries, but it exactly represents a compromise between the interests of the North and those of the South in relation to biotechnology.[299] The first attempt for the solution of the North and South controversy can be the acknowledgement of strong and weak aspects of both sides. While industrialized countries have advanced biotechnological capabilities, developing countries possess the biological diversity that is not found in the industrialized countries. From this perspective, the proposals to solve this controversy require to emphasize cooperation between developing and developed countries instead of contradicting to each other.[300]

3.6.3.2 The Principle of State Sovereignty in the International Environmental Law

Being one of the oldest principles of international law, state sovereignty means that "*each state has exclusive legislative, judicial, and executive jurisdiction over activities on its territory*".[301] As a most fundamental rule in international relations, States have sovereign rights over natural resources within their national jurisdiction, which means that they can protect, use or destroy them, or allow them to be destroyed under international law.[302]

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[297] The CBD defines "Country of origin of genetic resources" as "the country which possesses those genetic resources in *in-situ* conditions."

[298] A patent is a kind of "contract between researcher and society that makes the researcher's invention public in exchange for royalties offered by society to use the invention for a determined period of time." See Rosendal, *The Convention on Biological Diversity*, 74.

[299] JF. Badimboli Atibasay. "The International Legal Regime for Biotechnology Patenting: An Appraisal from the Standpoint of Developing Countries," *Revue générale de droit* 31 no. 2 (2001): 314. https://www.erudit.org/fr/revues/rgd/2001-v31-n2-rgd01630/1027794ar.pdf (June 7, 2019).

[300] Curci, 15.

[301] Kiss and Shelton, 11.

[302] De Klemm and Shine, 1.

For a long time ago, it was assumed that States have an absolute territorial sovereignty which means they can freely use resources within their borders regardless of probable impacts on neighboring states, in other words territorial sovereignty was regarded as an unlimited concept allowing a state to do whatever it wants.[303] Weiss characterizes current international legal system as the "European" operates on the basis of nation-states.[304] This system is based on the principle of equality of the all sovereign states and focuses on their relations. As all nation states are considered to be equal, they can freely act according to their own interests, which reflect "*a laissez faire philosophy*".[305]

The reaction of national governments to the necessity of international cooperation to address environmental problems was balanced by the principle of national sovereignty and narrow-minded considerations of national interest.[306] While there are many numbers of military and trade agreements and they enter into force more easily, making international agreements on natural resources and environment is a challenging process.[307] Since these agreements usually impose obligations or restrictions on definite freedoms in the exploitation of resources and environment within the territory of the states, they consider as if they will lose some part of national sovereignty.[308] Nevertheless, transboundary effects of environmental problems did not let the nation states exercise an unlimited right of sovereignty within their territorial lands, as one state had to endure the polluting activities of another state. In other words, while using its natural resources, a state is likely to violate the sovereignty of other states due to cross-boundary characteristics of

[303] Nicolaas Jan Schrijver, *Sovereignty over natural resources: balancing rights and duties in an interdependent world s.n.*, (University of Groningen, 1995), 219. https://www.rug.nl/research/portal/files/3265510/h8.pdf%60 (May 31, 2019).

[304] Weiss, 347.

[305] Weiss, 347.

[306] Caldwell, 32.

[307] Ibid., 32.

[308] Ibid, 32.

environmental problems. Thus, according to Schrijver, territorial sovereignty of a state reaches its limits when its exercise touches the integrity of another state.[309]

Although sovereignty of states includes exploiting freely their own natural resources in line with their environmental and economic policies, it is not absolute and confined by the responsibilities of the states while implementing the activities. The Stockholm Declaration, clearly stipulates sovereignty of states in its Principle 21 as *"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…",* but, on the other hand, just after this statement it sets a balance between sovereign right of the states to exploit natural resources and duty on not to cause damage to the environment by stating that *"the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."* in the same principle.[310]

With the contribution of the awareness-raising on the environmental problems, a good progress was made during the twenty years between the Stockholm and Rio Conference in relation to international acceptance of environmental policy at global level.[311] On the one hand, especially, developing countries started to agree that environmental problems within the territory of countries represent a legitimate international concern for the involvement of the rest of the world.[312] On the other hand, the attitude of international institutions began to adopt international environmental initiatives taking on board the priorities of the South for economic

[309] Schrijver, 219.

[310] Dinah L. Shelton & Alex Kiss, "Guide to International Environmental Law," in *Guide to International Environmental Law,* Alexandre Kiss and Dinah Shelton (Leiden, Boston: Martinus Nijhoff Publishers, 2007), 12.
https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2047&context=faculty_publications (June 15, 2019).

[311] Caldwell, 79.

[312] Hurrel and Kingsbury, 44.

development and equity to achieve sustainable development.[313] Therefore, at the end of the Rio Conference, developing countries inserted the words "and developmental" after "environmental" into the Principle 2 of the Rio Declaration, fearing that Principle 21 of the Stockholm Declaration might be used to limit their growth.[314] Actually, Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration are identical to each other with the exception of incorporating "and developmental" into the Rio Declaration. This implies while exploiting natural resources, both developmental and environmental policies need to be taken into consideration; therefore, the Rio Declaration and Agenda 21 refer to the international law on sustainable development rather than international environmental law.[315]

3.6.3.3 Common Concern as a New Qualification to National Sovereignty Principle

The CBD refers to state sovereignty in its Preamble, Article 3 and Article 15. It introduces a new qualification to the national sovereignty, which states that the conservation of biological diversity is a "common concern of humankind (CCH)." According to Kiss and Shelton, when a matter is designated as "common concern", it exceeds the limits of national jurisdiction of states and becomes a legitimate interest for international regulation."[316] Therefore, environmental problems that do not recognize national borders are one of the most convenient issues to which the CCH principle applies. On the one hand, this principle necessitates international cooperation while combatting common problems, but on the other hand, it provides

[313] Soroos, 33.

[314] Norman J. Vig, "Introduction: Governing the International Environment", in *The Global Environment: Institutions, Law and Policy, eds.* Norman J. Vig and Regina S. Axelrod (Washington D.C: CQ Press, 1999), 15.

[315] Ibid., 15.

[316] Shelton and Kiss, *Guide to International Environmental Law,* 14.

states with norms and limits for their legal domestic actions with transboundary impacts in the lack of international cooperation.[317]

The principle of the common concern of humankind (CCH) and the principle of the common heritage of humankind (CHH) are related concepts but they are distinct from each other. In accordance with the principle of CHH, the owner of the resources is the Earth itself as a whole; therefore, it constrains states to exercise sovereign rights over common resources.[318] The CHH requires that common resources be exploited for the benefit of entire humanity.[319] While the CCH more conveniently applies to particular issues, the principle of the CHH finds its field of application in areas or resources beyond the borders of national jurisdiction such as deep seabed, subsoil and outer space and their resources.[320] Without being subjected to the permanent sovereignty of state, the principle of CHH requires a jurisdictional transfer on the management of them to "an international authority" from states under the CHH.[321] Therefore, the principle of CHH is considered to be more suitable to manage exploitation of common resources in a sustainable manner, while the principle of CCH lays a foundation for protection of common resources at stake.[322]

As the principle of CHH is concerned with the exploitation of common resources, it requires common ownership and control which exceeds the permanent sovereignty of

[317] Thomas Cottier *et al.,* "The Principle of Common Concern and Climate Change," *NCCR Trade Working Paper* no 18 (2014): 5. https://www.zora.uzh.ch/id/eprint/110981/1/2014-nccr-Common-Cons.-Climatechange-PA-et.al.pdf (June 6, 2019)

[318] Christine Willmore, Sovereignty, Conservation and Sustainable Use in *Biodiversity and Nature Protection Law Volume III*, eds. Elisa Morgera, Jona Razzaque, (Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing, 2017), 39.

[319] Willmore, 40.

[320] Hey, 63.

[321] Willmore, 40.

[322] Chelsea Bowling, Elizabeth Pierson and Stephanie Ratté, "The Common Concern of Humankind: A Potential Framework for a New International Legally Binding Instrument on the Conservation and Sustainable Use of Marine Biological Diversity in the High Seas," (2016): 3. http://www.un.org/depts/los/biodiversity/prepcom_files/BowlingPiersonandRatte_Common_Concern.pdf (June 7, 2019).

states.[323] Before the CBD, developed countries used to make pressure on developing countries for conservation of their biological diversity by putting obligations on them without providing any incentives for the fulfilment of their obligations.[324]

On the other hand, the principle of CCH functions within the permanent sovereignty of states.[325] Therefore, the CCH does not require a transfer of jurisdiction of states to an international authority.[326] However, CCH balances international cooperation and state sovereignty since the obligations originated from international law are required to be implemented within national jurisdiction of states.[327]

The principle of CHH was rejected at the beginning of negotiations of the CBD by developing countries in spite of insistence of developed countries for its consideration in the context of the CBD. However, on the contrary, previously in 1983 some developed countries were not in favor of application of the principle of CHH for their modern breeds because of IPR requirements during the Conference on voluntary International Undertaking on Plant Genetic Resources for Food and Agriculture (IUPGRFA) convened by the FAO.[328] They asserted that in accordance with the IPR requirements, breeds grown through using traditional methods should be regarded as the goods within the public domain to be accessed without any

[323] Thomas Cottier *et al.,* "The Principle of Common Concern and Climate Change," *NCCR Trade Working Paper* no 18 (2014): 14-15.

[324] De Klemm and Shine, 281.

[325] Cottier *et al.,* "The Principle of Common Concern and Climate Change," 14-15.

[326] Willmore, 40.

[327] Kiss and Shelton, *Guide to International Environmental Law,* 15.

[328] Chasek, Downie and Brown, 227. In 1983, the non-binding "International Undertaking on Plant Genetic Resources" was adopted. In 2001, legally-binding "the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)", which is the first comprehensive global treaty addressing plant genetic resources for food and agriculture was adopted by the Thirty-First Session of the Conference of the FAO of the United Nations on 3 November 2001. It regards the plant genetic resources as a "common heritage of mankind" It entered into force on 29 June 2004. See International Treaty on Plant Genetic Resources for Food and Agriculture. *UN Treaty Series* No. 43345 at https://treaties.un.org/doc/Publication/UNTS/Volume%202400/v2400.pdf (June 6, 2019) and FAO Resolution 3/2001 "Adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture and Interim Arrangements for its Implementation" at http://www.fao.org/3/Y2650e/Y2650e01.htm (June 7, 2019).

restriction and they could be suitably subject to the CHH, while modern breeds should be regarded as private property.[329] Developing countries objected to these arguments on the basis of unfairness by stating that developed countries freely acquire and use their genetic resources for the development of modern breeds, but they apply strict IPR requirements only on their modern breeds produced by using traditional breeds or knowledge.[330] They further stated that biodiversity should not be treated as common resources of the Earth different from the oceans or space since most of biological diversity are located in areas under national jurisdiction or even they are private property.[331]

Consequently for the first time in a biodiversity-related treaty, conservation of biological diversity is affirmed as "a common concern of humankind" differing from the previous international practices in relation to the exploitation of biological resources. [332] With the concept of "common concern", the global environment would not be considered as isolated within the states' national jurisdiction because of its vital importance and consequences for all humanity.[333] According to Cottier *et al*, if there exists a reference to "common concern" for a problem it represents a compromise to recognize "the very existence of a shared problem". [334] The CCH principle enables Party States to have sovereign rights over their biological resources and the authority to determine access to genetic resources, but on the other hand, it also admits the responsibilities of the Party States for conserving their biological diversity and for using biological resources in a sustainable manner. The third clause of the Preamble makes a connection between the sovereign rights of states over their

[329] Chasek, Downie and Brown, 227.

[330] Ibid., 228.

[331] McGraw, 22.

[332] Glowka et al., 3.

[333] IUCN Environmental Law Programme, *Draft International Covenant on Environment and Development. Fourth edition: Updated Text, p*repared in cooperation with the International Council of Environmental Law (Gland, Switzerland: IUCN, 2010), 40.
https://portals.iucn.org/library/sites/library/files/documents/EPLP-031-rev3.pdf (April 17, 2019).

[334] Cottier et al. 9.

biological resources and the common concern that all humankind holds in assuring the conservation of biological diversity.[335]

Major contemporary international environmental conventions (such as United Nations Framework Convention on Climate Change (UNFCCC), CBD, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage) refer to the concepts of "common interest" or a "common concern of humankind" either in the preambles or sometimes in the main body to show the Party States' will to form a community in solidarity for reaching a common well-being on a global scale.[336] Affirmation of the common concern resulted in prominent achievements under the CBD. The Party States developed their own national policies on the conservation of biological diversity, and they further adopted the Bonn Guidelines on access and benefit sharing, which led to the Nagoya Protocol on Access to Genetic Resources within the scope of the CBD. [337]

3.6.3.4 The Exercise of State Sovereignty within the Context of the CBD

The growing recognition of great value of biological diversity for humanity for present and future generations makes its conservation a significant concern for the world at global level. Companies working in biotechnology and pharmaceutical industries have gained multi-billion dollars stemming from the exploitation of biological resources. Having recognized tremendous revenues which biological resources possess, the existing situation started to be intensively questioned, in particular, the questions of "who owns, controls and profits from the genetic information stored in species."[338]

[335] Glowka et al., 10.

[336] Beyerlin, 270.

[337] Cottier et al., 5.

[338] McGraw, 17.

The CBD addresses state sovereignty in its several Articles. Article 3 of the CBD acknowledges the sovereign rights of Party States over their own resources, which represents a cornerstone for the conservation of biological diversity and it is identical to the Principle 21 of the Stockholm Declaration. It stipulates 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, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”

This Article confirms the principle of the state sovereignty over their resources, which grants states the sovereign rights to exploit their own resources in accordance with their own environmental policies. In this Article, "sovereign rights" of states refer to the rights recognized under the international law for the exploitation of resources.[339] However, the sovereign rights of states are not absolute and subject to restrictions. Firstly, Article 3 makes a reference to compliance to the Charter of United Nations and the principles of international law while exercising sovereign rights to exploit their own resources. In other words, states do not freely act in silence anymore in the management and exploitation of their own biological resources; they are required to take into account their obligations under the Charter and the principles of international environmental law.

Secondly, Article 3 stipulates the responsibility of states to ensure not to cause transboundary environmental damage resulting from the activities within their national jurisdiction or control (no harm obligation). However, this obligation applies to all Party States equally since Article makes no reference to the socio-economic level of states; therefore, this principle is required to be applied regardless of development level of states and applicable to both North and Southern countries.[340]

[339] Glowka et al., 26.

[340] Cottier et al., 10.

After the US proposal to create an all-encompassing convention for the conservation of biological diversity, developing countries raised the questions of by whom such expensive conservation activities are covered required by such a convention.[341] Consequently, developing countries did not accept such a proposal by claiming that it would be an expensive demand without any incentive to finance these efforts, so, they asked for a fair sharing of benefits obtained from the biological diversity expected to be conserved.[342] There is also another issue with historical background for which developing countries asked its correction: the unfair sharing of benefits stemming from the trade of genetic resources.[343] Thus, the CBD adopted a different approach and became the first international treaty recognizing the sovereign rights of states over "their genetic resources" within national jurisdiction of states.

Article 15 consists of seven provisions and addresses the sovereign rights and obligations of states over their genetic resources. It stipulates that state sovereignty over the resources includes genetic resources and the authority to determine access to genetic resources remains under the jurisdiction of national governments and it is subject to their national legislation. For the realization of third objective of the CBD, the scope of the regime established by the CBD includes genetic material of plants, animals and microorganisms[344] According to Glowka *et al,* genetic resources are biological resources that are utilized for their genetic material and not for their other qualities under the CBD, therefore, Article 15 confines the use of genetic resources for their genetic purposes.[345] In this case, for example, benefits gained as a consequence of non-genetic usage of genetic resources, such as access to a forest for timber extraction or hunting are not required to be shared, creating an ambiguity to be resolved by the national legislation.[346] Furthermore, in spite of the fact that the

[341] Kerry Ten Kate and Sarah A. Laird, *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefit-Sharing*, (London&Sterling VA: Earthscan, 1999), 4.

[342] Torrance, 19.

[343] Ten Kate and Laird, 4.

[344] Pauchard, 2.

[345] Glowka et al., 76.

[346] Ten Kate and Laird, 17.

CBD does not make any distinction between the categories of genetic resources, the COP 2 of the CBD confirmed that human genetic resources were not included within the scope of the CBD. [347]

No matter what kind of biological resources is used for gaining commercial benefit, the source country has the right to gain benefits that can be in the form of cash, samples of collected materials, participation in national research, transfer of information and equipment of biotechnology, and shares of any profits stemming from the use of the resources.[348] According to Beyerlin, formulation of Article 15 apparently reflects the desire for international justice by creating a legal framework that balances the sovereign rights of states over their natural resources and the interests of international community in exploiting these resources.[349]

The first clause of Article 15 (Article 15.1) acknowledges the sovereign rights of the states over their both natural and genetic resources. In accordance with this Article, states have the authority to determine access to genetic resources in accordance with their national legislation. On the other hand, in the following clause (Article 15.2), it emphasizes the obligation of states to create conditions for facilitating access to genetic resources for environmentally sound uses and not to impose restrictions contrary to the objectives of the CBD. Logically, if access to the biological is not granted, then there will not be any benefit to be shared, on the other hand, if the benefits are not equally shared, then there may not be adequate resources preserved for using in future. Thus, the CBD sets a balance between the authority of state to determine access to genetic resources and their obligations to facilitate access by other Party States to achieve objectives of the CBD.

[347] Ibid., 17.

[348] Secretariat of the CBD, *Sustaining Life on Earth*, 14.

[349] Beyerlin, 289.

Article 15.3 exempts genetic resources collected before the date of entry into force of the CBD and resources acquired illegally from the provider country after the date of entry into force of the CBD from its scope.[350]

Article 15.4 requires that access be granted on mutually agreed terms (MAT), where granted. The Party States should be mutually agreed over the terms of access such as legal acquisition; use of genetic resources, restrictions for supply and sharing of benefits.[351] By stating that "where granted" Article 15.4 implies that the countries providing genetic resources are not obliged to provide access to genetic resources. However, when access is granted, it needs to be on mutually agreed terms between the provider and user of the genetic resources.

Article 15.5 requires that prior informed consent (PIC) of the Party State providing such resources be obtained and "access to genetic resources" is established to make sure that the providers of genetic resources receive fair share from the benefits stemming from their use. PIC is not clearly defined in the CBD. There has been only one international legally binding document using this concept before the adoption of the CBD: The Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal of 1989.[352] Thus, the PIC has become a concept of international environmental law. According to Glowka et al, PIC is the consent of the Party State that provides genetic resources on the basis of the information provided by the user of genetic resource before granting consent for access.[353] In consequence, pursuant to Articles 15.4 and 15.5, the collection and use of genetic resources is generally subject to permission of the provider country and the conditions of access are required to be mutually agreed.

[350] Glowka et al., 77.

[351] Ten Kate and Laird, 22.

[352] Glowka et al., 80.

[353] Ibid., 80, 81.

The right to be informed consists of the rights of communities on the use of their knowledge, resources, life styles and practices and these rights are independent of sovereignty rights of states.[354] According to Posey PIC is one of the basic rights demanded by indigenous people in relation to the rights on the traditional resources. [355] The right to be informed of indigenous communities can be violated in several ways, such as, use of tribal names and taking photographs without permission, unauthorized trade of biological and genetic resources, unveiling and use of secret knowledge, images and sensitive information and filming.[356]

Article 15.5 requires full disclosure by the user of information in relation to the negotiation of an access agreement, therefore, strengthens the position of countries providing genetic resources.[357] Sequentially, mutual agreement needs to be established before the consent as a part of prior informed consent process.[358] However, with the statement of "unless otherwise provided", Article 15.5 seems to give a flexibility to the countries providing genetic resources for exempting the users of the resources from obtaining a PIC.

Article 15.6 aims at involvement of states providing genetic resources in the research activities undertaken by other states using their resources. Article 15.6 promotes two goals; firstly, scientific research should be promoted for the beneficial uses of genetic resources by the states and second, such kind of research is required to be carried out

[354] Darrell A. Posey, and Graham Dutfield, *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Local Communities* (Ottawa: International Development Research Centre, 1996), 43. https://www.idrc.ca/sites/default/files/openebooks/799-x/index.html (June 6, 2019).

[355] Darrell A. Posey, *Traditional Resource Rights: International Instruments for Protection and Compensation for Indigenous Peoples and Local Communities* (Gland, Switzerland and Cambridge, UK: IUCN, 1996), 17. https://portals.iucn.org/library/sites/library/files/documents/1996-027.pdf (April 17, 2019).

[356] Posey and Dutfield, 44.

[357] Torrance, 24.

[358] Glowka et al., 81.

with the full participation of the provider country and within the territorial boundaries of the country concerned.[359]

Article 15.7 of the CBD requires each Party State to take legislative, administrative or policy measures for a fair and equitable sharing of benefits with the other Party State providing genetic resources, based on MAT. According to Torrance, although this article aims at providing equitable benefit-sharing between the countries benefiting from fruits of bioprospecting and those providing genetic resources for such kind of activities, it has a hortatory nature since it gives states wide margin of discretion and they can use means they find appropriate.[360] By making reference to articles 16 and 19, the benefits to be shared are expanded to cover the provision of access to and transfer of biotechnology (article 16(3)); participation in biotechnological research activities (article 19(1)); and priority access to the results and benefits stemming from biotechnologies (Article 19(2).[361] In other words, developing countries provides access to the genetic resources in exchange for access to the results and benefits stemming from biotechnologies based on the genetic resources.[362].

ILCs play a vital role in the conservation and sustainable use of biological resources. Therefore the issue of benefit-sharing should not only be extended to governments of the states providing biological resources, but also should be further extended to ILCs that have critical knowledge and experience for the conservation and sustainable use of the genetic resources.

[359] Torrance, 25.

[360] Ibid., 25.

[361] Glowka et al., 82.

[362] McGraw, 27.

3.7 Protection of Traditional Knowledge of Indigenous and Local Communities

As being one of the landmarks of the CBD, for the first time, individual and local communities embodying traditional life styles are explicitly mentioned in a convention and their significant contributions for safeguarding and sustainable use of biodiversity are recognized.[363] Traditional communities in developing countries have been maintaining ancient traditions for the conservation of their natural environment and biological diversity over the centuries,[364] Arjjumend et al. states that the earliest examples of species conservation in India go back to the 300 BC., the time of Emperor Ashoka who has a determined policy for the exploitation and protection of natural resources.[365] Many of his successors adopted similar policies in following years."[366] According to Bhattacharya, all of the current policies and practices of many countries for the purpose of conservation of the environment are influenced by the traditional knowledge originated in the ancient times of India.[367] Traditional communities have proven to be successful in managing natural resources and environment sustainably by means of sophisticated systems which they have developed by using their knowledge on the nature for centuries.[368]

[363] Posey and Dutfield, 104.

[364] Arjjumend et al., 3.

[365] Ibid., 3.

[366] Ibid., 3.

[367] Sayan Bhattacharya, "Forest and Biodiversity Conservation in Ancient Indian Culture: A Review Based on Old Texts and Archaeological Evidences," *International Letters of Social and Humanistic Sciences* 30 (2014): 44. https://www.researchgate.net/publication/279742753_Forest_and_Biodiversity_Conservation_in_Ancient_Indian_Culture_A_Review_Based_on_Old_Texts_and_Archaeological_Evidences (July 10, 2018).

[368] Graham Dutfield, *Harnessing Traditional Knowledge and Genetic Resources for Local Development and Trade*, (Draft Paper presented at the International Seminar on Intellectual Property and Development, Queen Mary Intellectual Property Research Institute, Queen Mary, University of London, 2005), 2. https://www.wipo.int/edocs/mdocs/mdocs/en/isipd_05/isipd_05_www_103975.pdf (June 6, 2019).

However, until the 17th century native peoples were considered as humans without souls; and still traditional knowledge is regarded as "folklore" and "not scientific" by many modern scientists.[369] Moreover, these so-called "backward and primitive communities" were held responsible for preventing scientific developments, assuming that traditional knowledge is a superstition and not rational.[370] However, traditional knowledge has begun to be recognized as rational and sound knowledge that possess equal status with scientific knowledge.[371]

3.7.1 Traditional Knowledge and Indigenous and Local Communities

There is not a universally accepted definition of both "traditional knowledge" and "Indigenous and Local Communities". In accordance with the Glossary prepared by the World Intellectual Property Organization Secretariat (WIPO) "traditional knowledge generally includes the intellectual and intangible cultural heritage, practices and knowledge systems of traditional communities, including ILCs."[372] The term "traditional" does not imply old or non-scientific knowledge, rather, it refers to the knowledge created on the basis of traditions in a way to reflect traditions of each community unique to them.[373] In other words, the term of "traditional" is not used in

[369] Darrel Addison Posey, "Biodiversity, Genetic Resources and Indigenous Peoples in Amazonia: (Re)discovering the Wealth of Traditional Resources of Native Amazonians," (Paper presented at Amazonia 2000: Development, Environment and Geopolitics, Institute of Latin America Studies, University of London, 24-26 June, 1998).
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.544.9822&rep=rep1&type=pdf (June 6, 2019), 4.

[370] Ibid., 4.

[371] Francesco Mauro and Preston D. Hardison, "Traditional Knowledge of Indigenous and Local Communities: International Debate and Policy Initiatives", *Ecological Applications* 10 no. 5 (1999). https://www.cbd.int/doc/articles/2002-/A-00108.pdf (June 7, 2018).

[372] WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Secretariat, "Glossary of Key Terms Related to Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions." Twenty-Second Session. (WIPO/GRTKF/IC/22/INF/8), April 27, 2012: 42.
http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_22/wipo_grtkf_ic_22_inf_8.pdf (June 7, 2019).

[373] Curci, 20.

the meaning of "antiquity" considering that much traditional knowledge is still alive and dynamic, not ancient or inactive today.[374]

While some researchers use the term of traditional knowledge interchangeably with the term of indigenous knowledge, some others make differentiation between these two terms.[375] Anaya defines indigenous in general as "living descendants of pre-invasion inhabitants of lands now dominated by others."[376] According to him indigenous peoples, nations and communities are culturally distinctive and they consider themselves absorbed by colonists.[377] Similarly, Article 1 (a) and (b) of the 1989 Indigenous and Tribal Peoples Convention of the International Labor Organization (ILO 169) defines tribal and indigenous peoples separately and makes a reference to the colonization background of indigenous peoples.:[378] Mugabe states that traditional knowledge consists of all kind of knowledge and practices in relation to regulation of socio-economic and environmental issues, therefore, it can be considered as being a community's common ownership.[379] In this case, the scope of traditional knowledge is broader than that of indigenous knowledge; therefore, indigenous knowledge is traditional knowledge but traditional knowledge is not necessarily indigenous.[380] In this thesis, traditional knowledge is used because of its broader scope and taking on board that CBD does not make a clear differentiation between these concepts, for example while 12th clause of Preamble only mentions of

[374] World Intellectual Property Organization (WIPO), Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions: Overview, (2015), 17. https://www.wipo.int/edocs/pubdocs/en/tk/933/wipo_pub_933.pdf (June 7, 2019).

[375] John Mugabe, "Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse," *WIPO*, http://www.wipo.int/edocs/mdocs/tk/en/wipo_unhchr_ip_pnl_98/wipo_unhchr_ip_pnl_98_4.pdf (July 23, 2018).

[376] S. James Anaya, *Indigenous Peoples in International Law*, (New York: Oxford University Press, 2004, 3.

[377] Ibid., 3.

[378] Indigenous and Tribal Peoples Convention, 1989 (No. 169), available at, http://www.un.org/en/genocideprevention/documents/atrocity-crimes/Doc.16_Indigenous%20and%20Tribal%20Peoples%20Convention.pdf

[379] Mugabe, op.cit.

[380] Ibid., 3.

"traditional knowledge", Article 17.2 uses both terms as "indigenous and traditional knowledge".

Traditional knowledge consists of discoveries of local people and their knowledge on biological resources, such as animal breeds, local seeds, plants, crops, and trees. It further explains interactions among biological resources such as which trees and plants flourish well together or demonstrates which plants are indicator plants that mean for example the plants indicating salinity or pH of the soil.[381] It also consists of practices and technologies of traditional communities, such as grain cultivation, storage methods, and planting and harvesting tools production.[382] This knowledge is indispensable for traditional communities to sustain their culture and survival[383]

Indigenous communities have been subjected to exploitation and discrimination for centuries. Therefore, they concentrated their struggles to achieve the right to self-determination. According to Posey, self-determination is unanimous demand of indigenous people and it is the basic feature separating indigenous peoples from other traditional societies and local communities.[384] The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) adopted in 2007 recognizes the right to self-determination of indigenous peoples. As a common tendency, the nation states have perceived the right to self-determination as the wish to achieve the independent statehood sooner or later or at least to have the right to choose independent statehood.[385] According to Anaya, interpreting the right to self-determination as an absolute right to establish an independent state is not a true argument.[386] He states that governments have started to accept self-determination in terms of indigenous peoples' rights; therefore, they exercise the right to self-determination at different

[381] Curci, 19, 20.

[382] Ibid., 19-20.

[383] Ibid., 19.

[384] Posey, *Traditional Resource Rights*, 5.

[385] Anaya, 8.

[386] Ibid., 110, 111.

levels to indigenous peoples.[387] Recognition of right to self-determination of indigenous peoples is of particular importance in relation to the conservation and sustainable use of biodiversity. Without right to self-determination, it is very difficult for traditional communities to resist commercialization of biological diversity.[388]

3.7.2 The Importance and Value of Traditional Knowledge

Traditional knowledge has gained an importance in terms of pharmaceuticals, cosmetic products, and food sector. Almost all modern medicines derived from plants used in contemporary medicine were explored by observing traditional methods of traditional communities and further, agriculturalists, farmers and animal husbandries make use of native breeds developed by local communities to create advanced hybrid grains and animal stock.[389] It is estimated that native lands of traditional communities have been hosting about 85 % of all known plant species.[390]

Table 3: Some examples of contributions that biodiversity-rich countries made to humanity.[391]

Pharmacy	**Industry**	**Agriculture and food**
Anti-cancer drugs: *the vinca alkaloids* Tranquilizers and heart drugs: *reserpine* Birth control: *Dioscorea (source of many steroidal*	"Wild" relatives of plantation and other species for "improvement"/ protection Exudates: *latexes, waxes, resins, tannins, dyes,*	"Wild" relatives of crops for "improvement"/ protection Beverages, sugar, natural sweeteners:

[387] Ibid., 111.

[388] Posey and Dutfield, *Beyond Intellectual Property*, 54.

[389] Glowka et al., 49.

[390] Beyerlin, 288.

[391] Table 3 was quoted from Graham Dutfield, "Between a Rock and Hard Place: Indigenous People, Nation States and the Multinationals," in *Medicinal Plants for Forests Conservation and Healthcare* eds. Gerard Bodeker et al., (Rome: FAO, 1997): 25.

Table 3. (Continued)

drugs) Anaesthetic and surgical aids: *cocaine, teterodoxin, d-tubocurarine, picrotoxin, madecassol, gum gutta percha* Ophthalmology and neurology: *physostigmine, pilocarpine, atropine, hyoscine* Respiratory disorders: *emetine, tolu balsam, benzoin tincture, l-dopa, sarsapogenine, catechin, camphor*	*insecticides (neem, pyrethrins, rotenone)* Fibres and canes: *rattan, bamboos, jute, sisal, kapok* Edible and industrial oils: *palm oils, castor oil* Essential oils: *sandalwood, ylang ylang, sassafras, camphor, anise, nutmeg, vanilla, cinnamon, clove, patchouli, cassi*a *Energy plants/biomass conversion:* biomethanation, fermentation to produce ethanol, pyrolysis	*coffee, tea, cocoa, sugar cane, thaumatin* Beans Roots and tubers: *cassava, yam, sweet potato* Fruits and Vegetables: *tomato, avocado, sweet pepper, aubergine, cucumber, breadfruit, okra* Spices*: cloves, nutmeg, black pepper, allspice, cardamom, vanilla, cinnamon* Nuts: *brazil, peanut, cashew, kola, sesame, macadamia* *Animals: chickens, wild pigs, water buffalo*

Traditional communities hosting rich biological diversity are under the spotlight of private enterprises because of their huge promising commercial benefits. They also carry an economic value for the national governments. Genetic resources contain basic ingredients for biotechnology, agricultural, medicinal and chemical products. Biotechnology enterprises have access to genetic resources by means of bio-prospecting which means collecting and screening genetic resources for biotechnology companies."[392] The annual value of drugs derived from medicinal plants sold in OECD countries was estimated at approximately $43 billion in 1985.[393]

[392] Dutfield, *Between a Rock and Hard Place*, 24.

[393] Peter P. Principe, "The economic significance of plants and their Constituents as Drugs" in *Economic and Medicinal Plant Research, Volume 3,* eds Hildebert Wagner et al. (London: Academic Press Ltd, 1989), 9.

Posey states that indigenous people who provides most of the original knowledge receives almost none of the benefits (less than 0.001%) obtained from exploitation of the resources by using their knowledge.[394] The case of Neem tree is one of the many examples. This tree found in India contains very rich chemical ingredients and has been used by traditional people as medicine or agricultural purposes for hundreds of years.[395] However, USA companies have taken out over 50 patents for products for many different purposes varying from birth control to pesticides.[396] The most striking point is that the patents have been taken out although the Indian law does not permit patenting of medicinal and agricultural products.[397] However, traditional communities of India have made vast majority of these discoveries for the first time over centuries.[398] Such kind of examples has led to arduous discussions with traditional communities who claim that international companies do not have the right to take over their products obtained as a result of hundreds of years of experience.

3.7.3 Convention on Biological Diversity and Traditional Knowledge

As a consequence of increasing recognition of importance and value of traditional knowledge, negotiations during the CBD included preservation of traditional knowledge of the indigenous people in association with biological diversity. The CBD recognizes that ILCs are dependent on biological diversity and ILCs play a unique role for the survival of the life on Earth.[399] Paragraph 12 of the Preamble makes the most explicit reference to the share of benefits equitably with ILCs

[394] Darrel A. Posey, "National Laws and International Agreements affecting Indigenous and Local Knowledge: Conflict or Conciliation?", *APFT Working Paper*, September 1997. https://anthropologieculturelle.ulb.be/centre_danthropologie_culturelle/Recherches_files/Rapport%20APFT-Working.papers-sept1997.pdf (June 17, 2019).

[395] Fikret Berkes, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management* (USA: Taylor Francis, 1999), 166.

[396] Raustiala and Victor, 4.

[397] Berkes, 166.

[398] Posey and Dutfield, 80.

[399] Working Group on Article 8(j), *CBD Convention Bodies,* https://www.cbd.int/convention/wg8j.shtml (July 7, 2018).

although the term “desirability” is likely to undermine the purpose.[400] It does not provide any particular requirements or system on how to put into practice equitable benefit-sharing, indeed national authorities who will implement the CBD are held responsible for the achievement of equitable benefit-sharing. Obligations of Party States for ILCs are stated in Article 8 (j) and related provisions which are Articles 10 (c), 17.2 and 18.4.[401]

Article 8(j) is the primary article which recognizes the significant role of traditional knowledge and practices to conserve biological diversity and to provide its sustainable use and dependency of ILCs on biological diversity. In accordance with Article 8(j) of the CBD, the Party States are obliged;

- to respect, preserve and maintain the knowledge, innovations and practices of these communities on the conservation and sustainable use of biological diversity,
- to promote the wider application of such knowledge, innovations and practices with the approval and involvement of their holders, and
- to encourage equitable benefit-sharing stemming from utilization of such knowledge, innovations and practices.

Glowka *et al* argues that subjecting a Party State’s international commitment to national legislation, as stated at the beginning of the Article, is strange and a strict interpretation of the wording of the Article implies that current and even future national legislation will have supremacy over an international obligation.[402] Therefore, according to Mauro the interpretation of this complex article is still being debated.[403]

Furthermore, all people with traditional ancestry are not covered within the scope of this Article. Indeed, the terminology of "indigenous and local communities embodying traditional lifestyles" intends excluding the people having traditional

[400] Posey, *Traditional Resource Rights,* 43.

[401] CBD/WG8J/10/8, *Integration of Article 8(j) and Provisions Related to Indigenous Peoples and Local Communities in the Work of the Convention and Its Protocols,* (September 9, 2017), https://www.cbd.int/doc/c/cffa/b5d7/285694916392f467a49d3407/wg8j-10-08-en.pdf (May 2, 2019).

[402] Glowka et al., 48.

[403] Mauro and Hardison, op.cit.

ancestry but currently do not live in traditional communities from the scope of Article 8(j).[404] Nevertheless, this is not in compliance with the evolving and adaptive nature of traditional knowledge. Therefore, Posey discusses that any traditional communities should not be left out of the scope of Article 8(j) on the basis of the consideration that traditional knowledge is important for every places and is permanently adjusting to environmental changes.[405] The CBD establishes obligations both for "indigenous" and "local" communities without making any discrimination between them.[406]

Interaction between traditional and scientific knowledge relating to the conservation of and sustainable use of biological diversity is an important issue for the successful implementation of the CBD. The Convention addresses traditional knowledge both as a separate issue and along with the issues relating to intellectual property rights, access to genetic resources, benefit-sharing and the various thematic work programmes.[407]

A Working Group on Article 8(j) and related provisions was established in 1998 by the fourth meeting of the Conference of the Parties (COP-4) in order to assess the implementation.[408] The works under Article 8(j) began at COP-3 held in Buenos Aires of Argentina in November 1996 and the COP4 gathered in Bratislava of Slovakia in May 1998, established and adopted the Terms of Reference for an Open-ended Working Group on Article 8(j).[409]

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[404] Glowka et al., 48.

[405] Posey, *Traditional Resource Rights*, 48.

[406] Mauro and Hardison, op.cit.

[407] Secretariat of the CBD, *GBO 1*, 150.

[408] Working Group on Article 8(j), *CBD Convention Bodies,* https://www.cbd.int/convention/wg8j.shtml (May 19, 2019).

[409] IISD Reporting Services, "Summary of the Seventh Meeting of the Working Group on Article 8(j) of the Convention on Biological Diversity," *Earth Negotiations Bulletin* 9 no 557 (2011). http://enb.iisd.org/vol09/enb09557e.html (June 6, 2019).

Another article addressing the traditional use of biological resources is Article 10 (c). In accordance with Article 10(c), customary utilization of biological resources should be protected and encouraged in accordance with traditional cultural practices on condition that these practices are compatible with conservation and sustainable use requirements. Party States are obligated to take into consideration customary uses while developing policies and legislation in relation to access to genetic resources. Traditional communities look for reconciliation for their customary laws and practices within national law, but insist that each community should be allowed to determine its own criteria that are compatible with conservation and sustainable use.[410] If ILCs are not provided a guarantee on the right to determine their own criteria for conservation and sustainable use of biological resources, they will be dependent upon the criteria of professionals having environmental and developmental expertise but insufficient knowledge and experience on local conditions or traditional knowledge and practice.[411] Bearing in mind that traditional knowledge of ILCs' results from the customary use of biological resources, the success of implementation of Article 10 (c) will be subject to the recognition of the connection between biological resources and such communities that hold the future of biological resources under control.

Article 17 aims at facilitating the exchange of information in relation to the conservation and sustainable use of biological diversity in general. Article 17.2 counts what kind of information is expected to be exchanged between the Party States. However in view of Posey, information exchange is a problematic issue as this exchange is to be realized between states but knowledge of indigenous and traditional communities are regarded as public domain which is not protectable.[412] Repatriation of information having substantial importance to ILCs is also stipulated in Article 17.2, which can be handled as a compensation of the exploitations in the past. Article 18.4 provides for the obligations for encouraging and promoting

[410] Posey, *Traditional Resource Rights,* 48.

[411] Ibid., 48.

[412] Posey, Traditional Resource Rights, 51.

technical and scientific cooperation. The important point here is that indigenous and traditional technologies are given equal status with other contemporary technologies for the conservation of biological diversity.

CHAPTER 4

THE CBD'S OFFSPRINGS

4.1 THE CARTAGENA PROTOCOL ON BIOSAFETY

4.1.1 Introduction

Genetically modified organisms (hereinafter GMOs) give rise to the environmental, cultural, ethical, legal and human health concerns at the global level. It would not be wrong to say that debates on GMOs remind bipolar world system during the Cold War. The battle of two opposite views has been going on for years. On the one hand, some have been highlighting the potential benefits of GMOs, on the other hand some others have been expressing serious concerns about the potential risks of GMOs especially to human health and environment.

Indeed, throughout the history, people have tried to increase their agricultural yield and animal stocks through conventional techniques, such as selective breeding systems. For instance, they have chosen the largest male to mate with the largest female in order to have best farm animal or discovered and used the seeds having the most desirable traits for the later crop yields.[413] As a result of centuries of efforts and experiments, agricultural crops and livestock have gradually become more resistant to diseases and environmental conditions and also become more fruitful. Furthermore, humans have also succeeded in transforming foods through fermentation as a food processing technique that would enable to have a different kind of product with better taste and to provide food safety as well as to extend

[413] John Charles Kunich, Mother Frankenstein, Doctor Nature, and the Environmental Law of Genetic Engineering, *Southern California Law Review* no. 74 3 (2001). http://www-bcf.usc.edu/~usclrev/html_articles/074303/074303.htm (June 1, 2019).

storage duration, such as making yoghurts and cheese from milk.[414] In addition, they have also used hybridization that could occur either naturally or by human intervention for improving the quality and productivity of agricultural plants and animals, which enables breeding between individuals of the same or closely related species.[415] For example, they used cross-pollinations to have plants possessing desired traits by using sexually compatible plants which could not come together because of physical conditions like geographic barriers.[416]

However, at the beginning of 1970s, genetic modification of the living organisms has become possible through new biotechnological developments that are seen as a revolutionary achievement of genetic engineering. Since then, the benefits and risks of this technology have been one of the most controversial debates at global scale. On the one hand, introduction of GMOs are welcomed by some who view new technology as a solution to compensate scarce resources of the Earth for the needs of over-populated world in future but on the other hand this new technology is viewed by others as leading to a disaster on environment and human health.[417]

There is a critical difference between conventional selective breeding methods and genetic modification, to which current severe criticisms are directed. The selective breeding occurs between individuals of the same species or between closely-related species with no modification to the genetic material of the related organisms, therefore, their genetic combinations are limited to the individuals of the same species.[418] However, genetic modification allows the scientists to bypass the hereditary barriers of species and involves the transfer of genetic material between

[414] Ruth Mackenzie, et al., *An Explanatory Guide to the Cartagena Protocol on Biosafety (*Gland, Switzerland and Cambridge, UK: IUCN, 2003), 6.

[415] Matthew Stilwell and Brennan Van Dyke, *An Activist's Handbook on Genetically Modified Organisms and the WTO*, (The Consumer's Choice Council, 1999), 5. http://www.ciel.org/Publications/GMOHandbookSecondEdition.pdf (April 18, 2019).

[416] Mackenzie et al., 6.

[417] Kunich, op.cit.

[418] Mackenzie et al., 7.

organisms from completely irrelevant species, families, phyla or even kingdoms that are not able to breed under any natural circumstances or laboratory environment.[419]

GMOs are organisms of which genetic material has been altered by using genetic engineering methods to contain desired traits from irrelevant organisms.[420] Hence a gene from a tree, a fish, bacterium or any insect can be transferred to crops, tomato or chickens to improve their resistance to the diseases, environmental conditions or to increase their productivity. For instance, a cold-water fish gene preventing it from being frozen was transferred into tomato cells to improve its resistance to cold.[421] However, these foods have been criticized for not being natural as created by the God and called as "Frankenfoods" since 1992 by the opponents of GMOs for disturbing those who advocates consuming such foods and their producers.[422]

One of the most famous examples of GMOs is the transgenic crops into which cells a gene from the Bacillus thuringiensis (Bt) bacterium (producing Bt toxin) was injected to protect it from insects pests.[423] Indeed, Bt exists in nature and has been conventionally used as natural pesticide against insects, but its effectiveness is lost in a very short time.[424] By modifying genetic composition of crops in a way to produce

[419] Kunich, op.cit.

[420] Jane Rissler and Margaret Mellon, *The Ecological Risks of Engineered Crops* (Cambridge, Massachusetts: The MIT Press, 1996), 4.

[421] Charles W. Schmidt, "Genetically Modified Foods: Breeding Uncertainty," *Environmental Health Perspectives,* 113 no. 8 (2005), A530. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1280366/ (April 18, 2019).

[422] Jennifer Welchman, "Frankenfood, or, Fear and Loathing at the Grocery Store," *Journal of Philosophical Research* 32 no. 9999 (2007): 141. https://www.researchgate.net/publication/272764615_Frankenfood_or_Fear_and_Loathing_at_the_Grocery_Store (April 18, 2019).

[423] Jonathan H. Adler, "The Cartagena Protocol and Biological Diversity; Biosafe or Bio-sorry," *Faculty Publications* Paper 190 (2000): 773. http://scholarlycommons.law.case.edu/faculty_publications/190 (June 1, 2019).

[424] Kunich, op.cit.

Bt toxin continuously, the crops had the ability of self-protection from insect pests without using any chemical compound harmful to the environment. [425]

Having first planted commercially in the middle of 1990s, GMOs had been considered to be a great scientific achievement since they contain traits that are resistant to pests and they do not require using pesticides as an herbicide.[426] Therefore, it is not surprisingly that the use of new crops has rapidly increased and their plantation has reached to millions of acres in a very short time. During the 15 year-period from 1996 to 2010 following the production of GMOs with commercial purposes, the planted area has been approximately folded 87 times from 1.7 million hectares to 148 million hectares.[427] In the same period, the number of countries growing genetically modified crops has increased more than four times, from 6 in 1996 to 29 in 2010.[428] USA is placed at the top of the list well ahead of other countries with the coverage of 66.8 million hectares and Brazil, Argentina, India and Canada come after the US.[429]

In spite of rapid increase in the cultivation of genetically modified plants, discussions on the potential adverse effects of these organisms have been continuing as in the case of Bt toxin. Although it was thought that crops modified with Bt genetic material have negligible impacts on the organisms, according to a study conducted by Cornell University indicates that genetically modified corns containing Bt toxin do not only repel the pests but also they pose harmful risks to the larvae of monarch

[425] Ibid.

[426] Schmidt, A527.

[427] Clive James, Global Status of Commercialized Biotech/GM Crops: 2010. *ISAAA Brief No. 42* (Ithaca, NY: ISAAA, 2010), 7. https://www.isaaa.org/resources/publications/briefs/42/download/isaaa-brief-42-2010.pdf (June 1, 2019).

[428] Ibid, 7.

[429] Ibid, 12.

butterflies.[430] Basically, "scientific uncertainty" resulting from the application of the genetically modified organisms lies at the hearth of the concerns. World's public opinion is polarized about applying the genetic make-up manipulation techniques.

Proponents of GMOs advocates primarily that any scientific evidence has not been shown on the adverse impacts of GMOs on human health[431] and genetic modification can be helpful in meeting increased food needs of world population,[432] producing higher quality foods without allergenic or toxic ingredients,[433] improving productivity of crops,[434] reducing the use chemical pesticides[435] and providing new medicines specific to each patient.[436] Opponents of GMOs argue that although genetically modified plants are more resistant to diseases or environmental challenges, they pose potential risks to the human health and environment. In sum, pollution of ecosystems through genetic pollution,[437] emergence of new weeds possessing relatively superior traits that may disrupt natural ecosystem through transfer of new gene from genetically modified plant to wild relatives,[438] lack of sufficient scientific data in relation to safety of genetically modified plants, particularly in the long-term.[439] For example, there is not available satisfactory data

[430] John E. Losey, Linda S. Rayor and Maureen E. Carter, "Transgenic pollen harms monarch larvae," *Nature* 399 (1999): 214. https://www.nature.com/scitable/content/Transgenic-pollen-harms-monarch-larvae-97961 (June 6, 2019).

[431] Kunich, op.cit.

[432] Adler, 772.

[433] Mackenzie et al., 8.

[434] Adler, 772.

[435] Mackenzie et al., 8

[436] Ibid., 8.

[437] Adler, 775.

[438] Rissler and Mellon, 27.

[439] Brady L. Montalbano, "It's Not Easy Being Green—Holding Manufacturers of Genetically Modified Bentgrass Liable under Strict Products Liability," *PENN ST. ENVTL. L. REV.* 14 no. 1 (2005): 115. http://nationalaglawcenter.org/wp-content/uploads/assets/bibarticles/montalbano_easy.pdf (April 18, 2019).

on whether food products derived from GMOs are really free from toxic or allergenic factors on human health.[440] Serious concerns are raised on the adverse effects of GMOs on biological diversity, in particular concerning the results of their introduction into the environment.[441] The concerns on GMOs have been demonstrated through protests, either violently or peaceful, throughout the world.[442]

4.1.2 Negotiation Process and Legal Basis of the Cartagena Protocol on Biosafety

Negotiations of the Biosafety Protocol were the first attempt of the countries to form a binding regime on a global scale for the purpose of addressing risks resulting from biotechnology in a way contributing to its potential for the improvement of human well-being.[443] However, there have been previous works on the safety of GMOs. Because of the increasing international concerns on the release of genetically modified crops into environment and their potential risks on human health, the UNEP Ad Hoc Working Group of Experts on Biological Diversity (ADWGE) had already concluded that any international legal instrument on the conservation of biological diversity should address safety of biotechnology prior to the adoption of the CBD in 1990.[444] The ADWGE decided to establish a Sub-Working Group on Biotechnology at its third session to further investigate biotechnology-related

[440] Mackenzie et al., 8.

[441] Ibid., 8.

[442] Kunich, op.cit.

[443] Paul E. Hagen and John B. Weiner, The Cartagena Protocol on Biosafety: New Rules for International Trade in Living Modified Organisms, *The GEORGETOWN INT'L ENVTL. LAW REVIEW* 12 no. 697 (2000): 699. https://www.cbd.int/doc/articles/2002-/A-00431.pdf (April 18, 2019).

[444] David Hunter, James E. Salzman and Durwood Zaelke, *International Environmental Law and Policy*, (New York: Foundation Press, 2002), 955. See also Ad Hoc Working Group of Experts on Biological Diversity, *Executive Summary on Biotechnology: Concepts and Issues for Consideration in preparation of a Framework Legal Instrument For the Conservation of Biological Diversity*, UNEP/Bio.Div.3/7, (1990), 5.

issues.[445] The Sub-Working Group submitted its recommendations on these issues to be included in a global treaty on biological diversity.[446] Consequently, the CBD addressed the issue of safety of biotechnology in its several Articles. Biosafety refers to "the need to protect human health and the environment from the possible adverse effects of the products of modern biotechnology."[447]

While addressing the biosafety issue, the CBD did not use the term "GMOs", instead, it used the term of "living modified organisms" or LMOs in short. During the CBD negotiations, delegates intensively discussed whether it would refer to "GMOs" or "LMOs resulting from biotechnology.[448] At the time of CBD negotiations, LMOs were seen in two distinct categories: i) LMOs whose genetic material has been modified through traditional techniques and ii) LMOs whose genetic material has been manipulated through modern biotechnology techniques.[449] Generally, the second category is regarded as referring to the GMOs as a sub-category of LMOs and they can be either dead or alive.[450]

In addition, under some circumstances, organisms bred by using conventional methods may possess similar threats as in the case of GMOs, such as the risk of invasiveness, the dissemination of new traits or selection for resistant organisms from bio pesticides.[451] Consequently, delegates decided to use the term of "LMOs resulting from biotechnology" instead of GMOs considering that LMO is much

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[445]. UNEP/Bio.Div/SWGB.1/5/Rev.1, *Final Report of the Sub-Working Group on Biotechnology of the AHWGE on Biological Diversity,* (November 28, 1990), https://www.cbd.int/doc/meetings/iccbd/swgb-01/official/swgb-01-05-rev1-en.pdf (May 3, 2019).

[446] Ibid., 7-12.

[447] Secretariat of the CBD, *Cartagena Protocol on Biosafety to the Convention on Biological Diversity: Text and Annexes* (Montreal: Secretariat of the Convention on Biological Diversity, 2000), 1.

[448] Mackenzie et al., 46.

[449] Ibid., 46.

[450] Glowka et al., 45.

[451] Ibid., 45.

wider and does not necessarily require inserting genetic material to the organism.[452] Although the CBD did not provide any definition, this concept was interpreted as covering all organisms resulting from biotechnology on condition that they are alive.[453]

The principal articles of the CBD in relation to the safety of biotechnology (hereinafter it is referred as biosafety) are Article 8(g), and 19(3). In accordance with Article 8(g), the risks related to the use and release of living modified organisms (LMOs) resulting from biotechnology needs to be regulated, managed or controlled and necessary actions are required to be taken to ensure that LMOs do not cause detrimental environmental effects on the biological diversity as well as risks to the human health.

Article 19(3) of the CBD constitutes the legal basis for a protocol on biosafety. This provision requires the Parties of the CBD consider the need and formation of a protocol to address safe transfer, handling and use of LMOs stemming from biotechnology possessing the risk of detrimental effects on the conservation and sustainable use of biological diversity. Interestingly, Article 28 "Adoption of Protocols" of the CBD does not specify any specific subject for the future protocols. It authorizes the COP to determine the necessity for a further Protocol, subject and scope of the protocols during the implementation of the CBD. However, only LMOs were specifically identified as the issue to be addressed under a separate protocol as stated in Article 19(3).

As the Conference of Parties (the COP) have the authority of considering and adopting of further protocols pursuant to the Article 23 of the CBD, the first COP (COP-1) in 1994 decided to establish an Open-Ended Ad Hoc Group of Experts on Biosafety to consider the need for and modalities of a protocol and they were charged with presenting a report including knowledge, experience and legislation in

[452] Mackenzie et al., 46.

[453] Ibid., 46.

the field of biodiversity together with the views of the Party States and international organizations.[454]

Having reviewed the report and recommendations of the expert group, the COP-2 gathered in Jakarta in 1995 decided to establish an Open-ended Ad Hoc Working Group (also known as Biosafety Working Group or BSWG) to draft a protocol focusing on transboundary movement of any living modified organism derived from modern biotechnology that may have detrimental effects on the conservation and sustainable use of biological diversity.[455] Decision II/5 interpreted the term "living modified organisms (LMO)" as "living modified organisms resulting from *modern biotechnology*." However, Article 8(g) and 19 of the CBD had already used the term of "living modified organisms resulting from *biotechnology*". According to Adler, the scope of Article 8(g) of the CBD is formulated broadly enough in terms of LMOs contrary to the Cartagena Protocol and enabled any country to justify the regulation of genetically modified organism at any level.[456] Nonetheless, the scope of the LMOs in Cartagena Protocol is more limited than that of the CBD which covers organisms derived from the use of both traditional biotechnology and modern biotechnology.[457] Consequently, "LMO" is defined as "any living organism that possesses a novel combination of genetic material obtained through the use of *modern* biotechnology" in the Article 3 of the Cartagena Protocol.

The BSWG gathered six times starting from July 1996 and completed the text of draft protocol including concerns of the Parties at its sixth meeting in February

[454] UNEP/CBD/COP/1/17, *Decision I/9 Medium-term programme of work of the Conference of the Parties,* https://www.cbd.int/doc/decisions/cop-01/full/cop-01-dec-en.pdf (May 2, 2019).

[455] UNEP/CBD/COP/2/19, *Decision II/5 Consideration of the Need for and Modalities of a Protocol for the Safe Transfer, Handling and Use of Living Modified Organisms,* https://www.cbd.int/doc/decisions/cop-02/full/cop-02-dec-en.pdf (May 2, 2019).

[456] Adler, 769.

[457] Article 2 of the CBD defines "biotechnology "as any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use."

1999.[458] The negotiations have proven to be an uphill battle owing to the economic interests and lack of scientific certainty in relation to the use of LMOs resulting from biotechnology.[459] The consolidated draft text of the BSGW-6 sought solutions on which Party States could agree about the major controversial issues and it was forwarded to the Extraordinary Meeting of the Conference of the Parties (ExCOP) for adoption.[460] Three days after the BSGW-6, the first ExCOP to the CBD was held to consider the draft protocol submitted by the BSGW-6 in Cartagena, Colombia on 22-23 February 1999. However, it would not be possible to reach an agreement on the Draft Protocol because of the conflicting views especially on its scope and possible impacts in the trade of LMOs.[461] Consequently, the COP suspended the first extraordinary meeting and decided to reconvene it no later than the fifth meeting of the COP-5 that would be met in May 2000.[462] Furthermore, the title of the protocol on biosafety was agreed to be "the Cartagena Protocol on Biosafety to the Convention on Biological Diversity" after the adoption of the protocol to honor Colombia.[463]

However, the positions of the countries in Cartagena negotiations were differed from those of in the CBD. Normally, it is expected that a country which is a party to the CBD would support the Cartagena Protocol, but this was not the case. In the course of the CBD negotiations, controversial views occurred between developed countries having advanced biotechnology to use genetic resources and developing countries possessing those genetic resources (known as North-South conflict). However, during the negotiations of Cartagena Protocol, controversies occurred among the countries which are the major exporting countries of genetically modified crops; the

[458] BCH, http://bch.cbd.int/protocol/background/#intro (June 16, 2019).

[459] De Chazournes, 5, 6.

[460] Mackenzie et al., 4.

[461] Hagen and Weiner, 701.

[462] EXCOP 1 Decision EM-I/1, *Decision on the continuation of the first extraordinary meeting of the Conference of the Parties to the Convention on Biological Diversity*, https://www.cbd.int/decision/cop/default.shtml?id=7172 (June 6, 2019).

[463] Ibid., See also Kunich, op.cit.

countries which are concerned about the risks of genetically modified crops on the environment and human health and the countries whose economies are mainly based on agriculture.[464]

Five negotiating groups have appeared during the negotiations of the Cartagena Protocol, each of which has distinct views on the substantial key issues. i) The European Union (EU); ii) the Miami Group comprising Argentina, Australia, Canada, Chile, Uruguay and USA; iii) the Like-minded Group comprising developing countries; iv) the Central and Eastern Europe Group and v) the Compromise Group formed by Japan, Korea, Mexico, Norway, Switzerland, Singapore and New Zealand. Economic concerns of the countries led to the cracks in the coalition of developing countries previously constituted in the course of the CBD and new alliances were formed, for example, while Argentina, Chile and Uruguay took part in the Miami Group, Brazil participated in the Like-Minded Group.[465] The negotiations were failed due to serious disagreements between the EU, Like-Minded Group, and Miami Group on the issues such as expanding the obligations of the Protocol to food or feed commodities or for processing, and relationship of the Protocol with other international agreements, in particular WTO agreements.[466] The USA does not have the right to vote in the course of negotiations of the Protocol because it did not ratify the CBD. However, the US participated in the processes as an observer and exerted pressure on the Miami Group.[467]

Before resuming the Ex-COP, three meetings were held to assess political willingness of the countries on resuming the negotiations. Although any agreement has not been reached on some basic issues such as the content of the Protocol, precautionary principle, commodities and relationships with other international treaties and the position of the negotiating countries did not change substantially, the

[464] De Chazournes, 6.

[465] Mcgraw, 25.

[466] Hagen and Weiner, 702.

[467] Montalbano, 118.

Ex-COP resumed in Montreal in January 2000.[468] Indeed, the views of the negotiating groups were fundamentally different from each other, therefore, any hope for reaching an agreement on the outstanding core issues was not exist even during the resumed Ex-COP.[469] However, it is worth saying that protestors coming from all around the world did not leave the area of the conference building and made protests on the streets day and night, thus they put high pressure on the delegations for the finalization and adoption of the biosafety protocol. [470] r

Finally, the Conference of the Parties (reconvened Ex-COP) adopted the Cartagena Protocol on Biosafety to the Convention on Biological Diversity on January 29, 2000.[471] The Cartagena Protocol was opened for signature at the fifth meeting of the CBD-COP (COP-5) in Nairobi, Kenya on May 15, 2000. An Open-Ended Ad Hoc Intergovernmental Committee for the Cartagena Protocol on Biosafety (ICCP) was formed as a temporary body to realize the preparations necessary for the first meeting of the Parties to the Protocol.[472]

The Protocol entered into force on September 11, 2003, which is the ninety days after the receipt of the fiftieth instrument of ratification as stipulated in Article 37 of the Protocol.[473] As of May 2019, the number of Parties to the Cartagena Protocol is 171.[474] The USA is not a Party to the Cartagena Protocol. Turkey signed the Protocol

[468] Hagen and Weiner, 702.

[469] Zeynep Kıvılcım, "Cartagena Protokolü ve Türkiye Biyogüvenlik Mevzuati." *Marmara Avrupa Araştirmalari Dergisi* 20 no. 1 (2012): 104. http://dergipark.gov.tr/download/article-file/1337 (April 19, 2019).

[470] Ibid., 104.

[471] EXCOP 1 Decision EM-I/3, *Adoption of the Cartagena Protocol and interim arrangements*, https://www.cbd.int/decision/cop/default.shtml?id=7174 (November 28, 2018.) See *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, Montreal, 29 January 2000. *UN Treaty Series* No: 30619 at https://treaties.un.org/doc/Treaties/2000/01/20000129%2008-44%20PM/Ch_XXVII_08_ap.pdf (June 17, 2019).

[472] Ibid.

[473] See Appendix C for timetable of negotiations of the Cartagena Protocol.

[474] The Cartagena Protocol on Biosafety, https://bch.cbd.int/protocol (May 11, 2019).

on May 24, 2000 and adopted it with law no 4898. The Protocol entered into force in Turkey on January 24, 2004 following the publication in the Official Gazette[475]

4.1.3 Key Issues of the Cartagena Protocol

The Cartagena Protocol on Biosafety is an international treaty addressing the transboundary movements of LMOs resulting from modern biotechnology. The conclusion of the Cartagena Protocol received a huge interest all around the world and it was praised as a great achievement providing a global regime for the environmentally sound utilization of biotechnology.[476]

Its objective set out in Article 1 refers to the precautionary approach as contained in Principle 15 of the Rio Declaration on Environment and Development. It is stated as making contribution to ensure protection at a sufficient level for the safe transfer, handling and use of living modified organisms stemming from modern biotechnology that may possess adverse impacts on the conservation and sustainable use of biological diversity, taking also into account risks to human health. It focuses on transboundary movements of LMOs in particular. It consists of forty (40) Articles and three (3) Annexes. Articles 1-6 consist of provisions in relation to the objective, definitions and scope of the Protocol. Articles 7-27 sets forth the obligations of the Parties within scope of defined procedures. Articles 28-35 establish the organizational structure of the Protocol including financial mechanism. Three Annexes are: i) Information required in notifications under articles 8, 10 and 13 (Annex I); Information required concerning LMOs intended for direct use as food or feed, or for processing under article 11 (Annex II) and Risk Assessment (Annex III).

[475] Turkey adopted the Protocol with Law no. 4898 on 17 June 2003. See Official Gazette dated 24 June 2003 with number 25148. http://www.resmigazete.gov.tr/eskiler/2003/06/20030624.htm#3 (June 20, 2019).

[476] Andrew Pollack, "130 Nations Agree on Safety Rules for Biotech Food," *N.Y. TIMEs*, Jan. 30, 2000. https://www.nytimes.com/2000/01/30/world/130-nations-agree-on-safety-rules-for-biotech-food.html ((June 1, 2019).

4.1.3.1 Significance of Precautionary Approach

Incorporation of "precautionary principle" as contained in the Rio Declaration into the Protocol has been considered as the most important accomplishment by the delegations and environmentalists.[477] By locating it in the first sentence of the objective, it is meant that the precautionary approach constitutes the basis and a point of reference for safe transfer, handling and use of LMOs that may have adverse effects on the conservation and sustainable use of biodiversity as well as risks to human health.[478] The precautionary principle is applied for making decisions on environmental issues in the case of scientific uncertainty or lack of consensus relating to a significant threat.[479] Principle 15 of the Rio Declaration states that "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Thus the precautionary principle has become legally binding by incorporating it into an international agreement regarding biosafety. Many international environmental treaties referred to and developed precautionary principle in various ways. It is closely linked with the prevention principle but applies to the cases when an activity is likely to cause harm to the environment but full scientific certainty is not present.[480] Through this approach Parties are not allowed to use scientific uncertainty as an excuse to postpone taking necessary measures to prevent environmental deterioration.[481] In a similar vein, according to Article 10(6) of the Cartagena Protocol, lack of scientific evidence on the potential adverse impacts of an LMO cannot be used by any Party States as a reason for not taking required measures to

[477] Ibid.

[478] Mackenzie et al., 31.

[479] Hunter, Salzman and Zaelke, 405.

[480] IUCN Draft Covenant, 49.

[481] Hunter, Salzman and Zaelke, 952.

avoid or minimize such impacts. Therefore, a state can reject importation of an LMO that is likely to cause harm to the environment even if there is not a scientific certainty. Precautionary provisions of Cartagena Protocol are broader in comparison to the Principle 15 of the Rio Declaration as the Protocol does not set a condition like causing serious or reversible damage or taking cost-effective measures. [482]

The Cartagena Protocol does not contain specific obligations in relation to precautionary approach. On the other hand, Party States have the flexibility to take actions concerning biosafety within the scope of the Protocol on the basis of references to the precautionary approach in the Cartagena Protocol.[483] Parties are also allowed to take more protective actions than those stated in the Protocol on condition that the actions to be taken are in compliance with the objective and the provisions of the Protocol and in accordance with other international legal obligations of the Party State concerned.[484]

4.1.3.2 The Scope of LMOs Covered by the Cartagena Protocol on Biosafety

The objective determines the scope of the final achievement as to make contribution to an adequate level of protection. As understood from the language of the objective, it does not claim to be the sole actor in the protection rather it aims to contribute to the other protection activities realized within other contexts.[485] Furthermore, an adequate level of protection implies that the protective actions need be undertaken case by case, for example, the more serious threats requires to be taken the higher level of protective measures. [486]

[482] IUCN Draft Covenant, 51.

[483] Hagen and Weiner, 711.

[484] Cartagena Protocol, Art. 2(4).

[485] Mackenzie et al., 32.

[486] Ibid., 32.

The Cartagena Protocol constitutes an international biosafety regime focusing specifically on transboundary movements of LMOs. Its scope is limited to the safe transfer, handling and use of living modified organisms resulting from biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health. The Protocol focuses on two general categories of LMOs: the first category is the LMOs that are intended to be introduced into the environment such as grains for cultivation and animals for breeding. The second category is the LMOs that are not intended to be released into the environment but intended to be used as food for human consumption or feed for animals or for processing (LMO FFPs) such as genetically modified fruits or vegetables or bulk commodities such as corn, cotton and soy. By separating these two categories, the LMO FFPs has been subjected to less burdensome obligations (Article 11) than those of LMOs intentionally to be introduced into the environment.[487]

Moreover, there are other limitations on the scope of LMOs to be covered under the Protocol. While defining LMOs, the Protocol makes a reference to modern biotechnology, thus LMOs that are products of conventional breeding systems are exempted from the scope of the Protocol. In addition, its scope is also confined to the LMOs of modern biotechnology with the ability of replication, therefore, it excludes LMOs already processed and therefore not having the ability of transmitting or reproducing genetic material.[488] For example, while genetically modified soy is addressed within the scope of the Protocol, the soy sauce derived from genetically modified soy is not covered by the Protocol. Non-living products derived from living modified organisms are also excluded from the scope of the Protocol taking into account that they do not pose risks to biological diversity even though they may have risks on human health.[489] By doing this, 90% of GMOs are excluded from the scope

[487] Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law and the Environment*, (Oxford; New York: Oxford University Press, 2009), 640.

[488] OJ Lim Tung, "Transboundary Movements of Genetically Modified Organisms and the Cartagena Protocol: Key issues and Concerns," *PER/PELJ* 17 no. 5 (2014): 1743.

[489] Hagen and Weiner, 703.

of the Protocol.[490] This may be stemmed from being a supplementary protocol to a convention focusing on biological diversity not human health. Apparently, prevention of the risks on human health resulting from the LMOs is subordinate to the Protocol's primary objective of safeguarding and maintaining biological diversity.[491]

Furthermore, pursuant to Article 5 of the Convention, the Protocol is not applicable to pharmaceuticals for human if they are addressed by other relevant international agreements or organisations. However, the exemption is clearly confined to pharmaceuticals for human, as a consequence, veterinary pharmaceuticals derived from LMOs are subject to the provisions of the Protocol.[492] Nonetheless, there are still some other categories of LMOs to which it is not clear whether the Protocol is applicable or not such as nutraceuticals, edible vaccines or biopharmaceuticals.[493]

4.1.3.3 Advanced Informed Agreement (AIA)

The main regulatory mechanism of the Cartagena Protocol is the Advance Informed Agreement (AIA) procedure between the Parties carrying out international trade of LMOs defined through Articles 7 - 10 and Article 12.[494] The use of AIA is obligatory for first group of LMOs to be introduced deliberatively into the environment of the Party of Import prior to the first intentional transboundary movement of LMOs. The second category of LMOs intended to be used as food or feed or for processing (LMO FFPs) is not subject to the AIA, instead a simplified information procedure is set forth in Article 11 for these organisms.

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[490] David J. Schnier, "Genetically Modified Organisms and the Cartagena Protocol*," Fordham Environmental Law Review*, 12 no. 2 (2000): 414. http://ir.lawnet.fordham.edu/elr (May 29, 2019)

[491] Katherine E. Kohm, "Shortcomings of the Cartagena Protocol: Resolving the Liability Loophole at an International Level," *UCLA Journal of Environmental Law and Policy*, 27 no. 1 (2009):154. https://cloudfront.escholarship.org/dist/prd/content/qt47g5c1mt/qt47g5c1mt.pdf (June 1, 2019).

[492] Hagen and Weiner, 703.

[493] Lim Tung, 1746, 1747.

[494] Birnie, Boyle and Redgwell, 640.

In addition, there are also exemptions from the application of the AIA procedures. The LMOs in transit - in other words, the LMOs that are passing through the territory of a Party that is not the final destination- and LMOs destined for contained use in the country of Party of Import are not subjected to the AIA procedures.[495] Furthermore, the AIA is not applicable to the LMOs if they are identified by the COP-MOP to the Protocol as being not likely to have adverse effects on the conservation and sustainable use of biological diversity, considering risks to human health.[496]

The AIA enables the Parties of Import to have an informed consent as well as the opportunity for refusing the import of the LMOs.[497] Indeed, the AIA procedure has been formed to some extent by modeling the prior informed consent procedures of previous international legal mechanisms on transboundary movement of hazardous substances.[498] However, the AIA and PIC is not identical to each other. The PIC requires that certain substances previously determined as hazardous can be exported upon the receipt of the written prior informed approval of the importing state.[499] However, the AIA facilitates making early risk assessments by each Party States about the potential adverse effects of LMOs pursuant to the protocol.[500] The AIA sets out principles and procedures to provide guidance for national decision-making on the basis of risk assessment and risk management.[501] The AIA can be regarded as a loose model of previous PIC procedures of Basel and Rotterdam Conventions.[502] The

[495] Cartagena Protocol, art. 6(1) and 6(2).

[496] Ibid., Art. 7(4).

[497] Kunich, op.cit.

[498] Mackenzie et al., 64. For example, the Basel Convention on the Transboundary Movement and Disposal of Hazardous Wastes and the Rotterdam Convention on Certain Hazardous Chemicals and Pesticides in International Trade.

[499] Hey, 40.

[500] Birnie, Boyle and Redgwell, 640.

[501] Ibid., 641.

[502] Mackenzie et al., 64.

Party States are not obliged to apply the AIA procedures as set forth in the Protocol, they can either use the AIA procedures of the Protocol or the importing state may use its own domestic regulatory procedures provided that they are in compliance with the Protocol.[503]

The AIA includes a written notification by the Party of Export, a written acknowledgment of receipt of notification by the Party of Import, decision procedures and review of decisions. In accordance with the Article 8, prior to sending the first shipment of LMO, the Party of Export must inform the Party of Import with a written notification containing at least minimum requirements stated in Annex. Details that need to be provided in the notification includes identity of the LMO, traits of both recipient or parental organisms related to biosafety, a description of modification in the genetic material of the organism, intended use of LMOs, quantity of the products, recommendations on the safe handling, storage, transport and use of the LMOs and regulatory status of the LMOs in the country of the Party of Export.

Having received the notification by the Party of Export, the Party of Import is required to acknowledge the receipt of the notification within ninety (90) days. [504] Afterwards, the Party of Import conveys its decision to the notifying party within two hundred and seventy (270) days.[505] The decision of the Party of Import may approve the Import; refuse the import; request additional information or extend the period beyond 270 days for a defined time period. The bases of the decision of the Party of Import are required to be indicated, except the cases for which any conditions are not foreseen for the approval. The Party of Import may revise its earlier decision either by approving or rejecting the LMO in the light of new scientific information. The Party of Export may also ask the Party of Import to reconsider its decisions (Article 12).

[503] Ibid., 64.

[504] The Cartagena Protocol, Art. 9.

[505] Ibid., Art. 10.

For the transboundary movement of LMOs intended for direct use as food or feed, or for processing (FFPs), Article 11 provides for a more simplified procedure. According to this procedure, a Party must inform other Parties through the Biosafety Clearing-House on domestic use of LMO FFPs within (15) fifteen days of making its decision. Differing from the AIA procedure, the Party of Export of a LMO FFPs is not required to notify or inform the Party of Import directly, but the Party of Import may request notification in advance as required by its domestic regulations in consistent with the objective of the Protocol even though LMO FFPs are not subject to the AIA procedures.[506] The information must include those requested in Annex II at minimum. The Party of Import may take its decision on accepting or rejecting LMO FFPs under its domestic regulations consistent with the objective of the protocol. In addition, if a developing country Party does not have any internal regulations on the LMO FFPs, it may decide on that it will make its decisions concerning the first import of LMO-FFPs according to risk assessment procedures of the Protocol. Moreover, if there is a scientific uncertainty in relation to LMO FFPs to be imported, the Party of Import may prefer adopting precautionary approach while making their decisions.

Furthermore, the Protocol establishes a simplified procedure on condition of assuring the application of sufficient measures to provide with the safe transboundary movement of LMOs.[507]

[506] Mackenzie et al., 88.

[507] Cartagena Protocol, Art. 13.

Table 4: Summary of the Scope of the Cartagena Protocol and the AIA Procedure[508]

<table>
<tr><th colspan="3">Scope of the Protocol and the AIA procedure</th></tr>
<tr><th colspan="2">LMOs covered under the Protocol</th><th>LMOs not covered under the Protocol</th></tr>
<tr><td colspan="2">All LMOs that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health (Article 4)</td><td rowspan="6">LMOs that are human pharmaceuticals which are addressed by other international organizations or agreements (Article 5)</td></tr>
<tr><td>LMOs subject to AIA provisions</td><td>LMOs excluded from AIA provisions of the Protocol</td></tr>
<tr><td rowspan="4">LMOs intended for intentional release into the environment (Article 7 para 1)</td><td>LMOs in transit (Article 6(1))</td></tr>
<tr><td>LMOs destined for contained use in the country of the Party of Import (Article 6(2))</td></tr>
<tr><td>LMOs intended for direct use as food or feed, or for processing (LMOs-FFP) (Article 7(2))</td></tr>
<tr><td>LMOs identified by COP-MOP to the Protocol as being not likely to have adverse impacts (Article 7(4))</td></tr>
</table>

4.1.3.4 Risk Assessment and Risk Management

The main difference between the procedures stipulated in Article 11 and the AIA procedures is the obligatory risk assessment.[509] Risk assessment procedures are established within the context of the AIA procedure, thus it is applicable to the LMOs intended for release into the environment. Article 15 and Annex III of the Cartagena Protocol set forth the requirements for making scientifically sound risk assessments. Annex III provides for general principles, methodology to be used and

[508] Table 4 was quoted from Mackenzie et al., 15.

[509] Kunich, op.cit.

points to be taken into consideration while carrying out risk assessment. General principles require the conduct of risk assessment in a scientifically sound and transparent manner and consideration of expert advice and guidelines of related international organization. Furthermore, it states the absence of scientific knowledge or scientific consensus should not necessarily be interpreted as indicating a particular level of risk, an absence of risk, or an acceptable risk. It also requires that risks be taken into consideration in the context of the risks posed by the non-modified recipients or parental organisms and be evaluated on a case-by-case basis. However, a Party may ask for conducting a risk assessment as required in Annex III in the absence of domestic regulations to make a decision on LMOs intended for direct use as food or feed, or for processing (LMO FFPs). Pursuant to Article 15 the Party of Import may ask the Party of Export to bear the costs of risk assessment.

The Protocol does not only address risk assessment procedures but also sets forth risk management procedures. The Parties are obligated to take necessary measures to prevent adverse effects of and to control and manage risks identified in the risk assessments conducted within the scope of the Protocol.[510] In addition, they are obligated to take necessary measures for preventing unintentional transboundary movements of LMOs.[511] The obligation of observing any LMO for an appropriate period before the approval of its intended use is set forth in Article 16.4. The Parties are also required to collaborate relating to the identification of LMOs and their particular characteristics that may have adverse effects on biological diversity and human health and fulfillment of appropriate measures for the management of LMOs.[512]

[510] Cartagena Protocol Art. 16(1) and Art. 16(2).

[511] Ibid., Art. 16(3).

[512] Ibid., Art. 16(5).

4.1.3.5 Labeling Requirements

Article 18 of the Protocol stipulates the labeling requirements for LMOs. For LMO-FFPs, the only labeling requirement is to put a label clearly identifies that the shipment "may contain LMOs" and they are not intended for intentional release into the environment, in addition to a contact point for required information.[513]

Identification of more detailed requirements in relation to the required documentation were left to the COP that would be held two years after the entry into force of the Protocol. At the second MOP, no agreement was reached on documentation requirements because of concerns on whether they could interfere with trade, impose costly or restricted market access.[514] At the third MOP in 2006 in Curitiba, Party States to the Cartagena Protocol reached an agreement balancing the interests of importing and exporting and developed and developing countries.[515] Party States were required to take measures to ensure that documentation accompanying LMO-FFPs in commercial production clearly states that; i) "the shipment contains LMO-FFPs" in cases where the identity of the trait is known through instruments such as identity preservation systems and, ii) "the shipment may contain one or more LMO-FFPs" in cases where the identity of the trait is known through such instruments.[516] They further agreed that the expression of "may contain" does not require a listing of LMOs of species other than those that constitute the shipment.[517]

Documentation for LMOs destined for contained use and intended for intentional release into the environment should clearly identify them as LMOs and specify

[513] Ibid., Art. 18(2)(a).

[514] Chasek, Downie and Brown, 231.

[515] Ibid., 232.

[516] BS COP-MOP 3 Decision BS-III/10, *Handling, transport, packaging and identification of living modified organisms: paragraph 2 (a) of Article 18*, https://bch.cbd.int/protocol/decisions/?decisionID=11066 (June 13, 2019).

[517] Ibid.

requirements for the safe handling, storage, transport and use and the contact point for additional information.[518] Documents for LMOs for intentional introduction into the environment should also include identity and traits and characteristics of LMOs together with a declaration indicating the conformity with the Protocol requirements.[519]

4.1.3.6 Biosafety Clearing-House

Pursuant to the Article 20, A Biosafety Clearing-House is established (BCH) as part of the CHM of the CBD. Mandate of the BCH define the "clearing-house" as a mechanism that brings demanders and suppliers of goods, services or information together, thus it matches demand with supply.[520] It aims at collecting and distributing scientific, technical, environmental and legal information and experience in relation to LMOs and helps the Parties on the implementation of the taking on board the specific needs of developing countries. The BCH is a centralized, internet-based mechanism to be supported by the AIA to facilitate informed decision-making.[521] It is dynamic mechanism in which required information is registered and it can be freely searched and retrieved.[522] If a state decides to import an LMO, it must inform the BCH about this decision and supply necessary information about the organism. Thus, there would be a ready to use central information platform demonstrating which states have imported any given LMOs and their technical and scientific data.[523] Through this mechanism the importing countries are aimed to be assisted while making their final decisions on the import of the LMOs.[524]

[518] Cartagena Protocol Art. 18(2),(b),(c).

[519] Ibid., 18(c).

[520] BCH, The Biosafety Clearing-House, http://bch.cbd.int/about/ (May 11, 2019).

[521] Kunich, op.cit.

[522] BCH, The Biosafety Clearing-House.

[523] Kunich, op.cit.

[524] Ibid.

While the CHM of the CBD aims at promoting and facilitating technical and scientific cooperation on biodiversity issues, the BCH was established with a special focus on exchange of information under the Protocol. Furthermore, the BCH legally obliges the Party States to the Protocol to provide a variety of categories of information, however, the CBD does not impose such legal obligations on the Parties to the CBD for providing information through the CHM.[525] In addition, The BCH is required to be informed when a State Party makes a final decision regarding domestic use of - an LMO-FFP - including placing it on the market - that may be subject to transboundary movement and the information provided should contain at least the information specified in Annex II as stated in Article 11(1). For example, the BCH should be informed when a Party State makes a decision on growing or trading of a genetically modified corn that may be later on exported for animal feed or for other kind of use.[526] Furthermore, the BCH should also be informed if a Party State decides to allow the growing and trade of genetically modified tomatoes that can be exported for direct use as food, or for processing.[527]

4.1.3.7 Other Key Issues

The relationship of the Protocol with other international agreements particularly WTO agreements regarding trade is one of the most contentious issues during the negotiations. The Cartagena Protocol has been celebrated with a great expectation that it constitutes a regulatory mechanism at global level for the compromise of the international trade needs and conservation of environment in terms of the biotechnology industry.[528] Protocol adopts an approach that is mutually supportive as stated in the Preamble of the Protocol. The Preamble also emphasizes that the Protocol does not imply a change in the rights and obligations under any existing agreements; and it is not subordinate to other international agreements. However, it seems that the last two statements seem to be contradictory to each

[525] BCH, "Frequently Asked Questions (FAQs) on the BCH", http://bch.cbd.int/help/faq/#INF (May 19, 2019).

[526] Mackenzie et al, 87

[527] Ibid., 87.

other, therefore, determination of the rights and obligations of the Parties to the Protocol who are also Parties to the WTO Agreements need to be clarified.[529] In fact, the Protocol and WTO agreements need to be read as complementary to each other for the purpose of achieving sustainable development.[530]

The Parties to the Protocol are allowed to make bilateral, regional, and multilateral agreements in relation to the international transboundary movement of LMOs on condition that these agreements do not provide a lower level of protection than that of assured by the Protocol. [531]

In the case of an unintentional transboundary movement of LMOs that may have substantial adverse effects on the biodiversity and human health, the Party State knowledgeable of its occurrence is required to notify other states affected or likely to be affected, the BCH and relevant bodies concerning the unintentional introduction. Parties are required to conduct an immediate consultation with the States affected or likely to be affected for determining the convenient response and taking necessary emergency measures.[532]

The issue of liability and redress for damage resulting from transboundary movements of LMOs remained unresolved during the negotiations, therefore, only Article 27 was inserted into the Protocol.[533] Unlike the other issues of Cartagena Protocol, negotiation process of the issue of liability and redress witnessed a North-

[528]Secretariat of the CBD, *Cartagena Protocol on Biosafety to the Convention on Biological Diversity: text and annexes* (Montreal: Secretariat of the CBD, .2000), 1. https://www.cbd.int/doc/legal/cartagena-protocol-en.pdf (June 23, 2019).

[529] Hagen and Weiner, 707.

[530] De Chazournes, 6.

[531] Cartagena Protocol, Art. 14.

[532] Ibid., Art. 17.

[533] Lim Tung, 1743.

South controversy.[534] Developing countries advocated the development of legally-binding international rules considering that national law would not be sufficient to deal with this issue, while individually differing on the procedures.[535] However, developed countries had a different perspective, they even objected to the incorporation of any provision on liability into the Protocol.[536] In the end, the Parties agreed that the first BS COP-MOP is required to develop a regime for the establishment of "liability and redress for damage resulting from transboundary movements of living modified organisms" within four years.[537]

Liability and redress in the international environmental law requires taking necessary response measures to remedy and compensate damage that occurred as a result of activities causing this damage and prevent such damage before its occurrence.[538] Liability and redress regimes subject operators to financial compensation to prevent damage.[539] At that time, there was not any international instrument to deal with transboundary damage stemming from modern biotechnology and to establish liability or remedy for this damage. Such a regime was required to be established considering that without a legally binding instrument, the Protocol cannot provide sufficient protection for the importing countries and their periphery or people from the likely adverse effects of the LMOs on the biological diversity or human health.[540] Consequently, Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety was adopted in 2010 in Nagoya, Japan.

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[534] Stefan Jungcurt and Nicole Schabus, Liability and Redress in the Context of the Cartagena Protocol on Biosafety, *RECIEL* 19 no. 2 (2010), 198. https://www.researchgate.net/publication/227914894_Liability_and_Redress_in_the_Context_of_the_Cartagena_Protocol_on_Biosafety (April 18, 2019).

[535] Ibid., 198.

[536] Ibid., 198.

[537] Cartagena Protocol, Art. 27.

[538] Jungcurt and Schabus, 198.

[539] Ibid., 198.

[540] Kohm, 156.

The Protocol also addresses the issue of compliance[541] with the purpose of facilitating the Party States in fulfilling their obligations and handling with non-compliance. Article 34 of the Cartagena Protocol authorizes the BS COP-MOP to establish a compliance mechanism for the compliance of each Party State in relation to fulfillment of their obligations within the scope of the Protocol. Party States can submit this mechanism their own compliance related problems and questions; or issues regarding compliance of another Party State or the Secretariat can submit this mechanism problems identified while reviewing the national reports for its consideration and solution.[542]

The Protocol contains distinct compliance procedures apart from the dispute settlement procedures stipulated in Article 27 of the CBD. Party States can resort to a compliance mechanism as an alternative to dispute settlement procedures or they can use both simultaneously.[543] Compliance mechanism is a "softer mechanism" that can be used by the Party States for submitting their problems to be solved before resorting to the dispute settlement procedures, therefore such a mechanism can be useful to reduce the need for applying to dispute settlement procedures which are frequently not used even if they are stipulated in the treaties.[544]

At the first meeting of the BS COP-MOP, procedures and mechanisms on compliance were adopted and a Compliance Committee was established to promote compliance, deal with non-compliance cases and provide advice and assistance.[545] The Compliance Committee comprises 15 members nominated by the Party States

[541] Cartagena Protocol, Art. 34.

[542] Mackenzie et al., 193.

[543] Ibid., 195.

[544] Ibid., 195.

[545] COP-MOP 1 Decision BS-I/7, *Establishment of procedures and mechanisms on compliance under the Cartagena Protocol on Biosafety*, http://bch.cbd.int/protocol/decisions/decision.shtml?decisionID=8289 (May 27, 2019).

and selected by the BS COP-MOP based on three members from each of the five regional groups of the UN to perform objectively and they act on their own behalf.[546]

According to Article 26, Parties are required to take into account socio-economic considerations stemming from the effects of LMOs on the conservation and sustainable use of biodiversity, particularly in terms of the value of biodiversity to ILCs, while taking a decision on the importation of these organisms. The incorporation of the socio-economic considerations into the decision-making of the Parties for the importation of LMOs requires being in compliance with the other international obligations of the Party States.

4.1.4 Treaty Bodies with Respect to Cartagena Protocol

The Conference of the Parties to the CBD serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (BS COP-MOP) is the governing body of the Protocol in accordance with its Article 29. The BS COP-MOP is mainly responsible for reviewing the implementation of the Protocol and making decisions that are required to promote its effective implementation. It is assigned with making recommendations on the operation of the Protocol, setting up subsidiary bodies if necessary, collaborating with other international institutions and considering and adopting amendments to the Protocol. Only the Parties to the Protocol can take decisions under the Protocol. To date, the BS COP-MOP has convened nine meetings.

[546] Ibid.

Table 5: COP-MOP Meetings under the Cartagena Protocol[547]

BS COP-MOP Meetings		
Number of the Meeting	**Date**	**Venue**
ICCP Process 2000-2003	ICCP1, 11-15 December 2000	Montpellier, France
	ICCP2, 1-5 October 2001	Nairobi, Kenya
	ICCP3, 22-26 April 2002	The Hague, Netherlands
BS COP-MOP 1	23-27 February 2004	Kuala Lumpur, Malaysia
BS COP-MOP 2	30 May-3 June 2005	Montreal, Canada
BS COP-MOP 3	13-17 March 2006	Curitiba, Brazil
BS COP-MOP 4	12 - 16 May 2008	Bonn, Germany
BS COP-MOP 5	11 - 15 October 2010	Nagoya, Japan
BS COP-MOP 6	1-5 October 2012	Hyderabad, India
BS COP-MOP 7	29 September - 3 October 2014	Pyeongchang, Republic of Korea
BS COP-MOP 8	4 December - 17 December 2016	Cancun, Mexico
BS COP-MOP 9	17 November - 29 November 2018	Sharm El-Sheikh, Egypt

The Secretariat established by Article 24 of the CBD also functions as the Secretariat based in Montreal, Canada to this Protocol according to Article 31 of the Cartagena Protocol. The costs of the Secretariat services for the Protocol are to be borne by the Party States to the Protocol to the extent that they are distinct from the expenses to the CBD.

According to Article 28 of the Protocol, the financial mechanism established in Article 21 of the CBD is to serve as the financial mechanism for this Protocol. The COP-MOP is to provide guidance regarding financial support for consideration by the COP.

[547] Table 5 was retrieved from the web page "Meetings of the COP-MOP" available at https://bch.cbd.int/protocol/cpb_mopmeetings.shtml (May 10, 2019).

4.2 THE NAGOYA – KUALA LUMPUR SUPPLEMENTARY PROTOCOL ON LIABILITY AND REDRESS

4.2.1 Negotiation Process of the Supplementary Protocol on Liability and Redress

In relation to the use and commercialization of the LMOs, two divergent views have dominated the long-lasting debates. While the EU approach adopts precautionary principle for the regulation of biosafety, the USA claimed that any restriction is required to be made on the basis of the scientific evidence.[548] Hence, without this evidence, genetically modified crops should be treated as traditional crops in accordance with the substantial equivalence, in other words, genetically modified crops should be regarded as safe as traditional crops.[549] Consequently, it became inevitable to reach a compromise between two opposite views in a way that enable bearing some tolerable risks in return for benefits but with a liability regime for redress the damages in the case of occurrence of the risks.[550]

However, as debated during the negotiations of the Cartagena Protocol, it would not be possible to protect the importing countries of LMOs from potential adverse impacts of LMOs if a legally binding instrument was not adopted for the compensation of the damages caused by the exporters.[551] Since there were opposite views concerning whether such kind of rules are really necessary or what the nature of the rules or procedures should be - either they should be legally binding or left to the discretion of the Parties - the issue of liability and redress remained unsettled.[552]

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[548] Aarti Gupta and Robert Falkner, "The Influence of the Cartagena Protocol on Biosafety: Comparing Mexico, China and South Africa," *Global Environmental Politics* 6 no. 4 (2006): 28. https://www.researchgate.net/publication/24089917_The_Influence_of_the_Cartagena_Protocol_on_Biosafety_Comparing_Mexico_China_and_South_Africa (April 18, 2019).

[549] Gupta and Falkner, 28.

[550] Kohm, 150.

[551] Ibid., 156, 157.

[552] Jungcurt and Schabus, 197.

As developed countries had a strong opposition concerning incorporation of any provision for liability into the Cartagena Protocol, developing countries accepted to postpone the issue on a later date in order not to jeopardize the consensus reached on other biosafety-related issues.[553] Consequently, Article 27 of the Biosafety Protocol authorized the BS COP-MOP to develop "international rules and procedures" concerning liability and redress for damage stemming from international movements of LMOs no later than four years of its ratification. This Article does not specify what is meant by damage or what kind of liability is foreseen; indeed the Parties to the Cartagena Protocol are assigned with the determination of such aspects of liability regimes.[554]

At the first meeting of the BS COP-MOP in 2004, an Open-Ended Ad Hoc Working Group of Legal and Technical Experts on Liability and Redress (hereinafter the Ad Hoc Group on Liability and Redress) was established.[555] The Ad Hoc Group on Liability and Redress is assigned with reviewing the information on liability and redress for damage arising out of transboundary movements of LMOs, examining general issues in relation to "the potential and actual damage scenarios of concerns" and addressing the international rules and procedures for liability and redress which may be applicable to damage scenarios and elaborating options for elements of rules and procedures.[556] The Ad Hoc Group on Liability and Redress held five meetings between 2005 and 2008. However, when coming to the deadline in 2008, at the fifth meeting of the Ad Hoc Group on Liability and Redress, any agreement was not reached on building up a regime regarding liability and redress, therefore, an extension to the deadline was granted to complete drafting the Supplementary

[553] Ibid., 198.

[554] Akiho Shibata, "The Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress," in *International Liability Regime for Biodiversity Damage: The Nagoya-Kuala Lumpur Supplementary Protocol,* ed. Akiho Shibata (London&New York: Routledge, 2014). 19.

[555] COP-MOP 1 Decision BS-I/8, *Establishment of an Open-Ended Ad Hoc Working Group of legal and technical experts on liability and redress in the context of the Protocol.* https://www.cbd.int/decision/mop/?id=8290 (May 3, 2019).

[556] Ibid.

Protocol.[557] During the fifth meeting of Ad Hoc Group on Liability and Redress, a Friends of the Co-Chairs group was formed to proceed with the negotiations to elaborate for a Supplementary Protocol in relation to liability and redress.[558] The Friends of Co-Chair held four meetings between 2008 and 2010, of which last meeting was planned three days before the COP/MOP-5 meeting in Nagoya to conclude the final draft of Supplementary Protocol on liability and redress.[559]

At the fourth meeting, the Group of Friends of the Co-Chairs also agreed to call the Protocol as the "Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety" considering that Nagoya is the city where crucial negotiations had held and where the Supplementary Protocol is adopted and Kuala Lumpur is the city where two meetings had been held and the mandate for the negotiation of international rules and procedures on liability and redress was adopted by the decision of the first meeting of the BS COP-MOP.[560]

The agreed the text of the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety (hereinafter the Supplementary Protocol) was submitted to the BS COP-MOP-5 for its consideration and adoption. The Supplementary Protocol was adopted on 15 October 2010 at the fifth meeting of the Conference of the Parties serving as the meeting of the Cartagena Protocol on Biosafety held in Nagoya, Japan[561] and entered into force on 5 March

[557] Kohm 156.

[558] BCH, What has been done on Liability and Redress, http://bch.cbd.int/protocol/cpb_art27_info.shtml (May 3, 2019).

[559] Ibid.

[560] UNEP/CBD/BS/GF-L&R/4/3, *Report of the Group of the Friends of the Co-Chairs on Liability and Redress in the Context of the Cartagena Protocol on Biosafety on the Work of its Fourth Meeting*, (11 October 2010), https://www.cbd.int/meetings/BSGFLR-04 (June 15, 2019).

[561] BS COP-MOP 5 Decision BS-V/11 adopting the Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety. https://bch.cbd.int/protocol/decisions/?decisionID=12324 (June 7, 2019). See *Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety*, Nagoya, Japan, 15 October 2010, *UN Treaty Series* No: 30619 at https://treaties.un.org/doc/Treaties/2010/12/20101215%2005-26%20PM/Ch_27_8_c.pdf (June 17, 2019).

2018, the ninetieth day after the date of deposit of the 40th instrument of ratification, acceptance, approval or accession**.** [562] Number of Parties to the Supplementary Protocol is 44 as of June 12, 2019.[563] Turkey is not Party to the Supplementary Protocol.

4.2.2 The Supplementary Protocol and its Main Obligations

The Supplementary Protocol aims at contributing to the conservation and sustainable use of biological diversity through provision of international rules and procedures in respect of liability and redress relating to LMOs as stated in its Article 1.

The Protocol applies to damage arising out of an LMO which find its root in an international movement (Article 3). The Supplementary Protocol is the first international legal instrument addressing the biological diversity damage and establishing legal conclusions stemming from that kind of damage.[564] Damage refers to "an adverse effect on the conservation and sustainable use of biological diversity", and it should be measurable or at least observable and significant, considering also risks to human health (Article 2.2 (b)). It stipulates that determination of significance of an adverse effect is to be carried out on the basis of some factors, for example, the long-term or permanent change which could not be redressed through natural recovery; the size of the adverse impacts on the components of biological diversity either qualitatively or quantitatively and decrease in the ability of biological diversity to provide goods and services and the size of adverse impacts on human health. (Article 2.3)

Although Article 27 of the Cartagena Protocol only deals with damage that happens *at the time of* the transboundary movements of the LMOs, the scope of the Supplementary Protocol was broadened to cover the activities stated in Article 4 of

[562] See Appendix D for the timetable of the negotiations Nagoya - Kuala Lumpur Supplementary Protocol.

[563] http://bch.cbd.int/protocol/supplementary/ (June 12, 2019).

[564] Shibata, 7.

the Cartagena Protocol.[565] Consequently, Article 3 (1) referred to the damage stemming from "*living modified organism which find their origin in a transboundary movement*". Hence, the Supplementary Protocol is to be applicable for long years after the introduction of a LMO into the environment since a damage stemming from a LMO can occur after decades following its introduction into the environment.[566]

A causal link between the damage and the LMO is required be established according to Article 4 of the Supplementary Protocol. The Party States are required to provide response measures in the case of damage stemming from LMOs or where there is sufficient likelihood for damage because of not taking response measures in a timely manner [567] Response measures refer to "*reasonable actions to prevent, minimize, contain, mitigate or otherwise avoid damage, as appropriate*", or reasonable actions for the restoration of biological diversity (Article 2.2(d)).

The Party States require the operators[568] to carry out response measures to make the competent authority informed immediately in the case of a damage, to evaluate the damage and take necessary response measures. The operator is also required take response measures if there is sufficient likelihood of damage in the case of not taking timely response measures. The competent authority is required to identify the operator that has caused the damage, evaluate the damage and determine necessary measures to be used by the operators for tackling the damage. If the operator does not have the capability of taking response actions, the competent authority can take the required measures. In this case, the competent authority has the right to claim the expenses arising out of the implementation of the response measures from the operator. Since the competent authority have the right to impose response measures

[565] Ibid., 19.

[566] Ibid., 19.

[567] Supplementary Protocol, Article 5.

[568] According to Article 2.2 (c) of the Supplementary Protocol, "Operator" can be "any person in direct or indirect control of the LMO," in other words, an operator is the person who caused the damage stemming from an LMO. An operator can be "the permit holder, person who placed the LMO on the market, developer, producer, notifier, exporter, importer, carrier or supplier who may be determined under domestic law."

instead of a judiciary institution, the Supplementary Protocol adopts an 'administrative approach' on the issue of liability and redress.[569] It is a binding international agreement creating obligations for Party States which need to be implemented at the domestic level. In addition to the implementation of response measures, the Parties may develop further rules and procedures on liability and redress in order to deal with damage caused by LMOs.

4.2.3 Liability Regime of the Supplementary Protocol

Determination of the legal approach of the international liability regime was the most controversial issue during the negotiations. The term of "liability" under international law is linked to the obligation to ensure redress of any damage which are caused by activities that possess likelihood risks to people and the environment.[570] An international liability regime within the context of the Biosafety Protocol is expected to regulate the way of dealing with the damage stemming from the transboundary movements of LMOs and to create rules and procedures concerning determination of liability, analyzing risks and evaluation of damage, identification of response measures to remedy and restitution of damage or prevention of damage before its occurrence.[571] A civil liability regime provides adversely impacted countries with the right of demanding the exporters to bear the costs for remedying the damage arising from the LMOs.[572] During the negotiations, while developing countries maintained that an internationally binding civil liability regime is required to be established, developed countries strongly opposed to this approach by proposing an administrative approach including executive national bodies to monitor and deal with cases of damage or cases that are likely to pose a damage risk.[573]

[569] BCH. "About the Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress: What is the Supplementary Protocol?" http://bch.cbd.int/protocol/supplementary/about/#tab=1 (May 27, 2019).

[570] Mackenzie et al., 167.

[571] Jungcurt and Schabus, 197.

[572] Kohm, 156, 157.

[573] Jungcurt and Schabus, 201.

The issue of liability has not been a new occasion at the time of negotiations of the Biosafety Protocol. There were already other international environmental conventions in relation to liability and redress such as nuclear damage, oil pollution and transboundary movements of hazardous materials. However, states are not willing to be involved in such international regimes based on the consideration that implementation of these regimes necessitate substantial changes to national regulations or it would prejudice their sovereign rights against an international body.[574] After long debates, the Supplementary Protocol was formulated on an administrative approach in lieu of civil liability regime concerning liability and redress and the competent national authorities would be responsible for the implementation of the Supplementary Protocol.[575] In other words, it did not form an internationalized liability and redress regime differing from those covering damages caused by oil pollution and nuclear energy accidents.[576] Instead of establishing strict international liability standards for transboundary damage caused by LMOs, Party States agreed to develop their own standard of liability based on their domestic law.[577] For example, it did not provide financial guarantees like obligatory insurance for operators or a fund as provided in other international agreements that provides financial compensation for damages caused by oil pollution or nuclear accidents.[578] However, Party States may demand financial security in their domestic law.[579]

Thus, the liability and redress regime of the Supplementary Protocol was built based on an administrative approach containing a provision on civil liability that envisages implementation of rules and procedures pursuant to domestic law of the Party States

[574] Jungcurt and Schabus, 201.

[575] Ibid., 203.

[576] Anastasia Telesetsky. "Introductory Note to the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress." *International Legal Materials* 50, no. 1 (2011): 105. https://www.jstor.org/stable/10.5305/intelegamate.50.1.0105?read-now=1&seq=1#page_scan_tab_contents (April 15, 2019).

[577] Ibid., 105.

[578] Ibid., 105.

[579] Supplementary Protocol, Article 10.

as contained in Article 12.[580] The main focus of administrative approach is on the competent national authority which is expected to be able to monitor movements of LMOs within the territory of the country and to take necessary measures in the occurrence of damage or damage risk.[581] However, it is difficult for the competent authorities of developing countries to implement response measures as they do not have required capacity to address such sophisticated international regimes.[582]

Another major controversy was related with the references to products of LMOs that are not biologically active but may be harmful to the environment as well as human health based on the concern that these references would expand the scope of the Supplementary Protocol beyond the Cartagena Protocol.[583] Therefore, they were removed from the content of the Supplementary Protocol but the Parties may agree that Supplementary Protocol could apply to damage caused by processed materials originated from LMOs if a causal link is established.[584]

4.2.4 Treaty Bodies with Respect to the Supplementary Protocol

The Conference of the Parties serving as the meeting of the Parties to the Protocol will function as the meeting of the Parties to this Supplementary Protocol.[585] The Secretariat of the CBD will serve as the secretariat to this Supplementary Protocol.[586]

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[580] UNEP/CBD/BS/GF-L&R/4/3, *Report of the Group of the Friends of the Co-Chairs on Liability and Redress in the Context of the Cartagena Protocol on Biosafety on the Work of its Fourth Meeting*, (11 October, 2010), https://www.cbd.int/doc/meetings/bs/bsgflr-04/official/bsgflr-04-03-en.pdf (accessed May 3, 2019).

[581] Jungcurt and Schabus, 202.

[582] Hagen and Weiner, 716.

[583] Jungcurt and Schabus, 204.

[584] Anastasia Telesetsky, "The 2010 Nagoya-Kuala Lumpur Supplementary Protocol: A New Treaty Assigning Transboundary Liability and Redress for Biodiversity Damage Caused by Genetically Modified Organisms" *ASIL Insight* 15 no. 1 (2011): 2. https://www.asil.org/insights/volume/15/issue/1/2010-nagoya-kuala-lumpur-supplementary-protocol-new-treaty-assigning#10 (April 16, 2019).

[585] Supplementary Protocol, Art. 14.

[586] Ibid., Art. 15.

Like the Cartagena Protocol, the CBD Secretariat in Montreal, Canada will administer the Supplementary Protocol. This Protocol supplements the Cartagena Protocol, thus, it will not modify or amend the Protocol.[587] It also does not have any impact on the rights and obligations of the Party States to this Supplementary Protocol under the CBD and the Cartagena Protocol.[588]

[587] Ibid., Art. 16(1).

[588] Ibid., Art. 16(1)(2)

CHAPTER 5

THE NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION

5.1 Introduction

Bio-technological developments manipulating genetic material of living organisms since 1970s augmented the value of genetic resources. On the other hand, the period of 70s were also witnessed the recognition of rapid decline of biological diversity. These controversial situations led to severe discussions from different aspects such as conservation and sustainable use of biological diversity, the impacts of manipulating genetic material by using genetic engineering methods and fair and equitable sharing of benefits arising out of utilization of genetic resources. The conflicting views between developed that are the users of genetic resources and developing countries that are the providers of genetic resources –known as North-South controversy- resulted in formulating the objectives of the CBD in a broad manner.[589] Consequently, the third objective of the CBD referred to the access to genetic resources and the fair and equitable sharing of the benefits arising out of their utilization. Therefore, it can be useful to summarize the ABS framework of the CBD before proceeding with the ABS system of the Nagoya Protocol.

[589] Thomas Greiber et al., *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing, (*Gland, Switzerland: IUCN, 2012), 4.

Table 6: A Summary of Relationship between ABS Stakeholders[590]

Providers of Genetic Resources	**Users of Genetic Resources**
Hosting biodiversity providing genetic resources	Hosting biotechnologies and researchers using GRs such as universities, pharmaceutical companies, academicians.
Interest in receiving benefits derived from genetic resources	Interest in gaining legal access to genetic resources
Obligation to facilitate access to genetic resources	Obligation to ensure equitable benefit-sharing
Balanced through the ABS concept based on the principles of PIC and MAT	

The CBD contains several articles on ABS. Article 15 of the CBD is the primary operative Article on ABS and established the main principles of access and benefit-sharing as explained in Chapter II in detail. It recognizes the sovereign rights of States over their genetic resources within their national jurisdiction. However, Article 15 also seeks to establish a compromise between the interests of countries that provides genetic resource and those users of genetic resources. In accordance with this Article, while the provider countries are required to facilitate access to genetic resources, the users of genetic resources are required to ensure the fair and equitable sharing of benefits stemming from the access and utilization of these resources in a fair and equitable manner. The basic principles of ABS regime of the CBD includes obtaining the prior informed consent (PIC) of the provider country by the users; establishing a mutually agreed terms (MAT) and a fair and equitable sharing of the benefits stemming from the utilization of genetic resources. Furthermore, Article 15 requires that access to genetic resources be facilitated conditional upon environmentally sound uses.

[590] Table 6 was quoted from Greiber *et al.*, 5.

Table 7: Summary of ABS- Related Provisions of the CBD [591]

Provision	**Content**
Preamble	Notes the desirability of equitably sharing 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.
Article 1	Lists ABS as one of the three CBD objectives.
Article 2	Defines the terms "genetic resources" and "genetic material", as well as the terms "country of origin of genetic resources" and "country providing genetic resources".
Article 8(j)	Requires CBD Parties to respect, preserve, and maintain the knowledge, innovations, and practices of ILCs; promote their wider application with their holders' approval and involvement; and encourage the equitable sharing of the benefits arising from their utilisation
Article 15(1)	Clarifies that States have sovereign rights over their natural resources and the authority to regulate access.
Article 15(2)	Requires CBD Parties to facilitate access for environmentally sound purposes and not to impose restrictions that are counter to the CBD.
Article 15(3)	Provides that only the country of origin or a country that has acquired genetic resources in compliance with the CBD may grant access to genetic resources.
Article 15(4)	Provides for access only on MAT.
Article 15(5)	Provides for access subject to PIC.
Article 15(6)	Provides for full participation of the provider in scientific research based on the genetic resources provided.
Article 15(7)	Requires CBD Parties to take legislative, administrative, or policy measures to share benefits from research and development and commercialization equitably and based on MAT.

[591] Table 7 was quoted from Greiber *et al.*, 11.

Table 7: (Continued)

Article 16(3)	Requires CBD Parties to take legislative, administrative, or policy measures to provide access to and transfer of technology that makes use of genetic resources accessed on MAT and in accordance with international law.
Article 19(1)	Requires parties to the CBD to take legislative, administrative, or policy measures to ensure the effective participation by providers in biotechnological research on the genetic resources.
Article 19(2)	Provides for priority access to the results and benefits from biotechnologies based on genetic resources provided.

Inclusion of the fair and equitable benefit sharing under the CBD was seen a prominent achievement by the South for the improvement of intra-generational equity which refers to equity between members of the same generation within North-South context in particular.[592] They also considered the Nagoya Protocol as an opportunity to prevent bio-piracy and expected that it would make contribution to their development process.[593] However, after the CBD's entry into force, the challenges in implementing the ABS regime of the CBD started to be experienced. After adopting the CBD, several countries have developed ABS regulations according to their national legislations, but it was recognized after a while that each country have different understandings and implementing regulations even on the basic issues of the access and benefit-sharing. For example, because of different interpretations of concepts such as biological resources and genetic resources, the countries either broadened the scope of their ABS framework beyond the coverage of the CBD in a way to include not only genetic but also biological resources, or narrowed the scope through restrictive interpretations.[594] Furthermore, as the CBD does not contain concrete provisions on the modalities and institutional mechanisms of benefit-sharing jurisdictions, countries may prefer stricter arrangements or vice

[592] Hey, 67.

[593] Stellina Jolly, "Access and Benefit Sharing under Nagoya Protocol and Sustainable Development: A Critical Analysis," *AGORA International Journal of Juridical Sciences*, no. 3 (2015): 40.

[594] Greiber et al., 14.

versa.[595] For example, the Philippines envisioned a very protective and restrictive legal structure, which almost makes impossible to share any benefits.[596] Moreover, since the CBD's entry into force, progress of national implementation of the ABS commitments of the CBD was slow especially with regard to access to genetic resources, access to and transfer of biotechnology and distribution of benefits resulting from biotechnology.[597] However, while biodiversity-rich developing countries have developed legislation and regulations focusing on access, developed countries have failed to develop corresponding benefit-sharing legislation and regulations.[598] In sum, there are inconsistent definitions, domestic regulations and practices and legal uncertainties with regards to implementation of ABS, which in turn cause controversies both for those who provide genetic resources and those who seek to access to genetic resources. Furthermore, although there have been individual good examples, it is not possible to say that ILCs are provided with sufficient legal safeguarding to support their traditional knowledge and to share the benefits stemming from traditional knowledge.[599] Eventually, such controversies and challenges led to the call of the World Summit on Sustainable Development in 2002 in Johannesburg to negotiate an international regime on the fair and equitable sharing of benefits derived from utilization of genetic resources. It provided the international mandate to initiate the process that in the end resulted in the adoption of the Nagoya Protocol in 2010. Through such a Protocol, international community wanted to have more legal certainty and transparency and concrete conditions beyond the ABS system of the CBD for access to genetic resources for both providers and users of genetic resources and help them in ensuring benefit-sharing in a fair and equitable manner.

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[595] Jolly, 40.

[596] Ibid., 40.

[597] United Nations Conference on Trade and Development (UNCTAD), *The Convention on Biological Diversity and the Nagoya Protocol: Intellectual Property Implications, A Handbook on the Interface between Global Access and Benefit Sharing Rules and Intellectual Property* (Geneva, Switzerland: UNCTAD, 2014), 11. https://unctad.org/en/PublicationChapters/diaepcb2014d3_ch1_en.pdf (April 16, 2019).

[598] UNCTAD, 11.

[599] Koutouki and Von Bieberstein, 515.

5.2 Negotiation Process and Legal Basis

The first three COPs to the CBD considered the main ABS-related to issues such as information gathering, development of involvement processes and guidelines for activities carried out under Article 15 of the CBD as well as interpretation of key terms, case studies, and lessons learnt.[600] The COP-4 to the CBD in 1998 established a Panel of Experts on access and benefit-sharing to clarify principles and concepts related to ABS.[601] The Panel that comprises representatives public and private sector and ILCs gathered two times to negotiate issues such as prior informed consent, mutually agreed terms, sharing of benefits, capacity-building and involvement of stakeholders in ABS procedures.[602] In order to discuss these issues, the Panel of Experts firstly gathered in San Jose, Costa Rica, in October 1999 and its second meeting was held in Montreal, Canada, in March 2001.[603]

The COP-5 to the CBD in Nairobi, Kenya in May 2000 established the Ad Hoc Open-ended Working Group on Access and Benefit-sharing (WGABS) as a subsidiary organ to the COP with a mandate for developing guidelines and approaches on PIC and MAT, stakeholder involvement, aspects of *ex-situ* and *in-situ* conservation and sustainable use, benefit-sharing mechanisms and preserving and sustaining traditional knowledge.[604] The COP-6 in April 2002 adopted the Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilization prepared by the WGABS in The Hague.[605] The Bonn Guidelines aims at guiding the Party States to establish their own

[600] Greiber et al, 18.

[601] COP-4 decision IV/8, *Access and benefit-sharing* https://www.cbd.int/decision/cop/default.shtml?id=7131 (May 10, 2019).

[602] CBD, "History," https://www.cbd.int/abs/background/default.shtml (May 26, 2019).

[603] Ibid.

[604] COP-5 Decision V/26, *Access to genetic resources*, https://www.cbd.int/decision/cop/?id=7168 (May 10, 2019).

[605] COP-6 Decision VI/24, *Access and benefit-sharing as related to genetic resources*. https://www.cbd.int/decision/cop/default.shtml?id=7198 (May 10, 2019).

legislative and regulatory measures on ABS in addition to providing guidance for negotiating the access to genetic resources and benefit-sharing issues. They are voluntary guidelines; however, since they were adopted unanimously by 180 countries, they were considered to have an obvious and certain authority and as good evidence of international community's will to cope with such complicated issues.[606] The COP-6 also decided to reconvene WGABS (WGABS-2) in order to further examine outstanding issues, including use of terms, other approaches, and measures to support compliance with PIC and MAT and capacity-building needs.[607]

The United Nations World Summit on Sustainable Development (WSSD) was held in September 2002 in Johannesburg, South Africa to review the 10-year progress accomplished on the outcomes of the Rio Conference and to revitalize the global commitment to sustainable development.[608] The adopted "Plan of Implementation" asked the international community for taking action to negotiate an international regime for promoting and safeguarding the fair and equitable sharing of benefits stemming from the utilization of genetic resources under the CBD, taking on board Bonn Guidelines.[609] Furthermore, the Bonn Guidelines would be taken into account as a vital tool for the full implementation of the CBD and the safeguarding of the natural wealth. Thus, many provisions of the Nagoya Protocol were taken from the Bonn Guidelines.[610] The WGABS-2 held in December 2003, in Montreal, Canada submitted its recommendations to the COP-7 on the terms of reference for the

[606] Secretariat of the CBD, *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization* (Montreal: Secretariat of the CBD, 2002), IV, 1. https://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf (May 12, 2019).

[607] COP-6 Decision VI/24.

[608] UNGA Resolution A/RES/55/199, *Ten Year Review of the Progress Achieved in the Implementation of the Outcome of the United Nations Conference on Environment and Development*, (December 20, 2000). http://center-hre.org/wp-content/uploads/2011/05/Ten-Year-Review-of-the-Progress-Achieved-in-the-Implementation-of-the-Outcome-of-the-United-Nations-Conference-on-Environment-and-Develompent.pdf (May 11, 2019).

[609] UN, Plan of Implementation of the World Summit on Sustainable Development, para. 44 (n), (UN, 2002). https://wedocs.unep.org/bitstream/handle/20.500.11822/19097/Johannesburg_Plan_of_Action.pdf?sequence=1&isAllowed=y (June 26, 2019).

[610] UNCTAD, 11.

negotiation of an international regime.[611] Upon the call for action at the WSSD, the COP-7 held in February 2004, in Kuala Lumpur mandated the WGABS to negotiate an international access and benefit-sharing regime by adopting an instrument and/or instruments for the effective implementation of the provisions of the CBD.[612]

For this purpose, the WGABS held eleven meetings from 2005 to 2010 (the WGABS-9 gathered three times). During the ninth meeting of the WGABS (the WGABS-9) a draft Protocol was accepted to form a base for further negotiations.[613] The negotiations proceeded on this draft text during two sessions of WGABS-9 and the draft Protocol was concluded on the basis of this draft text at the second session of the WGABS-9 which was held in October, 16 2010, in Nagoya, Japan and conveyed to the consideration of Party States at COP-10 to the CBD. [614] The COP-10 held in Nagoya, Japan in October 29, 2010 adopted "the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity."[615] In accordance with this decision, an Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on ABS (the Intergovernmental Committee) was established as a temporary governing body responsible for making necessary preparations for the first meeting of the Conference of the Parties serving as the meeting of the Parties to the Protocol (ABS COP-MOP 1) at which time its existence would be terminated. The Intergovernmental Committee gathered three times on 5-10 June 2011; 24-28 February 2014 and 13 - 17 October 2014 before the ABS COP-MOP1 held in

[611] CBD, "History," https://www.cbd.int/abs/background/default.shtml (May 26, 2019).

[612] UNEP/CBD/COP/DEC/VII/19, *Access and benefit-sharing as related to genetic resources (Article 15*, (April 13, 2004) https://www.cbd.int/doc/decisions/cop-07/cop-07-dec-19-en.pdf (May 11, 2019).

[613] CBD, History, https://www.cbd.int/abs/background/default.shtml (May 26, 2019).

[614] See Appendix E for the timetable of the negotiations of the Nagoya Protocol on ABS.

[615] UNEP/CBD/COP/DEC/X/1, Adoption of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, (29 October 2010), https://www.cbd.int/decision/cop/default.shtml?id=12267 (May 11. 2019). See *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*, Nagoya, 29 October 2010, *UN Treaty Series* No: 30619 at https://treaties.un.org/doc/Treaties/2010/11/20101127%2002-08%20PM/XXVII-8-b-Corr-Original.pdf (June 17, 2019).

PyeongChang, Republic of Korea.[616] The Nagoya Protocol entered into force on 12 October 2014. As of May 2019, the Nagoya Protocol has 116 Party States.[617]

5.3 Key Issues of the Nagoya Protocol

The Nagoya Protocol is one of the off-springs of the CBD. It is a supplementary agreement to the CBD and supports the achievement of third objective of the CBD: the fair and equitable sharing of benefits arising from the utilization of genetic resources. Although the CBD did not specify the ABS as an issue to be addressed under a separate Protocol, the problems encountered during the implementation of the ABS regime of the CBD revealed the need for formulating a separate Protocol on the ABS. Article 28 of the CBD which foresees the development and adoption of Protocols to the CBD constituted the legal basis of the Protocol.

The Nagoya Protocol aims at improving the global regime of the CBD on access to genetic resources and sharing of benefits stemming from their utilization and promoting its implementation at the domestic level. The CBD had already provided a legal framework for the ABS regime and contained several Articles in relation to the ABS. It has 27 clauses in its Preamble, 36 articles in relation to operation of the Protocol, and one annex containing a non-exhaustive list of monetary and non-monetary benefits. It establishes a framework for regulating how users of genetic resources and traditional knowledge associated with genetic resources (for example, researchers and commercial companies) may obtain access to such resources and knowledge. It also provides for general obligations on sharing the benefits arising from the utilization of such resources and knowledge. It obliges those users of genetic resources and its associated traditional knowledge respect domestic ABS legislation and regulatory requirements of the providers of these resources or knowledge.

[616] CBD, History, https://www.cbd.int/abs/background/default.shtml (May 26, 2019).

[617] CBD, Parties to the Nagoya Protocol, https://www.cbd.int/abs/nagoya-protocol/signatories/ (May 11, 2019).

The objective of the Nagoya Protocol is stated in Article 1. The primary goal of the Protocol is to ensure the fair and equitable sharing of the benefits arising from the utilization of genetic resources. According to this objective, benefit-sharing includes appropriate access to genetic resources and appropriate transfers of related technologies and appropriate financing. Thus, the aim of the Nagoya Protocol qualifies the benefit-sharing beyond distributing certain portions of benefits derived from the use of genetic resources.[618] It makes a link between access and benefit-sharing and the first two objectives of the CBD by stating its objective as making contribution to the conservation of biological diversity and sustainable use of its components.

Article 3 states the scope of the Nagoya Protocol. It is related with the "utilization of genetic resources" and covers the genetic resources under Article 15 of the CBD and applies to the benefits arising out of utilization of these resources. Utilization of genetic resources refers to research and development activities (R&D activities) on the genetic and biochemical composition of living organisms, i.e. plants, animals and microorganisms.[619] For example, since only R&D activities are included within the scope of the Nagoya Protocol, when a plant or crops are internationally traded for consumption, it is not covered by the Protocol, however, if they are to be used for exploring the features or for finding usage areas of their genetic material or biochemical compound, the Nagoya Protocol is applicable.[620] Furthermore, definition of "utilization of genetic resources" enhances the scope of the ABS regime to derivatives and biochemical compounds that do not contain functional units of heredity but obtained from genetic resources, ABS requirements became applicable for a wide range of R&D.[621] In addition, as the Nagoya Protocol only covers R&D activities, if genetic material of an already known plant is extracted, the Nagoya Protocol will not apply as such activities do not contain research and development.[622]

[618] Greiber et al., 25.

[619] Nagoya Protocol, Art. 2(c).

[620] UNCTAD, 16.

[621] Pauchard, 5.

In addition, when a plant, animal or any biological resource is the subject of international trade for consumption at the beginning but later on if it is utilized for R&D, the Nagoya Protocol still applies.[623]

The Nagoya Protocol is also applicable to traditional knowledge associated with genetic resources which are covered under the CBD and the benefits arising from the utilization of this knowledge. Access to genetic resources, benefit-sharing and compliance are the key elements of ABS system of the Nagoya Protocol and the Protocol establishes main obligations for Party States to adopt required measures regarding these issues.

5.3.1 Obligations related to Benefit-sharing

Article 5 of the Nagoya Protocol is the primary provision in relation to the fair and equitable benefit-sharing. The Nagoya Protocol deals separately with the issue of access (Article 6) and benefit-sharing (Article 5). In addition, this Article also distinguishes between benefits arising from the utilization of genetic resources (Article 5.1), benefits that are arising from genetic resources held by ILCs (Article 5.2) and benefits arising from the utilization of traditional knowledge associated with genetic resources (Article 5.5).[624] Through Article 5, the implementation of Articles 15(3) and 15(7) of the CBD was expanded to the ILCs for the first time,.[625] Therefore, the Nagoya Protocol is regarded as a concrete example demonstrating how the principle of intra-generational equity can be implemented.[626]

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[622] Ibid., 5.

[623] UNCTAD, 16.

[624] Konstantia Koutouki and Katharina Rogalla von Bieberstein, "The Nagoya Protocol: Sustainable Access and Benefits-Sharing for Indigenous and Local Communities," *Vermont Journal of Environmental Law (VJEL)* 13 (2012): 525. http://vjel.vermontlaw.edu/files/2013/06/The-Nagoya-Protocol.pdf (May 26, 2019).

[625] Elisa Morgera, Elsa Tsioumani and Matthias Buck, *Unraveling the Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit-sharing to the Convention on Biological Diversity*, (Leiden, the Netherlands: Koninklijke Brill NV, 2014), 112. https://brill.com/view/title/20824 (April 15, 2019).

[626] Hey, 68.

Benefit-sharing obligations require that benefits arising out of the utilization of genetic resources in addition to subsequent applications and commercialization be shared fairly and equitably with the provider countries of genetic resources.[627] Hence, the Nagoya Protocol clarifies that benefit sharing obligations do not only cover research and development on the genetic or biochemical composition but also subsequent applications and commercialization. However, the Nagoya Protocol does not define "subsequent applications and commercialization", but it requires that benefit-sharing is to be broadly interpreted benefits to be shared may occur during all phases, having accessed to a genetic resource.[628] For example, the Nagoya Protocol would be applicable when a research on biochemical composition of a plant is conducted to develop a medicine or an anti-aging product. The users are required to show that genetic resources to be used in R&D activities were obtained pursuant to domestic ABS legislation of the providers.

Such benefit-sharing arrangements are required to be established on MAT between the provider and the user of genetic resources. The MAT constitutes a private law contract between the providers and users of genetic resources and stipulates the conditions for the utilization of the resources and benefit-sharing.[629] In addition, Party States are required to take convenient measures to ensure a fair and equitable sharing of benefits arising from the utilization of genetic resources held by ILCs[630] and benefits that are that arising from the utilization of traditional knowledge associated with genetic resources,[631] on the basis of MAT.[632] However, benefits stemming from the utilization of genetic resources held by ILCs should be shared pursuant to domestic legislation regarding the established rights of those communities. Article 5(2) and Article 5(5) put obligations on Party State addressing

[627] Nagoya Protocol, Art. 5(1).

[628] Morgera, Tsioumani and Buck, 114.

[629] Pauchard, 5.

[630] Nagoya Protocol, Article 5(2).

[631] Nagoya Protocol, Article 5(5).

[632] Ibid., Article 5(2), (5).

a domestic issue between a state and its communities, which is one of the main subjects of treaties in the field of human rights.[633] Although they are not formulated by using the terms of human rights, they are significant achievements in terms of international environmental law.[634] In addition, the benefits to be shared do not only cover monetary benefits but also non-monetary benefits as included in the Annex to the Nagoya Protocol, but they are not limited to the benefits contained in the Annex.[635]

5.3.2 Obligations related to Access to Genetic Resources

Access to genetic resources (Article 6) and access to traditional knowledge associated with genetic resources in (Article 7) are addressed separately in the Nagoya Protocol. As being the key provision addressing access to genetic resources, Article 6 of the Nagoya Protocol states the rights and obligations of provider countries in relation to access to genetic resources.[636] Similar to the CBD, the access provisions of the Nagoya Protocol reaffirms the sovereign rights of states over their natural resources and obtaining the PIC of the provider country for accessing to genetic resources for their utilization. However, the Nagoya Protocol provides much elaborated procedures for the facilitation of access to genetic resources.[637]

Article 6(1) reaffirms sovereign rights of the States over their natural resources and their right to arrange access to genetic resources in accordance with their national ABS regulations and requirements. Access to genetic resources must be based on PIC of the provider country, unless it determines otherwise. Article 6(2) clarifies how the Party States will regulate the access to genetic resources. In accordance with their domestic law, necessary measures should be taken by each Party State for ensuring that PIC or approval and involvement of ILCs is obtained if these

[633] Morgera, Tsioumani and Buck, 113.

[634] Ibid., 113.

[635] Nagoya Protocol, Article 5(4).

[636] Greiber et al, 94.

[637] Koutouki and Von Bieberstein, 526.

communities have the established rights over these resources. This Article is seen as being "heavily qualified" since it makes reference to both the established rights of ILCs to grant access to such resources and being in accordance with national legislation, although it is a significant achievement of ILCs.[638] This provision entails obtaining PIC of the ILC in addition to the state PIC for access to genetic resources.[639]

Article 6(3) sets out access measures to be taken by each provider country at domestic level. It can be said that the measures in Article 6(3) of the Nagoya Protocol make Article 15(2) of the CBD more concrete.[640] In summary, the access should be built on legal certainty, clarity and transparency. The provider country must establish fair and non-arbitrary rules and procedures on the access to genetic resources. The provider country must also provide information on PIC procedures and to provide a written PIC decision by a competent national authority. The provider country must also issue a permit or equivalent while granting access and inform ABSCH. If domestic legislation requires, in order for obtaining PIC or approval and involvement of ILCs for access to genetic resources, criteria and processes must be developed. Clear rules and procedures for establishing of MAT must also be developed.

In addition, there are some specific considerations on access to genetic resources at domestic level. Party States are required to create conditions of access to promote and encourage research contributing to the conservation of biological diversity and its sustainable use, particularly in developing countries.[641] Party States are also required to give proper attention to current or imminent emergencies which threaten

[638] Morgera, Tsioumani and Buck, 145-146.

[639] Ibid., 146.

[640] Greiber et al, 94.

[641] Nagoya Protocol, Art. 8(a).

human, animal or plant health[642] and to the importance of genetic resources for food and agriculture and for food safety.[643]

5.3.3 Obligations related to Compliance

The Nagoya Protocol builds a compliance regime for the prevention of misappropriation[644] of genetic resources or traditional knowledge associated with genetic resources, in other words bio-piracy and responding the cases if such event occur through Articles 15, 16 and 17.[645] Thus, it was aimed to struggle with utilization of genetic resources by the users either for commercial or academic purposes without obtaining PIC of the providers or without sharing benefits fairly and equitably. In addition, provisions are provided in order to support implementation of benefit-sharing agreements in Article 18.[646]

Article 15 addresses the obligations for the compliance of users of genetic resources with domestic ABS legislation and regulations of provider countries. Article 15(1) requires all Party States to take measures for providing that genetic resources utilized within their jurisdiction have been accessed through PIC and that MAT have been established, if domestic ABS legislation and regulations of other Party State demand such PIC and MAT. In addition, they are also required to take measures to deal with situations of non-compliance[647] and cooperate in cases of alleged violation of

[642] Ibid., Art. 8(b).

[643] Ibid., Art. 8(c).

[644] Misappropriation means the utilization of genetic resources or traditional knowledge related genetic resources without the prior informed consent of the provider to such utilization pursuant to domestic legislation of the provider country. See *The Consolidated Document Relating to Intellectual Property and Genetic Resources Rev. 2.* https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_35/wipo_grtkf_ic_35_ref_facilitators_text_rev_2.pdf

[645] Greiber et al, 29.

[646] Ibid., 29.

[647] Nagoya Protocol, Art. 15(2).

domestic ABS legislation and regulations of the other Party State.[648] It is noteworthy that while Article 15(1) refers to compliance with provider country measures, Article 15(2) addresses non-compliance with user country measures adopted in accordance with Article 15(1).[649]

Article 16 of the Nagoya Protocol repeats the obligations of Party States in previous provision (Article 15) in terms of traditional knowledge associated with genetic resources. These obligations go beyond those stated in the CBD and for the first time the Nagoya Protocol clearly require user countries to implement compliance measures.[650] In accordance with Article 16(1), access to traditional knowledge associated with genetic resources has been granted through PIC or approval and involvement of ILCs and MAT have been established according to the domestic regulations of the Party State hosting ILCs. This provision thus aims at promoting compliance of respective users of traditional knowledge with domestic ABS frameworks of the country providing traditional knowledge and hosting ILCs. Article 16(3) requires all Party States to cooperate in cases of alleged violation of domestic ABS legislation or regulations related to traditional knowledge of the provider country.

According to Article 15 and Article 16, it is the Party States that are responsible for adopting measures which are appropriate, effective and proportionate for compliance.[651] Article 17 aims to ensure the implementation of obligations under Article 15. In order to support compliance, Party States are required to take appropriate measures to monitor and enhance transparency on the utilization of genetic resources. However, an equivalent provision on utilization of traditional

[648] Ibid., Art. 15(3).

[649] Greiber et al., 30.

[650] Koutouki and Von Bieberstein, 529, 530.

[651] Ibid., 530.

knowledge that may have significant consequences does not exist in the Nagoya Protocol.[652]

In order to monitor the utilization of genetic resources in a transparent manner, the Nagoya Protocol introduces two important instruments: designation of checkpoints and issuance of an internationally recognized certificate of compliance. Each Party State is required to designate minimum one checkpoint.[653] These checkpoints are responsible for gathering and receiving information about PIC, the source of the genetic resources, the establishment of MAT and the utilization of genetic resources.[654] In addition, each Party State requires users of genetic resources to make available such information at a designated checkpoint. Such information will be provided to relevant national authorities, to the Party State providing PIC, and to the ABSCH.[655] Checkpoints need to be effective during all stages of utilization chain.[656] It encourages users and providers of genetic resources to agree on MAT clauses for information sharing on the implementation of MAT, including through reporting[657] and use of cost-effective communication tools.[658]

As a second instrument, an internationally recognized certificate of compliance to be published through the ABSCH is defined[659] and its functions are stated as providing evidence on a specific genetic resource covered by the certificate to show that it has been accessed according to PIC regulations of the provider country and that MAT have been established.[660] It is important to note that according to Article 17.4 if there

[652] Koutouki and Von Bieberstein., 530.

[653] Nagoya Protocol, Art. 17(1)(a)(i).

[654] Ibid., Art. 17(1)(a)(ii).

[655] Ibid., Art. 17(1)(a)(iii).

[656] Ibid., Art. 17(1)(a)(iv).

[657] Ibid., Art. 17(1)(b).

[658] Ibid., Art. 17(1)(c).

[659] Ibid., Art. 17(2).

[660] Ibid., Art. 17(3).

is a "confirmation that MAT were established" in such certificate of compliance, it is regarded to be sufficient for compliance. However, there is not any mechanism to make a compliance check *vis a vis* the MAT clauses, therefore any international mechanism that evaluates any particular ABS transaction have met the fairness and equity of benefit-sharing requirements is sufficient.[661] It also provides minimum information needed to be included in this certificate.[662] However, while Articles 15 and 17 intensively concentrate on compliance with access conditions for the purpose of preventing of bio-piracy, on contrary, there is not any obligation specified for user countries to ensure benefit sharing, rather determination of benefit sharing obligations is left to contractual arrangements of the parties.[663] This situation led to a grave disappointment for the provider countries of genetic resources.[664]

Article 18 addressees a different issue of compliance from Articles 15, 16 and 17. It is specifically dedicated to promote the implementation of the MAT between users and providers of genetic resources and traditional knowledge associated with genetic resources. In other words, it aims to support compliance with obligations in the MAT agreements but not with domestic ABS legislation or regulatory requirements. As a consequence, Article 18 requires each Party State to encourage incorporation of provisions on dispute resolution in MAT agreements[665] to ensure that an opportunity is available to seek recourse for disputes arising from such agreements[666] and to take measures regarding access to justice.[667] In sum, while Article 17 of the Nagoya

[661] Morgera, Tsioumani and Buck, 282.

[662] Nagoya Protocol, Art. 17(4).

[663] Evanson Chege Kamau, Bevis Fedder and Gerd Winter, "The Nagoya Protocol on Access to Genetic Resources and Benefit Sharing: What is New and what are the Implications for Provider and User Countries and the Scientific Community?" *Law Environment and Development Journal (LEAD*) 6 no.3 (2010): 257. http://www.Lead-Journal.Org/Content/10246.Pdf (April 16, 2019).

[664] Ibid, 257.

[665] Nagoya Protocol., Art. 18(1).

[666] Ibid, Art. 18(2).

[667] Ibid., Art. 18(3).

Protocol oversees whether the MAT were established, Article 18 concentrates on how to accomplish compliance with MAT.[668]

5.3.4 Traditional Knowledge

Articles 15, 16, and 19 of the CBD clearly address genetic resources without dealing with traditional knowledge, therefore, the COP-7 to the CBD in 2004 mandated the ABSWG, with the collaboration of the Ad Hoc Open Ended Inter-Sessional Working Group on Article 8(j) and Related Provisions, for the elaboration and negotiation of an international regime on access to genetic resources and benefit-sharing with the purpose of adopting an instrument for effective implementation of the provisions in Articles 15 and 8(j) of the CBD and its three objectives with the attendance of all related organizations and communities.[669] Consequently, all works of these groups were culminated under Article 7 of the Nagoya Protocol to ensure that traditional knowledge can be accessed if only the PIC or approval and involvement of ILCs have been granted.

Traditional knowledge associated with genetic resources is addressed through several articles of the Nagoya Protocol such as in Articles 5(5), 10, 11(2), and 18(1)). There are seven paragraphs in relation to ILCs and traditional knowledge in the Preamble, including references to article 8(j) of the CBD and the UNDRIP. Furthermore, due to importance attached to the ILCs and traditional knowledge, several articles are dedicated to these issues; such as Article 7: Access to Traditional Knowledge Associated with Genetic Resources; Article 16: Compliance with Domestic Legislation or Regulatory Requirements on Access and Benefit-sharing for Traditional Knowledge Associated with Genetic Resources and Article 12: Traditional Knowledge Associated with Genetic Resources. However, the Nagoya Protocol does not cover all traditional knowledge; it only covers the traditional knowledge that is associated with genetic resources. It does not provide a definition

[668] Koutouki and Von Bieberstein., 531.

[669] UNCTAD, 21. See also UNEP/CBD/COP/DEC/VII/19 of April 13, 2004. https://www.cbd.int/doc/decisions/cop-07/cop-07-dec-19-en.pdf (May 11, 2019).

of traditional knowledge associated with genetic resources; rather it is left to the Party States to determine the scope of traditional knowledge to be covered according to their national legislation.

Article 7 includes only one paragraph stating that Party States are required to take measures to ensure that traditional knowledge held by ILCs has been accessed with PIC or approval and involvement of such communities and the MAT have been established.[670] ILCs do not have an explicit right to grant access to their traditional knowledge, rather the Party States are required to put into effect domestic legislation and measures for ILCs to use this right.[671] Thus, ILCs' PIC should be considered separate from and additional to state PIC based on the consideration that while a state grants its PIC on the basis of national sovereignty over natural resources, it cannot claim national sovereignty on traditional knowledge as it is a product and lifestyle identical to traditional communities.[672] Therefore, Article 7 does not require the condition of having "established rights to grant access" contrary to Article 6(2).

In parallel to UNDRIP's terminology, the NP COP-MOP 2 decided to replace the terminology "ILCs" with "indigenous peoples and local communities".[673] However, it is worth noting that the Nagoya Protocol recognizes rights of indigenous peoples beyond UNDRIP and provides more specific rules about traditional knowledge related to genetic resources and broadens these rights to local communities.[674]

Article 12 stipulates several obligations of the Party States for the implementation of the Nagoya Protocol. While implementing the Nagoya Protocol, Party States are required to take into account, customary laws, community protocols and procedures

[670] Nagoya Protocol, Art. 7.

[671] Morgera, Tsioumani and Buck, 170.

[672] Ibid., 170.

[673] CBD/NP/MOP/DEC/2/7, *Decision Adopted by the Parties to the Nagoya Protocol on Access and Benefit-Sharing*, (December 10, 2016), https://www.cbd.int/doc/decisions/np-mop-02/np-mop-02-dec-07-en.pdf (May 3, 2019).

[674] Morgera, Tsioumani and Buck, 171.

of such communities –as applicable- related to traditional knowledge associated with genetic resources.[675] They are also required to establish mechanisms to inform users of such traditional knowledge on their obligations[676] and support these communities on the development of community protocols related to traditional knowledge, minimum requirements for mutually agreed terms, and model contractual clauses;[677] and not to restrict, customary use and exchange of genetic resources and related traditional knowledge within and among these communities in compliance with the objectives of the CBD.[678]

5.4 Means and Mechanisms to Support Implementation

The success of the Nagoya Protocol depends on effective implementation at the domestic level. It provided useful means and mechanisms to help the Party States.

5.4.1 National Focal Points and Competent National Authorities

Article 13 requires that each Party State designate a national focal point (NFP) and one or more Competent National Authorities (CNAs) on access and benefit-sharing at the domestic level. The NFPs are assigned with providing information to applicants seeking access to genetic resources and to those seeking access to traditional knowledge associated with genetic resources, if possible, on procedures for obtaining PIC (or approval and involvement in the case of ILCs, as appropriate) and establishing MAT, including benefit-sharing.[679] The CNAs are assigned with granting access or executing the compliance procedures; such as issuance of written evidence stating that access requirements have been met and provision of advice on

[675] Nagoya Protocol, Art. 12(1).

[676] Ibid., Art. 12(2).

[677] Ibid., Art. 12(3)(a, b, c).

[678] Ibid., Art. 12(4)

[679] Ibid., Art. 13(1)(a)(b).

procedures and requirements to obtain prior informed consent and enter into mutually agreed terms.[680]

5.4.2 An Access and Benefit-sharing Clearing-House

An Access and Benefit-sharing Clearing-House (hereinafter ABSCH) is established under Article 14 of the Nagoya Protocol as part of the CHM established under Article 18 of the CBD as a mechanism to share information related to access and benefit-sharing, specifically to provide access to information presented by each Party State on the implementation of the Protocol.[681] Each Party State is required to submit the ABSCH any information on i) domestic ABS regulations and requirements; ii) information on NFPs and CNAs and iii) Permits or their equivalent as evidence for granting PIC and establishing MAT,[682] as well as additional information when available and convenient.[683] Thus, the ABSCH operates as a platform for exchanging information to help both users for finding required information on how to access genetic resources and associated traditional knowledge and providers in receiving information related to the utilization of their genetic resources after they leave the jurisdiction of provider country.[684] Modalities of the operation of the ABSCH have been decided by the first meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol (NP COP-MOP).[685]

[680] Ibid., Art. 13(2).

[681] Ibid., Art. 14(1).

[682] Ibid, Art 14(2).

[683] Ibid., Art. 14(3).

[684] About the ABS Clearing-House, https://absch.cbd.int/about/ (June 16, 2019).

[685] UNEP/CBD/NP/COP- MOP/DEC/1/2, *The Access and Benefit-sharing Clearing-House and information-sharing (Article 14)*, (October 20, 2014), https://www.cbd.int/doc/decisions/np-mop-01/np-mop-01-dec-02-en.pdf (May 3, 2019).

5.4.3 Other Means and Mechanisms

5.4.3.1 Relationships with other international agreements and instruments

In addition to the CBD, other international agreements and instruments also contain provisions in relation to access and benefit-sharing. The relationship between the Nagoya Protocol and other international agreements and instruments was highly controversial issue during the negotiations.[686] As a result, Article 4 addressed this relationship. The Nagoya Protocol will not affect rights and obligations resulting from other existing international agreements unless exercise of them would cause a serious damage or threaten biological diversity.[687] Thus, the Nagoya Protocol will apply to access and benefit-sharing issues if such issues are not addressed under other existing international instruments. The Party States may develop and implement other specialized access and benefit-sharing agreements in future. Thus, it can be said that the Nagoya Protocol constitutes a "residual regime" that operates if there is not any current specialized access and benefit-sharing instrument which satisfy certain conditions.[688] However, new agreements are required to be formulated on condition of being "supportive of and do not run counter to the objectives of the CBD and Nagoya Protocol."[689] Article 4(3) of the Nagoya Protocol addresses mutual supportiveness with ongoing work or practices on access and benefit-sharing under other international instruments and organizations. Article 4(4) specifically indicates that this Protocol is the instrument for the implementation of the access and benefit-sharing provisions of the CBD. Therefore, if there is another specialized international agreement including access and benefit-sharing provisions which are consistent with the objectives of the CBD and this Protocol, the Nagoya Protocol provisions do not

[686] Greiber et al, 26.

[687] Nagoya Protocol, Art. 4.1.

[688] Elisa Morgera, Stephanie Switzer and Elsa Tsioumani, "Study into Criteria to Identify A Specialized International Access and Benefit-Sharing Instrument, and a Possible Process for its Recognition," *CBD/SBI/2/INF/17*, Montreal, 2018. 4. https://www.cbd.int/doc/c/9376/a644/1bed20a1837af8e3d1edc5f9/sbi-02-inf-17-en.pdf (June 6, 2019).

[689] Nagoya Protocol, Art. 4(2).

apply for the Party States that have ratified other specialized agreement in terms of the specific genetic resource covered by the specialized instrument in compliance with its purpose.[690] For example, the Nagoya Protocol contain clauses in its Preamble recognizing the specific nature of agricultural biodiversity, its particular characteristics requiring particular solutions; acknowledging the vital role of the ITPGRFA and recalling that Multilateral System of ABS of the ITPGRFA was developed in harmony with the CBD.[691] Thus, according to the Nagoya Protocol ITPGRFA will apply to plant genetic resources for food and agriculture for those countries that have ratified it.[692]

5.4.3.2 Model contractual clauses, codes of conduct, guidelines, best practices and standards

In order to support implementation of the Nagoya Protocol, Article 19 and 20 stipulates obligations for Party States to encourage and develop model contractual clauses, codes of conduct, guidelines, best practices and standards while establishing MAT. Model contractual clauses are sectoral and inter-sectoral standardized clauses to be used while establishing MAT. However, existence of these clauses does not remove the need for developing domestic ABS laws and regulations in relation to MAT.[693] Codes of conduct, guidelines, best practices and standards are not obligatory means but they can contribute to the establishment of the best practices for ABS proceedings and promote fulfillment of national ABS frameworks. Governments, sectors, financing and research institutions, and business associations and related stakeholders can develop model contractual clauses, codes of conduct, guidelines, best practices and standards via the ABSCH.[694] These means are expected to provide

[690] Morgera, Switzer and Tsioumani, 4.

[691] Ibid., 5.

[692] UNCTAD, 24.

[693] Morgera, Tsioumani and Buck, 294.

[694] CBD, "Model contractual clauses, codes of conduct, guidelines and best practices and/or standards," available at https://www.cbd.int/abs/modelclauses.shtml (May 26, 2019).

a platform assisting providers and users in negotiating, developing and implementing fair and equitable MAT agreements in a consistent manner.[695/]

5.4.3.3 Technology Transfer, Collaboration and Cooperation

Article 23 of the Nagoya Protocol contains two categories of obligations with regard to non-monetary benefit-sharing: the first obligation requires to be co-operated in technical and scientific research and development activities, including biotechnological research (sentence 1) and the second one asks for promotion and encouragement of access to and transfer of technology to developing countries (sentence 2). However, although Party States are obliged to cooperate in these research programmes, promoting and encouraging access to and transfer of technology to developing countries is stated as a commitment instead of an obligation, which probably because of the fact that almost all biotechnology companies are run by the private sector.[696]

5.4.3.4 A Compliance Mechanism

Article 30 of the Nagoya Protocol asks for the NP COP-MOP its first meeting to consider and approve collaborative procedures and institutional mechanisms to promote compliance with the Protocol and to deal with cases of non-compliance. This mechanism is expected to address questions to help and facilitate each Party State to take necessary measures to fulfill their obligations.

At the first meeting of the NP COP-MOP, the Party States adopted compliance procedures and mechanisms and established a Compliance Committee.[697] The Compliance Committee comprises 15 members. They are nominated by the State

[695] Greiber et al., 29.

[696] Morgera, Tsioumani and Buck, 317.

[697] UNEP/CBD/NP/COP-MOP/DEC/1/4, *Cooperative procedures and institutional mechanisms to promote compliance with the Nagoya Protocol and to address cases of non-compliance,* (20 October 2014), https://www.cbd.int/doc/decisions/np-mop-01/np-mop-01-dec-04-en.pdf (May 3, 2019).

Parties and elected by the NP COP-MOP on the basis of three members from each of the five regional groups of the United Nations. Furthermore, the NP COP-MOP chooses two representatives of ILCs –at least one from developing country- as observers. The Committee is assigned with receiving submissions in relation to issues of compliance and non-compliance with the provisions of the Protocol. It can also examine the cases where State Parties fails to submit their national reports and where the information provided indicates difficulties which a Party is faced with while complying with its obligations under the Protocol. The Committee can also examine systemic issues of general non-compliance. The Committee and the NP COP-MOP, upon the recommendations of the Committee, may take measures to promote compliance and address cases of non-compliance. It is worth noting that compliance procedures are separate from the dispute settlement procedure established under Article 27 of the CBD, which is also applicable to the Nagoya Protocol.[698]

5.4.3.5 Treaty Bodies with Respect to the Nagoya Protocol

Finally, the Protocol includes institutional arrangements similar to the CBD and its Cartagena Protocol. Article 26 foresees that the Conference of the Parties to the CBD serves as the meeting of the Parties to the Nagoya Protocol (NP COP-MOP). Article 25(2) of the Nagoya Protocol designates the financial mechanism of the CBD as the financial mechanism for the Nagoya Protocol. Eventually the GEF is designated as a financial mechanism for the Nagoya Protocol to provide financial assistance to developing countries for the implementation of the Nagoya Protocol. Article 28 states that the CBD Secretariat will also serve as the Secretariat of the Protocol. Article 29 provides for monitoring and reporting provisions. Article 31 states that an evaluation of the effectiveness of the Protocol would be undertaken four years after its entry into force.

[698] Nagoya Protocol, Art. 30.

Table 8: Nagoya Protocol COP-MOP Meetings[699]

COP-MOP 3 Decisions	Third meeting of the Conference of the Parties serving as the Meeting of the Parties to the Nagoya Protocol on ABS *Sharm El-Sheikh, Egypt* 17-29 November 2018
COP-MOP 2 Decisions	Second meeting of the Conference of the Parties serving as the Meeting of the Parties to the Nagoya Protocol on ABS *Cancun, Mexico* 4–17 December 2016
COP-MOP 1 Decisions	First meeting of the Conference of the Parties serving as the Meeting of the Parties to the Nagoya Protocol on ABS *Pyeongchang, Republic of Korea* 13–17 October 2014

[699] Table 8 was retrieved from the "Nagoya Protocol COP-MOP Decisions," https://www.cbd.int/decisions/np-mop (May 12, 2019).

CHAPTER 6

CONCLUSION

Since the environmental problems do not recognize national borders, finding solutions to such problems requires international cooperation in the form international agreements which form the basis of international regimes. Loss of biological diversity is one of the most prominent environmental problems, which may end up with catastrophic consequences as biological diversity safeguard populations from diseases and ensures adaptations to changing conditions. Creating a global biodiversity regime has shown a gradual progress and finally, the CBD that encompasses all biological diversity represented the climax for the conservation of its all components. The CBD and its Protocols established an international regime to govern biological diversity at global level. It is mostly a framework convention that puts a general framework and obligations and envisages making more concrete, predictable, transparent and applicable Protocol in a required particular issue. As a parent convention, it gave birth to three Protocols: the Cartagena Protocol on Biosafety; the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety and the Nagoya Protocol on access and benefit-sharing. In this sense, the CBD adopted a suitable approach and can be regarded as successful since further regimes on biosafety, liability and redress on biosafety and equitable access and fair benefit-sharing arising from the utilization of biological diversity were established under its scope.

The CBD have brought a lot of novelties into the field of biological diversity. As being the most comprehensive convention on biological diversity, it provided a holistic approach including genetic resources on the conservation and sustainable use of biological diversity. It could be considered as a North-South compromise that balances conflicting interests of developed and developing countries. Another novelty that the CBD brought is, for the first time, an international legal instrument;

the Convention recognizes the importance of traditional knowledge and practices of ILCs in relation to the conservation and sustainable use of biological diversity.

The CBD established general obligations without developing indicators for assessing the implementation of the convention or measuring the level of impact of the biodiversity regime of the CBD on the biological diversity, which makes it unpredictable and uncertain to be implemented. It can be said that as a framework convention it is not expected from the CBD to provide concrete measures or measurable targets, however, it should not be forgotten that the CBD and each Protocol require to be ratified separately by the states. Therefore, although the CBD almost has a worldwide acceptance, it is not the case for its Protocols. There are many countries that have not signed or ratified its three Protocols. Moreover, the CBD contains many areas which may not be addressed under a separate Protocol to be adopted in future. So, measurable indicators or targets and measures to reach these targets could have been considered at least in certain areas within determined time periods as in the case of UNFCCC although it is formally titled as "framework convention". Contrary to the UNFCCC establishing a global climate target, addressing the loss of biological diversity under a single global target is not possible because of it very varying nature. Thus, targets and measures would have been legally-binding for the party states to the CBD but not party to the Protocols. This could also be useful to see to what extent the targets have been achieved and which measures need be taken to compensate the gaps between targets and achievements. At this point, the Aichi Biodiversity Targets developed within the scope of the Strategic Plan for Biodiversity for 2011-2020 adopted by the COP-10 is of utmost importance since it brought concrete targets on particular areas of biological diversity. They are stated as five Strategic Goals including 20 targets together with guidance on the achievement of these targets. As expected, the Aichi targets requested the Party States to establish their own targets on the basis of this international framework according to their national necessities and priorities. However, progress and commitments of the Party States seem so far behind against the targets. In the end, they have failed to take action to safeguard biological diversity.

The Cartagena Protocol establishing a global regime for the regulation of transboundary movements of LMOs sets up an obligatory Advanced Information Agreement (AIA) and information sharing procedures, a biosafety clearing house labeling requirements, certain risk assessment and risk management procedures as well as a compliance mechanism. In addition, the Protocol does not only address the obligations of the Party States to the Protocol but also requires that transboundary movements of LMOs between the Parties and non-state Party must be incompliance with the Protocol's objective. However, there are still some issues need to be addressed such as clarification of the scope of the LMOs covered, its relationship with the WTO agreements to remove the concerns between biosafety and fair trade and on-going discussions on the procedures applicable to the LMO FFPs.

In fact it is a great achievement to make a legally-binding global agreement on such a controversial issue on which there is no scientific consensus. The spirit of precautionary approach can be observed throughout the Protocol regarding all LMOs. However, the main problem is still the scientific uncertainty about the damage caused by the LMOs. Therefore, scientific community is always invited to put evidence immediately to show which of two controversial views have scientifically sound basis. Thus it would be possible to take appropriate measures and make required legal regulations for the safe transboundary movements of LMOs that may have adverse effects on the conservation of biodiversity as well as human health. From a positive point of view, thanks to the promising nature of the Protocol, establishment of a liability and redress mechanism for damage resulting from transboundary movements of living modified organisms has become possible in Nagoya in 2010.

The Nagoya-Kuala Lumpur Supplementary Protocol completes the lacking part of the Cartagena Protocol, which is liability and redress of damage caused by transboundary movements LMOs. It defines the "damage to biodiversity" in an international environmental treaty for the first time. However, damage to biodiversity is not defined in a traditional sense that subject to the civil liability. It adopts an administrative approach to deal with damage caused by LMOs. It means that in the

case of damage occurred or likely to occur, the national competent authority is required to take response measures instead of a judicial institution. Therefore, the competent national authority is the main focus of administrative approach. At this point, the competent authorities of developing countries have a challenging task to implement response measures since they do not have required capacity and resources to address such a sophisticated international regime.

On the other hand, while it does not adopt a civil liability regime, it requires the Party States to provide, in their domestic law, for rules and procedures which address damage by providing response measures according to their existing law on civil liability or through a new law. Thus, claiming a civil liability can be possible for a damage caused by LMOs since almost every country has civil liability laws to compensate damages given to the environment. However, since provisions of the Supplementary Protocol require to be implemented through domestic laws, implementation process may become much more complicated and challenging.

The Nagoya Protocol aims at establishing a global access and benefit-sharing regime in relation to genetic resources and associated traditional knowledge to realize the third objective of the CBD. It creates more legal certainty and transparency for both providers and users of genetic resources by developing more predictable conditions for access to genetic resources and assisting the Party States to ensure fair and equitable benefit-sharing arising from utilization these genetic resources. In accordance with both CBD and Nagoya Protocol treaties genetic resources are required to be accessed on the basis of PIC and benefit-sharing requires to be based on MAT. Significant achievements have been gained within the scope of the Protocol such as a clear definition of "utilization of genetic resources" in a way to include the use of bio-chemicals and designation of checkpoints, obliging the Party States to make certain and transparent legislations, inclusion traditional knowledge associated with genetic resources and genetic resources held by ILCs, establishment of an ABS Clearing-House Mechanism.

The Nagoya Protocol is regarded as a residual regime that operates if there is not any other specialized access and benefit-sharing instrument that satisfies the conditions of being consistent with, and does not run counter to the objectives of the CBD and the Nagoya Protocol. In other words, the Nagoya Protocol does not have impact on rights and obligations resulting from existing international agreements unless their exercise would cause a serious damage or threat to biological diversity. Thus, the Nagoya Protocol is applicable to the access and benefit-sharing issues if such issues are not addressed within the scope of other international agreements. However, if there is a specialized ABS instrument which is consistent with objectives of the CBD and the Nagoya Protocol, the provisions of the specialized ABS instrument will be applicable for the states that are Party to the both agreements. For example, since some plant genetic resources for food and agriculture are addressed within the scope of the ITPGRFA, the Nagoya Protocol will not apply to these resources, which is a criticism directed to the Nagoya Protocol. It is also applicable in terms of genetic resources which specialized instrument does not address and used for the purposes apart from those stated in the specialized instrument. According to regime established by the Nagoya Protocol, the Party States may develop and implement further specialized access and benefit-sharing agreements. However, such new agreements are required to be formulated conditional upon being "supportive of and do not run counter to the objectives of both agreements."

There are criticisms towards the Nagoya Protocol because of some weaknesses. For example, it is not clear whether its provisions are applicable to genetic resources obtained prior to the Nagoya Protocol. This point is important considering that biotech-rich countries acquired significant amount of genetic resources before the Nagoya Protocol and also before the CBD. There is also confusion about the coverage of traditional knowledge associated with genetic resources. In addition, the number of concluded ABS contracts needs to be significantly increased through capacity building and provision of financial resources.

Taking together all these treaties as a whole, their implementation are left to the Party States and obligations arising from these treaties should be introduced into the

national law. Although, their implementation are left to the national legislation of the Party States, all have common sufferings: i) containing many qualifiers such as “as applicable”, “as far as possible and as appropriate”, “if available” or “where applicable” which implies that Party States may have flexibility for not fulfilling their obligations if their national conditions do not allow to realize their commitments; and ii) using soft statements that refrain from establishing clear obligations like “support”, “minimize”, “consider” or “encourage”. Therefore, the key responsibility to implement the treaties seems to be left to the political willingness of the Party States.

Absence of the USA in this global biodiversity regime is an important drawback, as it is one of the main actors dominating science, trade and biotechnology sectors in the world. Unfortunately, it does not seem to be realistic to expect that the USA will be a Party to the CBD or its Protocols in a foreseeable future. At this point, a paradigm shift seems inevitable. It should not be forgotten that it is the government of the USA that did not sign or ratify these treaties, not the public of the USA. In fact, the pushing factor affecting decisions of the governments is the public opinion. Therefore, rather than focusing on trying to convince the most stubborn opponent of such treaties, activities to protect biological diversity should increasingly focus on the USA public having a background and awareness for biological diversity conservation and all other countries through awareness raising and capacity building including training, campaigns and transfer of technology and knowledge in an organized and institutionalized way that may exert pressure on governments. For example, I am working at a place where highly educated people are working and very sensitive about consuming organic products or using traditional medicines. However, almost none of them have any information about the importance of biological diversity, disastrous consequences of its loss and existence of such agreements to protect biological diversity. In addition, receiving financial resources from developed countries is vital for developing countries to implement their obligations stemming from these treaties.

There is no supranational environmental institution that governs environmental problems or a judicial body like European Court of Human Rights that could receive individual applications as well as states to deal with environmental problems. Of course, each treaty includes a dispute settlement mechanism in the case of identification of a breach but dispute settlement mechanisms have been used rarely. The biodiversity regime established by these treaties did not adopt a civil liability regime requiring compensation of damages resulting from the loss of biological diversity. Rather, they aim at facilitating compliance with the provisions of these treaties and addressing non-compliance cases to a court. Environmental regimes mostly suffer from ineffective liability regimes. Formation of an environmental liability regime is like two-sided sharp blade: if such a regime adopts strict liability regime like a civil liability for damage given to the environment, the countries are not likely to be Party to this regime. However, a liability regime that adopts administrative approach as in the case of regimes under the CBD, it does not seem possible to achieve the objectives and protect biological diversity.

The biodiversity regimes established under the CBD and its Protocols have been constituted on the basis of certain international environmental legal principles. For example, the CBD recognizes the principle of national sovereignty over their natural resources. It also introduces the principle of "common concern of humankind" a as a new qualification to national sovereignty principle for the conservation of biological diversity. Under this principle, environmental problems should not be considered as isolated within the states' national jurisdiction because of its vital importance and consequences for all humanity; therefore, they are required to be combatted through international cooperation. The Cartagena Protocol establishes a biosafety regime on the basis of the precautionary principle as contained in the Rio Declaration that is applied for making decisions on environmental problems in the case of scientific uncertainty or lack of consensus on a significant threat to the environment. The ABS regime of the Nagoya Protocol is regarded as a good example of intra-generational equity referring to the equity among members of the same generation

The COP decisions are central to this biodiversity regime. The CBD built up an institutional structure including a decision-making body (COP), a secretariat, a financial mechanism (GEF) and subsidiary bodies to implement the convention. The treaty bodies of the CBD that are the COP and Secretariat and the GEF are also functioning as the treaty bodies of the Protocols. Each Protocol established a clearing-house mechanism as part of the clearing-house mechanism of the CBD, in addition to subsidiary bodies peculiar to each of them. Guidelines, guiding principles, model contractual clauses and codes of best practices have been developed to form the norms. However, it is difficult to say that they have established a standard of behaviors. In relation to the criticism for not having binding rules including specific targets and timetables for the states to prevent rapid loss of biological diversity, the Aichi biodiversity targets might have played a significant role to compensate such inadequacy in the CBD. However, as revealed in the analysis in 2016, in spite of some progress on some of the targets, assessing as a whole, the progress lagged behind the commitments of the countries and achievement of Aichi targets seem impossible.

At this point, it is critical that although certain targets that are achievable within a time period were established, they are still far from to be achieved. In this case, it is apparent that putting targets; providing guidance on how to achieve these targets; monitoring through national reporting will not be sufficient to arrest the loss of biological diversity. Then, it is clear that further measures should be taken to reach these targets but it is very critical what kind of measures they will be taken. In any case, the Aichi Biodiversity Targets laid a sound foundation for determining the targets in the future.

In spite of the efforts for the protection of biological diversity, it is difficult to say that neither the primary concern of developed countries nor the priority of developing countries is the conservation of biological diversity. This can be observed in the negotiation processes of environmental initiatives. For example, during the Stockholm Conference, the North-South controversy was clear. The Southern countries clearly stated that the Northern countries mainly responsible for destruction

of environment as they did not take into account environmental pollution in the course of their industrialization process. Therefore, it is the responsibility of developed countries to restore environment. They added that the most important problem for them is poverty eradication and development, protecting the environment is not their main priority. They maintained their positions during the Rio Conference in 1992. On the other hand, the Northern countries which requested for action from developing countries to protect the environment, have failed to provide them with the necessary financial assistance and know-how and technologies.

However, the CBD represented the North-South reconciliation but this reconciliation did not continue during the Cartagena negotiations. Some of the countries in the Southern block during the CBD and on the front against the Northern countries changed their positions during negotiations of the Cartagena Protocol. They were even in the same group together with the USA which is the most opposed to the CBD. In sum, it appears that countries still prioritize their economic interests and developmental goals instead of environmental concerns.

On the other hand, it is observed that developed and developing have different approaches. While developing countries are very enthusiastic about setting targets for the protection of biological diversity, developed countries are more cautious for determining national targets. However, when looking at the achievements, the situation is quite different. Achievements of developing countries lag behind the achievements of developed countries. In such a situation, it can be said that developed countries should be encouraged for setting more ambitious goals, developing countries should be supported to realize their ambitious goals.

A million of species from all kinds are faced with the risk of extinction and unfortunately, their recovery is estimated to take millions of years. Therefore, regardless of the intention of developed countries on the protection of biological diversity, developing countries should never forget that conservation of biological diversity is one of the most important factors to make contribution to their

development process. They are hosting the real treasures of the Earth for both their developmental ambitions and – most importantly – for the survival of humankind and they are the main actors responsible for conserving these treasures. On the contrary, if developed countries do not engage sincerely in the activities for the conservation of biological diversity, there will be no resource to make biotechnolgical researches and thus gain multi-billion dollars through utilization of biological resources.

In the end, implementation of these treaties will show the success of these regimes and they will continue to evolve on the basis of experiences and lesson learnt. However, it should not be forgotten that being a part of such treaties is not an act of grace by the governments; rather it is an obligation for the well-being of future generations.

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APPENDICES

APPENDIX A. PREPARATORY MEETINGS HELD BEFORE THE ADOPTION OF THE CBD

Date		Venue	Meeting
1988	16 - 18 November	Geneva, Switzerland	First session of Ad Hoc Working Group of Experts on Biological Diversity
1990	19 - 23 February		Second Session of the Ad Hoc Working Group of Experts on Biological Diversity
	9 - 13 July		Third Session of the Ad Hoc Working Group of Experts on Biological Diversity
	14 - 17 November	Nairobi, Kenya	Sub-Working Group on Biotechnology
	19 - 23 November	Nairobi, Kenya	First Session of the Ad Hoc Working Group of Legal and Technical Experts on Biological Diversity
1991	25 February – 6 March	Nairobi, Kenya	Ad Hoc Working Group of Legal and Technical Experts on Biological Diversity
	24 June - 3 July	Madrid, Spain	Ad Hoc Working Group of Legal and Technical Experts on Biological Diversity
	24 June - 3 July	Madrid, Spain	Third Negotiating Session / First Meeting of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity
	23 September – 3 October	Nairobi, Kenya	Fourth Negotiating Session / Second Meeting of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity
	25 November – 4 December 1991	Geneva, Switzerland	Fifth Negotiating Session / Third Meeting of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity
1992	6 - 15 February 1992	Nairobi, Kenya	Sixth Negotiating Session / Fourth Meeting of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity
	11 - 19 May 1992	Nairobi, Kenya	Seventh Negotiating Session / Fifth Meeting of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity
	20 - 21 May 1992	Nairobi, Kenya	Conference for the Adoption of the Convention on Biological Diversity

Appendix A. CBD, "Preparatory Meetings held before the adoption of the Convention on Biological Diversity". Table retrieved from the CBD web page at https://www.cbd.int/history/, (June 16, 2019).

APPENDIX B. MEETINGS OF THE CONFERENCE OF PARTIES (COP) TO THE CBD[700]

Meeting of the Parties	Major Themes at the Meetings of the COP	Location/Date
COP 1 - First Ordinary Meeting of the COP to the CBD	Guidance to the financial mechanism; Medium-term programme of work;	Nassau, Bahamas 28 November - 9 December 1994
COP 2 - Second Ordinary Meeting of the COP to the CBD	Marine and coastal biodiversity; access to genetic resources; conservation and sustainable use of biological diversity; biosafety;	Jakarta, Indonesia 6 - 17 November 1995
COP 3 - Third Ordinary Meeting of the COP to the CBD	Agricultural biodiversity; financial resources and mechanism; identification, monitoring and assessment; intellectual property rights;	Buenos Aires, Argentina 4 - 15 November 1996
COP 4 - Fourth Ordinary Meeting of the COP to the CBD	Inland water ecosystems; review of the operations of the Convention; Article 8(j) and related issues (traditional knowledge); benefit sharing;	Bratislava, Slovakia 4 - 15 May 1998
EXCOP 1 - First Extraordinary Meeting of the COP to the CBD	Adoption of the Cartagena Protocol and its interim arrangements	Cartagena, Colombia 22 - 23 February 1999
COP 5 - Fifth Ordinary Meeting of the COP to the CBD	Dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems; sustainable use; access to genetic resources. **The Cartagena Protocol on Biosafety was adopted.**	Nairobi, Kenya 15 - 26 May 2000
COP 6 - Sixth Ordinary Meeting of the COP to the CBD	Forest ecosystems; alien species; benefit-sharing; Strategic plan 2002-2010.	The Hague, Netherlands 7 - 19 April 2002

[700] Appendix B. CBD, "Meetings of the Conference of Parties (COP) to the CBD". Table was retrieved from the web page at https://www.cbd.int/cop/default.shtml (June 16, 2019)

COP 7 - Seventh Ordinary Meeting of the COP to the CBD	Mountain ecosystems; protected areas; transfer of technology and technology cooperation.	Kuala Lumpur, Malaysia 9 - 20 February 2004
COP 8 - Eighth Ordinary Meeting of the COP to the CBD	Biodiversity of islands and dry and sub-humid lands; global taxonomy initiative; access and benefit-sharing, Article 8(j); communication, education and public awareness.	Curitiba, Brazil 20 - 31 March 2006
COP 9 - Ninth Meeting of the COP to the CBD	Agricultural and forest biodiversity; Global Strategy for Plant Conservation; invasive alien species; ecosystem approach; implementation progress of the Strategic Plan and progress on the 2010 targets and relevant Millennium Development Goals; financial resources and mechanism.	Bonn, Germany 19 - 30 May 2008
COP 10 - Tenth Meeting of the COP to the CBD[701]	Biodiversity of inland waters; marine and coastals; mountains; protected areas; sustainable use of biodiversity; Biodiversity and climate change;Adoption of a Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. **The Nagoya Protocol on Access and Benefit-sharing was adopted.**	Nagoya, Aichi Prefecture, Japan 18 - 29 October 2010
COP 11- Eleventh Meeting of the COP to the CBD[702]	Status of the Nagoya Protocol on ABS; Implementation of the Strategic Plan 2011-2020 and progress on the Aichi Biodiversity Targets Article 8(j); island biodiversity; ecosystem restoration; marine and coastal biodiversity; biodiversity and climate change; biodiversity and development.	Hyderabad, India 8 - 19 October 2012

[701] Summarized from the CBD web page "Meeting Documents Tenth meeting of the Conference of the Parties to the Convention on Biological Diversity" at https://www.cbd.int/conferences/2018/cop-10/documents (June 16, 2019).

[702] Summarized from the CBD web page "Meeting Documents Eleventh meeting of the Conference of the Parties to the Convention on Biological Diversity" at https://www.cbd.int/conferences/2018/cop-11/documents (June 16, 2019).

COP 12 - Twelfth Meeting of the COP to the CBD[703]	A mid-term review of progress of the Strategic Plan for Biodiversity 2011-2020 and its Aichi targets; resource mobilization and financial issues; biodiversity and sustainable development; marine and coastal biodiversity; climate change; biofuels; Article 8(j), wildlife management; invasive alien species, synthetic biology; and ecosystem conservation and restoration.	Pyeongchang, Republic of Korea 6 - 17 October 2014
COP 13 - Thirteenth Meeting of the COP to the CBD[704]	Incorporation of conservation and sustainable use of biodiversity into the national plans, and sectoral and cross-sectoral policies especially in agriculture, forestry, fisheries and tourism, biodiversity and sustainable development; marine and coastal biodiversity; biodiversity and climate change; biofuels; invasive alien species and protected areas.	Cancun, Mexico 4 - 17 December 2016
COP 14 - Fourteenth Meeting of the COP to the CBD[705]	The main theme of the COP-14 is to invest in biodiversity for people and planet. Updated assessment of progress on selected Aichi Biodiversity Targets and options to accelerate progress; health and biodiversity; bBiodiversity and climate change; wildlife management; marine and coastal biodiversity; invasive alien species	Sharm El-Sheikh, Egypt, 17 - 29 November 2018

[703] Summarized from the CBD web page "Meeting Documents Twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity" at https://www.cbd.int/conferences/2018/cop-12/documents (June 16, 2019).

[704] Summarized from the CBD web page "Meeting Documents Thirteenth meeting of the Conference of the Parties to the Convention on Biological Diversity" at https://www.cbd.int/conferences/2018/cop-13/documents (June 16, 2019).

[705] Summarized from the CBD web page "Meeting Documents Fourteenth meeting of the Conference of the Parties to the Convention on Biological Diversity" at https://www.cbd.int/conferences/2018/cop-14/documents (June 16, 2019).

APPENDIX C. TIMETABLE OF THE NEGOTIATIONS OF THE CARTAGENA PROTOCOL ON BIOSAFETY[706]

1993	***The Convention on Biological Diversity enters into force on 29 December 1993***	
1995	COP2	Second meeting of the Conference of the Parties - Consideration of the need for and modalities of a protocol for the safe transfer, handling and use of living modified organisms. *Jakarta, Indonesia, 6 - 17 November 1995*
1996	COP3	Third meeting of the Conference of the Parties - Issues related to biosafety. *Buenos Aires, Argentina, 4 - 15 November 1996*
1996	BSWG1	First meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Aarhus, Denmark, 22 - 26 July 1996*
1997	BSWG2	Second meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Montreal, Canada, 12 - 16 May 1997*
1997	BSWG3	Third meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Montreal, Canada, 13 - 17 October 1997*
1998	BSWG4	Fourth meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Montreal, Canada, 5 - 13 February 1998*
1998	COP4	Fourth meeting of the Conference of the Parties - Issues related to biosafety. *Bratislava, Slovakia, 4 - 15 May 1998*
1998	BSWG5	Fifth meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Montreal, Canada, 17 - 28 August 1998*
1999	BSWG6	Sixth meeting of the Open-Ended *Ad Hoc* working Group on Biosafety. *Cartagena, Colombia, 14 - 19 February 1999*
1999	BSIC1	Informal Consultation on the process to resume the Extraordinary Meeting of COP to adopt a protocol on Biosafety. *Montreal, Canada, 1 July 1999*
1999	BSIC2	Second Informal Consultation on the process to resume the Extraordinary Meeting of COP to adopt a protocol on Biosafety. *Vienna, Austria, 15 - 19 September 1999*

[706] Appendix C. Timetable of the negotiations of the Cartagena Protocol on Biosafety, http://bch.cbd.int/protocol/background/ (June 16, 2019).

1999 - 2000	EXCOP1	First Extraordinary Meeting of the Conference of the Parties - Decisions on the continuation of the first extraordinary meeting of the Conference of the Parties to the Convention on Biological Diversity, *adoption of the Cartagena Protocol* and interim arrangements. *Cartagena, Colombia 22 - 23 February 1999 and Montreal, Canada, 24 - 28 January 2000*
2000	COP5	*The Cartagena Protocol on Biosafety is opened for signature.*
		Fifth meeting of the Conference of the Parties - Work plan of the Intergovernmental Committee for the Cartagena Protocol on Biosafety. *Nairobi, Kenya, 15 - 26 May 2000*
2000	ICCP1	First meeting of the Intergovernmental Committee for the Cartagena Protocol on Biosafety. *Montpellier, France, 11 - 15 December 2000*
2001	ICCP2	Second meeting of the Intergovernmental Committee for the Cartagena Protocol on Biosafety. *Nairobi, Kenya, 1 - 5 October 2001*
2002	COP6	Sixth meeting of the Conference of the Parties - Intergovernmental Committee for the Cartagena Protocol on Biosafety. *The Hague, Netherlands, 7 - 19 April 2002*
2002	ICCP3	Third meeting of the Intergovernmental Committee for the Cartagena Protocol on Biosafety. *The Hague, The Netherlands, 22 - 26 April 2002*
2003	***The Cartagena Protocol on Biosafety enters into force on 11 September 2003***	

APPENDIX D. TIMETABLE OF THE NEGOTIATIONS OF THE NAGOYA - KUALA LUMPUR SUPPLEMENTARY PROTOCOL[707]

1994	COP 1	First Meeting of the COP- Establishment of the Intergovernmental Committee for the Cartagena Protocol on Biosafety (ICCP) *Nassau, Bahamas, 28 November- 9 December 1994*
2001	ICCP2	Second meeting of the ICCP *Nairobi, Kenya, 1 - 5 October 2001*
2002	ICCP3	Third meeting of ICCP - Consideration of a compilation of views on the term of reference of an expert group for COP-MOP 1. *The Hague, Netherlands, 22-26 April 2002*
2004	COP-MOP1	First meeting of the COP-MOP- Establishment of an Open-Ended Ad Hoc Working Group of legal and technical experts on liability and redress in the context of the Protocol. *Kuala Lumpur, Malaysia, 23 -27 February 2004*
2004	Technical Group of Experts	Technical Group of Experts on Liability and Redress- Preparation of the Ad Hoc Working Group 1. *Montreal, Canada, 18 - 20 October 2004*
2005	Ad Hoc Working Group 1	First Meeting of the Ad Hoc Working Group of legal and technical experts on liability and redress. *Montreal, Canada , 25 - 27 May 2005*
2005	COP-MOP 2	Second Meeting of the COP-MOP- considered report of the Ad Hoc Working Group 1 and agreed to second meeting of the group. *Montreal, Canada, 30 may- 3 June 2005*
2006	Ad Hoc Working Group 2	Second Meeting of the Ad Hoc Working Group of legal and technical experts - Development of an indicative list of criteria for the assessment of the effectiveness of any rules and procedures referred to in Article 27 of the Protocol. Development of different options for operational text on scope, damage and causation. *Montreal, Canada, 20-24 February 2006*
2006	COP-MOP 3	Third Meeting of the COP MOP- welcomed the progress made by the Working Group and agreed that three five-day meetings of the Working Group should be convened before the next COP-MOP. *Curitiba, Brazil, 13-17 March 2006*

[707] Appendix D. "Timetable of the Negotiations of the Nagoya - Kuala Lumpur Supplementary Protocol", retrieved from the http://bch.cbd.int/protocol/supplementary/about/#tab=2 (June 16, 2019).

2007	Ad Hoc Working Group 3	Third Meeting of the Ad Hoc Working Group of legal and technical experts - Consideration of a blueprint for a COP-MOP decision on international rules and procedures in the field of liability and redress. *Montreal, Canada, 19-23 February 2007*
2007	Ad Hoc Working Group 4	Fourth Meeting of the Ad Hoc Working Group of legal and technical experts - Revision of the blueprint. *Montreal, Canada, 22-26 October 2007*
2008	Ad Hoc Working Group 5	Fifth Meeting of the Ad Hoc Working Group of legal and technical experts - Revision of the working draft on the elaboration of options for rules and procedures in the context of Article 27 of the Protocol. *Cartagena, Colombia, 12-19 March 2008*
2008	Meeting of the Friends of the Co-Chairs	Meeting of the Friends of the Co-Chairs Prior to COP-MOP 4- Negotiation of the Final Report of the WG. *Bonn, Germany, 7 - 10 May 2008*
2008	COP-MOP 4	Fourth Meeting of the COP-MOP- Considered the final report of the WG- Adopted the text from the meeting of the Friends of the Co-Chairs as the basis for work - Established a contact group to continue the negotiations- Adoption of the negotiating text as revised by the contact group as the basis for further work- Agreed to establish a Group of the Friends of the Co-Chairs to continue the process. *Bonn, Germany, 12 - 16 May 2008*
2008	Meeting of the Friends of the Co-Chairs (1)	First Meeting of the Friends of the Co-Chairs- Production of a draft text for a supplementary protocol on liability and redress to the Biosafety Protocol. *Mexico City, Mexico, 23- 27 February 2009*
2010	Meeting of the Friends of the Co-Chairs (2)	Second Meeting of the Friends of the Co-Chairs- Negotiation of the draft supplementary protocol. *Kuala Lumpur, Malaysia, 8- 12 February 2010*
2010	Meeting of the Friends of the Co-Chairs (3)	Third Meeting of the Friends of the Co-Chairs - Negotiation of the draft supplementary protocol and draft guidelines on civil liability. *Kuala Lumpur, Malaysia, 15-19 June 2010*
2010	Meeting of the Friends of the Co-Chairs (4)	Fourth Meeting of the Friends of the Co-Chairs - Submission to COP-MOP 5 of the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety, together with a draft decision for consideration and adoption. *Nagoya, Japan, 6-11 October 2010*
2010	COP-MOP 5	Fifth Meeting of the COP-MOP- Adoption of the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress. *Nagoya, Japan, 11-15 October 2010*

APPENDIX E. TIMETABLE OF THE NEGOTIATIONS OF THE NAGOYA PROTOCOL ON ABS[708]

Timetable of the negotiations of the Nagoya Protocol on ABS	
29 December, 1993	**The Convention on Biological Diversity enters into force**
ABS developments prior to the negotiations of an International Regime on ABS	
4 - 15 May 1998 *Bratislava, Slovakia*	COP 4: Fourth Meeting of the Conference of the Parties to the Convention on Biological Diversity
1 - 5 October 1999 *San José, Costa Rica*	First Meeting of the Panel of Experts on Access to Genetic Resources and Benefit-sharing
19 - 22 March 2001 *Montreal, Canada*	Panel of Experts on Access and Benefit-Sharing
15 - 26 May 2000 *Nairobi, Kenya*	COP 5: Fifth Meeting of the Conference of the Parties to the Convention on Biological Diversity
22 - 26 October 2001 *Bonn, Germany*	WGABS 1: First meeting of the Ad-Hoc Open-ended Working Group on Access and Benefit-Sharing
7 - 19 April 2002 *The Hague, Netherlands*	COP 6: Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity
2 - 4 December 2002 *Montreal, Canada*	Open-ended expert workshop on capacity-building for access to genetic resources and benefit-sharing
International mandate to negotiate an International Regime on ABS	
September 2002 *Johannesburg, South Africa*	World Summit on Sustainable Development
17 – 20 March, 2003 *Montreal, Canada*	Open-ended Inter-Sessional Meeting on the Multi-Year Programme of Work of the Conference of the Parties up to 2010

[708] Appendix E. "Timetable of the negotiations of the Nagoya Protocol on ABS", retrived from the https://www.cbd.int/abs/background/default.shtml (June 16, 2019).

Negotiations of an International Regime on ABS	
1 - 5 December 2003 *Montreal, Canada*	WGABS 2: Second meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-Sharing
9 - 20 February 2004 *Kuala Lumpur, Malaysia*	COP 7: Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity
14 - 18 February 2005 *Bangkok, Thailand*	WGABS 3: Third meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-Sharing
30 January – 3 February 2006 *Granada, Spain*	WGABS 4: Fourth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
20 - 31 March 2006 *Curitiba, Brazil*	COP 8: Eighth Meeting of the Conference of the Parties to the Convention on Biological Diversity
22 - 25 January 2007 *Lima, Peru*	Meeting of the Group of Technical Experts on an Internationally Recognized Certificate of Origin/Source/Legal Provenance
8 - 12 October 2007 *Montreal, Canada*	WGABS 5: Fifth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
21 - 25 January 2008 *Geneva, Switzerland*	WGABS 6: Sixth meeting of the Open-ended Working Group on Access and Benefit-sharing
19 - 30 May 2008 *Bonn, Germany*	COP 9: Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity
2 - 5 December 2008 *Windhoek, Namibia*	Group of Legal and Technical Experts on Concepts, Terms, Working Definitions and Sectoral Approaches
27 - 30 January 2009 *Tokyo, Japan*	Group of Technical and Legal Experts on Compliance in the context of the International Regime on Access and Benefit-sharing

2 - 8 April 2009 *Paris, France*	WGABS 7: Seventh meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
16 - 19 June 2009 *Hyderabad, India*	Group of Technical and Legal Experts on Traditional Knowledge associated with Genetic Resources
9 - 15 November 2009 *Montreal, Canada*	WGABS 8: Eighth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
5 - 6 December 2009 *Siem Reap, Cambodia*	Access and Benefit-sharing Regional Consultations for Asia
15 - 16 January 2010 *Panama City, Panama*	Access and Benefit-sharing Regional Consultations for Latin America and Caribbean Countries
26 - 29 January 2010 *Montreal, Canada*	Access and Benefit-sharing Friends of the Co-Chairs Meeting
9 - 10 February 2010 *Isle of Vilm, Germany*	Access and Benefit-sharing Regional Consultations for Central and Eastern European Countries
15 - 16 February 2010 *Auckland, New Zealand*	Access and Benefit-sharing Regional Consultations for the Pacific
4 - 6 March 2010 *Windhoek, Namibia*	Access and Benefit-sharing Regional Consultations for Africa
16 - 18 March 2010 *Cali, Colombia*	Access and Benefit-sharing: Co-Chairs Informal Inter-regional Consultation (CIIC)
22 - 28 March 2010 *Cali, Colombia*	WGABS 9: Ninth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
10 - 16 July 2010 *Montreal, Canada*	Resumed Ninth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing

18 - 21 September 2010 *Montreal, Canada*	Interregional Negotiating Group (ING) of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
13 - 15 October 2010 *Nagoya, Aichi Prefecture, Japan*	Interregional Negotiating Group (ING) of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing
16 October 2010 *Nagoya, Aichi Prefecture, Japan*	Resumed Ninth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing

Adoption of the Nagoya Protocol on Access and Benefit-sharing

18 - 29 October 2010 *Nagoya, Aichi Prefecture, Japan*	COP 10: Tenth meeting of the Conference of the Parties to the Convention on Biological Diversity – **Adoption of the Nagoya Protocol**

Preparations for the first meeting of the Parties and entry into force

5-10 June 2011 *Montreal, Canada*	First meeting of the Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access and Benefit-sharing
2 to 6 July 2012 *New Delhi, India*	Second meeting of the Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access and Benefit-sharing
8 - 19 October 2012 *Hyderabad, India*	Eleventh meeting of the Conference of the Parties to the Convention on Biological Diversity
24 to 28 February 2014 *Pyeongchang, Republic of Korea*	Third meeting of the Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access and Benefit-sharing
12 October, 2014	**The Nagoya Protocol on Access and Benefit-sharing enters into force**
13 - 17 October 2014 *Pyeongchang, Republic of Korea*	First meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol on Access and Benefit-sharing

APPENDIX F. TURKISH SUMMARY / TÜRKÇE ÖZET

Bu tezin amacı, biyolojik çeşitliliğin korunmasına ilişkin olarak kabul edilen Biyolojik Çeşitlilik Sözleşmesi (BÇS) rejiminin yasal temellerinin incelenmesidir. Bu amaçla BÇS'den önce biyolojik çeşitliliğin korunmasına yönelik kabul edilen önemli anlaşmalar ve BÇS'nin kabulüne giden süreç bir tarihçe olarak anlatılmıştır. Ayrıca BÇS tarafından kurulan biyolojik çeşitlilik rejimi kapsamında oluşturulan biyogüvenlik, sorumluluk ve zararların telafisi ve genetik kaynakların kullanımından kaynaklanan erişim ve fayda paylaşımı konularında oluşturulan rejimler incelenmiştir. Bu amaçla öncelikle Birinci Bölümde biyolojik çeşitliliğin önemi ve kavramsal çerçevesi ele alınmıştır. Daha sonra, biyolojik çeşitliliğin korunmasına ve uluslararası işbirliğinin önemine değinilmiş, özellikle de BÇS öncesi kabul edilen başlıca sözleşmeler gözden geçirilmiştir. Biyolojik çeşitliliğin korunması için küresel bir rejim oluşturma yolunda Uluslararası Doğayı Koruma Birliği (IUCN) ve Birleşmiş Milletler Çevre Programı'nın (UNEP) rolü açıklamıştır. Birinci bölümün son kısmında BÇS metni, BÇS'nin amaçlarına ulaşmak için oluşturulan sorumluluk ve yükümlülükler ve anlaşma kapsamında oluşturulan yapısal organlar incelenmiştir.

İkinci bölüm, biyolojik çeşitliliğin korunması alanında onu eşsiz kılan BÇS'nin temel özelliklerine ayrılmıştır. BÇS'nin hangi özelliklerinin önemli ve kendine özgü olduğuna karar verirken, BÇS'nin getirdiği daha önce benzeri olmayan yenilikler; örneğin kapsamlılık, devletlerin biyolojik kaynakları üzerindeki egemen haklarının tanınması ve yerli ve yerel toplulukların biyolojik çeşitliliğin korunması ve sürdürülebilir kullanılmasına ilişkin önemlerinin tanınması gibi hususlar ve BÇS'nin uygulanmasında önemli bir yere sahip olan Çerçeve Anlaşma yaklaşımının benimsenmesi gibi özellikler ele alınmıştır. Böylece biyolojik çeşitliliğin korunmasına ve sürdürülebilir kullanımına ilişkin diğer argümanları görmenin ve ilgili konularda bütüncül bir bakış açısı kazanmanın mümkün olabileceği düşünülmektedir.

Üçüncü ve dördüncü bölümler, bu rejimi bütünüyle kavramak için BÇS kapsamında kabul edilen ve küresel biyolojik çeşitlilik rejiminin bir parçası olarak kabul edilen Protokolleri ele almaktadır. BÇS'nin bu protokollerin ebeveyn sözleşmesi olduğunu söylemek yanlış olmaz. BÇS kapsamında faaliyet gösteren üç Protokol vardır: i) Biyolojik Çeşitlilik Sözleşmesine Ek Cartagena Biyogüvenlik Protokolü, ii) Cartagena Protokolü'ne Ek Sorumluluk ve Telafiye ilişkin Nagoya-Kuala Lumpur Protokolü ve iii) Biyolojik Çeşitlilik Sözleşmesine Ek Genetik Kaynaklara Erişim ve bu kaynakların Kullanımından Kaynaklanan Faydaların Adil ve Hakkaniyetli Paylaşımı Nagoya Protokolü.

Biyolojik çeşitlilik insanlığın hayatta kalması için hava, su ve yiyecek kadar önemlidir; ancak biyolojik çeşitliliğin süratle azalması, çağımızın en önemli çevresel sorunlarından biridir. Burada, biyolojik çeşitlilik kavramının canlı organizmalar arasındaki "değişkenlik" anlamına geldiğine ve üç düzeyde ele alındığına dikkat etmek önemlidir: i) genetik çeşitlilik, ii) tür çeşitliliği ve iii) ekosistem çeşitliliği

Gezegenimiz biyolojik kaynaklarını tarih boyunca hiçbir dönemde bu kadar hızlı kaybetmemiştir. Dünya birkaç kez toplu soyu tükenişler yaşamasına rağmen, bu yok oluşlar doğal süreçlerin bir parçası olarak ortaya çıkmıştır. Bu nedenle, doğanın kendisi bu tür yıkımlardan kaynaklanan zararları zamanla telafi edebiliyordu. Bununla birlikte, bugünkü kayıplar temel olarak şimdiye dek görülmemiş oranda hızlı ve insan faaliyetlerinden kaynaklanmaktadır. Ancak maalesef doğanın insanların bu yıkıcı etkilerini kendi başına ne çözme yeteneği ve ne de kapasitesi bulunmamakta ve bunların telafisinin milyonlarca yıl alabileceği tahmin edilmektedir. 2005 yılında yayınlanan Milenyum Ekosistem Değerlendirmesi'nde (MED) biyolojik çeşitlilik kaybının beş ana nedeni insan kaynaklı olarak belirlenmiştir. Bunlar; habitat değişimi, aşırı kullanma, istilacı yabancı türler, kirlilik ve iklim değişikliği olarak tanımlanmıştır. BBC'nin yayınladığı son bir bilimsel çalışma biyolojik çeşitlilik kaybının ana nedenlerinin MED'de belirtildiği gibi hala geçerli olduğunu göstermiştir. Bu araştırmaya göre, hayvan atıklarının bertaraf edilmesi için hayati işler yapan arılar, karıncalar ve böcekler dramatik oranlarda kaybedilirken, ev sinekleri ve hamamböceği gibi diğer bazı türlerin insan yapımı bir

ortamda yaşayabildikleri ve pestisitlere karşı direnç yeteneği kazandıkları için patlama yapmaları beklenmektedir. Uzmanlar, çalışmanın bulgularını ciddi derecede kaygı verici olarak değerlendirmekte ve maalesef gelecek nesiller için umut verici bulmamaktadırlar.

Hızlı biyolojik çeşitlilik kaybının olumsuz etkilerini yaşadıktan sonra ve/veya biyoteknolojideki yeni gelişmelerin sonucu olarak biyolojik çeşitliliğin ekonomik değerini daha iyi anlayabildiklerinden dolayı, ülkeler bu sorunlara çözüm bulmak için yeni yaklaşımlar aramaya başladılar. Geçmiş deneyimler, küresel çevre sorunlarının her bir devlet tarafından ve hatta bölgesel işbirliği ile dahi çözülemediğini, bu sorunların çözümünün daha çok bütünsel bir yaklaşım gerektirdiğini ortaya koymuştur. Bu durum biyolojik çeşitlilik ve ekosistemlerin korunması için de geçerlidir.

1972 yılında yapılan Birleşmiş Milletler İnsan Çevresi Konferansı (diğer adıyla Stockholm Konferansı), çevresel sorunların küresel düzeyde ele alınması için bir temel oluşturmuştur. Konferans çıktısı olan Stockholm Deklarasyonu, uluslararası düzeyde biyolojik çeşitliliğin korunması için nispeten sağlam bir yasal çerçeve sağlamıştır. Bu nedenle, Stockholm Konferansı'ndan sonra, biyolojik çeşitliliğin korunmasına ilişkin önemli uluslararası sözleşmeler birbiri ardı sıra geliştirilmiş ve kabul edilmiştir. Stockholm Konferansı'ndan sonra Birleşmiş Milletler Çevre Programının (UNEP) kurulması, biyolojik kaynakların korunması alanında karşılaşılan sorunların üstesinden gelmek için olumlu bir etki yapmıştır.

Çevre sorunlarının sınır aşan etkileri olduğundan, bu sorunlara çözüm bulmak, uluslararası rejimlerin temelini oluşturan uluslararası anlaşmalar biçiminde uluslararası işbirliğini gerektirmiştir. Biyolojik çeşitlilik, popülasyonları hastalıklardan koruyan ve onların değişen koşullara adaptasyon sağlamasına imkân veren en önemli etkenlerden biri olduğundan, biyolojik çeşitlilik kaybı, yıkıcı sonuçlara yol açabilecek en kritik çevresel sorunlardan biridir. Küresel bir biyoçeşitlilik rejimi oluşturmak aşamalı bir ilerleme göstermiştir ve son olarak, tüm biyolojik çeşitliliği kapsayan BÇS ile doruğa ulaşmıştır. BÇS, 5 Haziran 1992

tarihinde kabul edilmiş ve 29 Aralık 1993 tarihinde yürürlüğe girmiştir. Türkiye Sözleşme'yi 29.8.1996 tarih ve 4177 sayılı Kanun ile onaylamış ve Sözleşme Türkiye'de 1997 yılında yürürlüğe girmiştir.

BÇS ve Protokolleri biyolojik çeşitliliği küresel düzeyde yönetmek için uluslararası bir rejim oluşturmuştur. BÇS, çoğunlukla genel bir çerçeve ve yükümlülükler koyan ve gerekli bir konuda daha somut, öngörülebilir, şeffaf ve uygulanabilir Protokol yapılmasını öngören bir çerçeve sözleşmedir. Bir ebeveyn sözleşme olarak, BÇS'den üç Protokol doğmuştur: BÇS'ye Ek Cartagena Biyogüvenlik Protokolü; Cartagena Protokolü'ne Ek Sorumluluk ve Telafiye ilişkin Nagoya-Kuala Lumpur Protokolü ve BÇS'ye Ek Genetik Kaynaklara Erişim ve Bunların Kullanımından Doğan Yararların Adil ve Hakkaniyetli Paylaşımı Sözleşmesi'dir. Bu anlamda, BÇS'nin uygun bir yaklaşım benimsediği söylenebilir.

BÇS, biyolojik çeşitlilik alanına birçok yenilik getirmiştir. Biyolojik çeşitlilikle ilgili en kapsamlı sözleşme olarak, biyolojik çeşitliliğin korunması ve sürdürülebilir kullanımı konusundaki genetik kaynakları içeren bütüncül bir yaklaşım sağlamıştır. Gelişmiş ve gelişmekte olan ülkelerin çatışan çıkarlarını dengeleyen bir Kuzey-Güney uzlaşması olarak düşünülebilir. BÇS'nin getirdiği bir diğer yenilik, ilk kez uluslararası bir yasal araç yani bir uluslararası anlaşma, biyolojik çeşitliliğin korunması ve sürdürülebilir kullanımı ile ilgili olarak yerli ve yerel toplulukların geleneksel bilgi ve uygulamalarının önemini kabul etmektedir.

BÇS, sözleşmenin uygulanmasını değerlendirmek ya da BÇS'nin biyolojik çeşitlilik rejiminin biyolojik çeşitlilik üzerindeki etki düzeyini ölçmek için göstergeler geliştirmeksizin genel yükümlülükler getirmiştir; Bir çerçeve sözleşme olarak BÇS'den somut önlemler veya ölçülebilir hedefler sağlaması beklenmeyebilir ancak BÇS'nin ve her bir Protokolü'nün devletler tarafından ayrı ayrı onaylanması gerektiği unutulmamalıdır. Bu nedenle, BÇS neredeyse dünya çapında bir kabul görmesine rağmen, bu durum Protokolleri için geçerli değildir. BÇS'nin üç Protokolünü imzalamayan veya onaylamayan özellikle teknolojik açıdan gelişmiş ülkeler bulunmaktadır. Dahası, BÇS gelecekte kabul edilecek ayrı bir Protokol kapsamında

ele alınamayacak birçok alan içermektedir. Dolayısıyla, ölçülebilir göstergeler veya bu hedeflere ulaşmak için belirli alanlarda ölçülebilir hedefler ve önlemler belirlenebilir. Bu bağlamda, resmi olarak "çerçeve sözleşmesi" olarak adlandırılmasına rağmen, Birlemiş Milletler İklim Değişikliği Çerçeve Sözleşmesi (BMİDÇS) küresel bir iklim hedefi oluşturmuştur. Bununla birlikte, BMİDÇS'nin aksine, biyolojik çeşitliliği tek bir küresel hedef altında toplamak, biyolojik çeşitliliğin birçok değişkeni içermesinden dolayı mümkün değildir. Belirlenen hedef ve önlemler -Protokollere taraf olsun veya olmasın- BÇS'ye taraf olan tüm devletler için yasal olarak bağlayıcı olacaktır. Bu durum, hedeflere ne kadar ulaşıldığını ve hedefler ile elde edilen başarılar arasındaki boşlukları telafi etmek için hangi önlemlerin alınması gerektiğini görmek için de yararlı olacaktır. Bu noktada, 10. Taraf Devletler Konferansı (TDK-10) tarafından benimsenen 2011-2020 Stratejik Biyoçeşitlilik Planı kapsamında geliştirilen Aichi Biyoçeşitlilik Hedefleri, biyolojik çeşitliliğin belirli alanlarına somut hedefler getirdiği için büyük önem taşımaktadır. Bu hedefler, yirmi (20) hedefi içeren beş (5) Stratejik Amaç başlığı altında kategorize edilmiştir. Aichi hedefleri, Taraf Devletlerden bu uluslararası çerçeveye dayanarak kendi ulusal hedeflerine ve önceliklerine göre kendi hedeflerini oluşturmalarını istemiştir. Ancak, tahmin edilebileceği gibi Taraf Devletlerin ilerleme ve taahhütleri, hedeflerin çok gerisinde kalmıştır. Sonuç olarak, Taraf Devletlerin biyolojik çeşitliliği korumaya yönelik taahhütlerini de aksiyona geçiremedikleri görülmüştür.

Genetiği değiştirilmiş organizmaların (GDO) sınır aşan hareketlerinin düzenlenmesi için küresel bir rejim kuran Cartagena Biyogüvenlik Protokolü 29 Ocak 2000 tarihinde kabul edilmiş ve 11 Eylül 2003 tarihinde yürürlüğe girmiştir. Türkiye Cartagena Biyogüvenlik Protokolü'nü 24 Mayıs 2000 tarihinde imzalamış ve Protokol 2004 tarihinde yürürlüğe girmiştir. Protokol zorunlu bir Gelişmiş Bilgi Anlaşması ve bilgi paylaşım prosedürleri, bir biyogüvenlik takas mekanizması, etiketleme gereklilikleri, risk değerlendirmesi ve risk yönetimi prosedürlerinin yanı sıra bir uyum mekanizması oluşturmuştur. Ayrıca, Protokol yalnızca Taraf Devletlere Protokol'ün getirdiği yükümlülükleri yerine getirmelerini istemekle kalmamakta, aynı zamanda Taraf Devletlerle Taraf olmayan Devlet arasındaki GDO'ların sınır

ötesi hareketlerinin de Protokol'ün amacına uygun olmasını gerektirmektedir. Bununla birlikte, GDO'ların kapsamının daha fazla netliğe kavuşturulması, biyogüvenlik ve adil ticaret arasındaki endişelerin giderilmesi için DTÖ anlaşmaları ile ilişkisinin açıklığa kavuşturulması ve GDO ve ürünlerine uygulanan prosedürler hakkında devam eden tartışmalar gibi bazı hususların daha net ortaya konması gerekmektedir. .

Aslında, üzerinde bilimsel bir fikir birliği olmayan tartışmalı bir konuda yasal olarak bağlayıcı bir küresel anlaşma yapmak büyük bir başarıdır. Tüm GDO'larla ilgili olarak, Protokol metninde ihtiyati yaklaşımın ruhu görülebilir. Ancak, asıl sorun hala GDO'ların neden olduğu zararla ilgili bilimsel belirsizliktir. Bu nedenle, bilim dünyası her zaman tartışmalı iki görüşün hangisinin bilimsel olarak sağlam bir temele dayandığını göstermek için derhal kanıt koymaya davet edilmektedir. Böylece, insan sağlığının yanı sıra biyolojik çeşitliliğin korunması üzerinde olumsuz etkileri olabilecek GDO'ların güvenli sınır aşan hareketleri için gerekli önlemlerin alınması ve gerekli yasal düzenlemelerin yapılması mümkün olacaktır. Olumlu bir bakış açısıyla, Protokol'ün ümit verici doğası sayesinde, 2010 yılında Nagoya'da GDO'ların sınır aşan hareketlerinden kaynaklanan hasarlar için sorumluluk ve telafi mekanizması oluşturulması mümkün olmuştur.

Nagoya-Kuala Lumpur Ek Protokolü 15 Ekim 2010 yılında kabul edilmiş ve Cartagena Protokolü'nün eksik olan sınır aşan GDO'ların neden olduğu zararın sorumluluğu ve telafisine ilişkin kısmını tamamlamayı amaçlamıştır. Ek Protokol 5 Mart 2018 tarihinde yürürlüğe girmiştir. İlk kez uluslararası bir çevre anlaşması "biyolojik çeşitliliğe verilen zararı" tanımlamaktadır. Bununla birlikte, biyolojik çeşitliliğe verilen zarar, cezai yükümlülüğe tabi olan geleneksel anlamda tanımlanmamaktadır. Ek Protokol, GDO'ların neden olduğu zararlarla baş etmek için idari bir yaklaşım benimsemiştir. Bu durum, hasarın meydana gelmesi veya gerçekleşmesinin muhtemel olması durumunda, adli kurum yerine, ulusal yetkili otoritenin müdahale tedbirleri alması anlamına gelir. Bu nedenle, yetkili ulusal otorite, idari yaklaşımın ana odağıdır. Bu noktada, gelişmekte olan ülkelerin yetkili makamları, bu tür bir sofistike uluslararası rejimi işletmek için gerekli kapasiteye ve

kaynaklara sahip olmadıklarından, müdahale önlemlerini uygulamak için zorlu bir görev üstlenmektedirler.

Öte yandan, uluslararası bir hukuki sorumluluk rejimi benimsemese de, Taraf Devletlerin kendi iç hukuklarında, mevcut yasal düzenlemelerine göre veya yeni yasalar ile GDO'ların neden olduğu zarar için hukuki bir sorumluluk talep etmeleri mümkün olabilir, çünkü hemen hemen her ülkenin çevreye verilen zararları telafi etmek için hukuki sorumluluk yasaları vardır. Bununla birlikte, Ek Protokolün hükümlerinin yerel yasalar vasıtasıyla uygulanması gerektiğinden, uygulama süreci çok daha karmaşık ve zor olabilir.

29 Ekim 2010 tarihinde kabul edilen Nagoya Protokolü, BÇS'nin üçüncü hedefini gerçekleştirmek için genetik kaynaklarla ilgili geleneksel bir erişim ve fayda paylaşımı rejimi oluşturmayı ve bununla ilişkili geleneksel bilgiyi oluşturmayı amaçlamaktadır. Nagoya Protokolü 12 Ekim 2014 tarihinde yürürlüğe girmiştir. Genetik kaynaklara erişim için daha fazla öngörülebilir koşullar geliştirerek ve Taraf Devletlere bu genetik kaynakların kullanımından kaynaklanan adil ve eşit bir fayda paylaşımı sağlamak için yardım ederek hem tedarikçiler hem de genetik kaynak kullanıcıları için daha fazla yasal kesinlik ve şeffaflık yaratmayı amaçlamaktadır. Hem BÇS hem de Nagoya Protokolü'ne göre, genetik kaynaklara Önceden Bilgilendirilmiş İzin ile erişilmesi ve fayda paylaşımının Karşılıklı Uzlaşılmış Şartlara dayandırılması gerekmektedir. Protokol kapsamında, biyo-kimyasalların kullanımı ve kontrol noktalarının belirlenmesi, taraf devletlerin belirli ve şeffaf yasalar çıkarmak zorunda olması ve "genetik kaynakların kullanılması" kavramının açık bir şekilde tanımlanması gibi önemli başarılar elde edilmiştir. Yerli ve yerel toplulukların sahip olduğu genetik kaynaklar ve genetik kaynaklar ile ilgili geleneksel bilgilerin tanınmasının sözleşme kapsamında yer alması, bir ABS Takas Mekanizması kurulması da önemli kazanımlardandır.

Nagoya Protokolü, tutarlı olma koşullarını sağlayan ve BÇS ve Nagoya Protokolü'nün amaçlarına aykırı bir şekilde herhangi bir özel erişim ve fayda paylaşım aracı yoksa, geçerli olan bir rejim olarak kabul edilir. Başka bir deyişle,

Nagoya Protokolü, uygulamaları biyolojik çeşitlilik için ciddi bir hasara veya tehdide neden olmadıkça, mevcut uluslararası anlaşmalardan kaynaklanan hak ve yükümlülükleri etkilememektedir. Bu nedenle, Nagoya Protokolü, bu tür diğer uluslararası anlaşmalar kapsamında ele alınmadığı takdirde erişim ve fayda paylaşımı konularına uygulanabilir. Bununla birlikte, BÇS ve Nagoya Protokolü'nün hedefleriyle tutarlı bir spesifik erişim ve fayda paylaşımı anlaşması varsa, söz konusu spesifik anlaşmanın hükümleri her iki anlaşmaya taraf olan devletler için geçerli olacaktır. Örneğin, gıda ve tarım için bazı bitki genetik kaynakları Gıda ve Tarım için Bitki Genetik Kaynakları Uluslararası Anlaşması (ITPGRFA) kapsamında ele alındığından, Nagoya Protokolü bu kaynaklar için geçerli olmayacaktır. Ayrıca Nagoya Protokolü spesifik sözleşme tarafından kapsanmayan ve bu sözleşmede kapsamı dışındaki amaçlar için kullanılan genetik kaynaklar açısından da uygulanabilir. Nagoya Protokolü tarafından oluşturulan rejime göre, Taraf Devletler daha ileri düzeyde erişim ve fayda paylaşımı anlaşmaları geliştirebilir ve uygulayabilirler. Ancak, bu tür yeni anlaşmaların "her iki anlaşmanın amaçlarına destek verme ve bunlara aykırı olmama" şartlarına göre formüle edilmesi gerekmektedir.

Nagoya Protokolüne bazı zayıf yönleri nedeniyle eleştiriler yöneltilmektedir. Örneğin, Protokol hükümlerinin Protokolün kabulünden önce elde edilen genetik kaynaklar için geçerli olup olmadığı açık değildir. Bu nokta, biyoteknolojik açıdan zengin ülkelerin Nagoya Protokolü'nden önce ve ayrıca BÇS'den önce önemli miktarda genetik kaynak edindiği göz önüne alındığında önemlidir. Genetik kaynaklarla ilgili geleneksel bilgilerin kapsamı konusunda da bir kafa karışıklığı bulunmaktadır. Ek olarak, imzalanan erişim ve fayda paylaşımı sözleşmelerinin sayısının, kapasite geliştirme ve finansal kaynakların sağlanması yoluyla önemli ölçüde arttırılması gerekmektedir.

Bütün bu anlaşmalar bir bütün olarak değerlendirildiğinde, anlaşmaların hepsinin uygulamaları Taraf Devletlerin ulusal mevzuatına bırakılmıştır ve bu anlaşmalardan kaynaklanan yükümlülüklerin ulusal yasalara dahil edilmesi gerekmektedir. Her ne kadar bunların uygulanması, Taraf Devletlerin ulusal yargı yetkisine bırakılmışsa da,

hepsinin ortak sıkıntıları vardır: İlk olarak, “uygunsa”, “mümkün olduğunca” veya “eğer uygulanabilirse” gibi nitelikleri sık kullanması eleştiri konusudur. Bu durum, Taraf Devletlerin, eğer ulusal koşulları, taahhütlerini yerine getirmelerine izin vermezse, yükümlülüklerini yerine getirme konusunda esnekliğe sahip olabilecekleri anlamına gelebilecektir. İkinci olarak “destek”, “dikkate al” veya “teşvik” gibi açık yükümlülükler oluşturmaktan kaçınan zayıf ifadelerin kullanılması da eleştirilmektedir. Bu nedenle, anlaşmaları uygulamadaki kilit sorumluluk Taraf Devletlerin siyasi iradesine bırakılmış gibi görünmektedir.

ABD'nin bu küresel biyolojik çeşitlilik rejiminde yokluğu, dünyadaki bilim, ticaret ve biyoteknoloji sektörlerinde egemen olan başlıca aktörlerden biri olduğu için önemli bir dezavantajdır. Maalesef, ABD'nin öngörülebilir bir gelecekte BÇS''ye veya Protokollerine taraf olacağını beklemek gerçekçi görünmemektedir. Bu noktada, bir paradigma değişikliği kaçınılmaz görünmektedir. Bu anlaşmaları imzalamayan ya da onaylamayanın ABD halkı değil, ABD hükümeti olduğu unutulmamalıdır. Aslında, hükümetlerin kararlarını etkileyen itici faktör kamuoyudur. Bu nedenle, bu tür anlaşmaların en inatçı muhalifini ikna etmeye çalışmak yerine, -hükümetler üzerinde baskı yaratabilecek örgütlü ve kurumsal bir şekilde- biyolojik çeşitliliği korumaya yönelik faaliyetler, eğitim, kampanyalar ve teknoloji transferini içeren bilinçlendirme ve kapasite geliştirme yoluyla yoğun biçimde kamuoyuna odaklanmalıdır. Örneğin, çok iyi eğitimli olan hatta organik ürünler tüketme hassasiyeti gösteren veya geleneksel ilaçların önemini kabul eden pek çok insan bile biyolojik çeşitliliğin önemi, kaybının felaket sonuçları ve biyolojik çeşitliliği korumak için bu tür anlaşmaların varlığı hakkında neredeyse hiçbir bilgiye sahip değil. Ayrıca, gelişmiş ülkelerden finansal kaynak almak, gelişmekte olan ülkelerin bu anlaşmalardan kaynaklanan yükümlülüklerini yerine getirmeleri için hayati öneme sahip.

Bu tezde birkaç kez bahsedildiği gibi, çevresel sorunları yöneten uluslar üstü bir çevre organı veya çevresel sorunlarla başa çıkacak devletlerin yanı sıra bireysel başvuru alabilecek Avrupa İnsan Hakları Mahkemesi gibi bir adli organ yoktur. Tabii ki, her anlaşma ihlalin tespiti durumunda bir ihtilaf çözüm mekanizması

içermektedir, ancak ihtilaf çözüm mekanizmaları nadiren kullanılmaktadır. Bu anlaşmalarla kurulan biyoçeşitlilik rejimi, biyolojik çeşitliliğin kaybından kaynaklanan zararların tazmini gerektiren bir yasal sorumluluk rejimi benimsememektedir. Aksine, bu anlaşmaların hükümlerine uyumu kolaylaştırmayı ve uygunsuzluk davalarını mahkemeye sunmayı amaçlamaktadır.

BÇS ve Protokolleri kapsamında oluşturulan biyoçeşitlilik rejimleri, belirli uluslararası çevresel yasal ilkeler temelinde oluşturulmuştur. Mesela BÇS, doğal kaynaklar üzerindeki ulusal egemenlik ilkesini kabul etmektedir. Ayrıca, biyolojik çeşitliliğin korunması için ulusal egemenlik ilkesinin yeni bir niteliği olarak "insanlığın ortak kaygısı" ilkesini de ortaya koymaktadır. Bu ilkeye göre, çevre sorunları, tüm insanlık için hayati önemi ve sonuçları nedeniyle devletlerin ulusal yetki alanı içinde izole edilmiş olarak görülmemelidir; bu nedenle uluslararası işbirliği yoluyla mücadele edilmeleri gerekmektedir. Cartagena Protokolü, bilimsel belirsizlik veya çevre için önemli bir tehdit durumunda fikir birliği olmaması durumunda çevre sorunları hakkında kararlar almak için uygulanan Rio Deklarasyonunda yer alan ihtiyatlılık prensibi temelinde bir biyogüvenlik rejimi kurmaktadır. Nagoya Protokolü'nün erişim ve fayda paylaşımı rejimi, aynı kuşak üyeler arasındaki eşitliği ifade eden kuşak içi eşitliğin iyi bir örneği olarak kabul edilmektedir.

TDK kararları bu biyolojik çeşitlilik rejiminin merkezinde yer almaktadır. BÇS, sözleşmeyi uygulamak için bir karar alma organı (TDK), bir sekretarya, finansal mekanizma (GEF) ve yardımcı organları içeren bir kurumsal yapı oluşturmuştur. BÇS'nin anlaşma organları da (TDK, Sekretarya ve GEF), Protokollerin de anlaşma organları olarak işlev görmektedir. Her Protokol, her birine özgü yardımcı kuruluşlara ek olarak, BÇS'nin takas mekanizması kapsamında her bir Protokol bir takas mekanizması oluşturmuştur. Kurallar, yol gösterici ilkeler, model sözleşme hükümleri ve normları oluşturmak için en iyi uygulama kodları geliştirilmiştir. Bununla birlikte, bunların bir standart davranış modelleri oluşturduklarını söylemek zordur. Biyolojik çeşitliliğin hızlı bir şekilde kaybolmasını önleyen devletlerin belirli hedefleri ve çizelgelerini içeren bağlayıcı kurallara sahip olmama eleştirisi ile ilgili

olarak, Aichi Biyoçeşitlilik Hedefleri BÇS'deki bu yetersizliği telafi etmede önemli bir rol oynayabilir. Bununla birlikte, 2016 yılında yapılan analizde de belirtildiği gibi, bazı hedeflerde ilerlemeler kaydedilmesine rağmen, bir bütün olarak değerlendirildiğinde, ülkelerin taahhütlerinin gerisinde kaldığı ve Aichi 2020 hedeflerine ulaşmalarının mümkün olmadığı görünmektedir.

Bu noktada, belirlenmiş bir süre zarfında ulaşılabilecek belirli hedeflerin belirlenmesine rağmen, bu hedeflerin hala elde edilemeyecek kadar uzakta olmaları kritik öneme sahiptir. Bu durumda, hedef belirlemek; bu hedeflere nasıl ulaşılacağı konusunda rehberlik sağlamak ve hedefleri ulusal raporlama yoluyla izleme gibi cari yöntemler biyolojik çeşitlilik kaybını durdurmak için yeterli olmayacaktır. İlerleyen zamanlarda, bu hedeflere ulaşmak için daha fazla önlem alınması gerektiği açıktır, ancak ne tür önlemler alınacağı çok önemlidir. Her halükarda, Aichi Biyoçeşitlilik Hedefleri en azından, gelecekteki hedefleri planlamak için sağlam bir temel oluşturmaktadır.

Aslında çevre rejimlerinin yumuşak karnı, çoğunlukla etkisiz sorumluluk rejimlerinin oluşturulmasıdır. Bir çevresel sorumluluk rejiminin oluşturulması, iki taraflı keskin bir bıçak gibidir demek yanlış olmasa gerek. Eğer böyle bir rejim, çevreye verilen zarar için bir cezai sorumluluk rejimi gibi sıkı bir borç rejimi benimserse, ülkelerin bu rejime taraf olma ihtimalleri çok azalmaktadır. Ancak, BÇS kapsamındaki rejimlerde olduğu gibi idari yaklaşımı benimseyen bir sorumluluk rejimi ile istenilen hedeflere ulaşmak ve biyolojik çeşitliliği korumak oldukça zor görünmektedir.

Medyada yayınlanan çok yakın tarihli bir araştırmaya göre, kuşlar, memeliler, böcekler ve bitkilerden oluşan bir milyon türün, neslinin tükenme riski bulunmaktadır. Daha da kötüsü, bu yok oluşların telafisinin milyonlarca yıl alacağı tahmin edilmektedir. Gelişmiş ülkelerin biyolojik çeşitliliğin korunması konusundaki niyetlerinden bağımsız olarak, gelişmekte olan ülkeler, biyolojik çeşitliliğin korunmasının kalkınmalarının sağlanmasında en önemli faktörlerden biri olduğunu asla unutmamalıdır. Bu ülkeler, hem kendi kalkınma hedefleri, hem de en önemlisi insanlığın devam etmesi için vazgeçilmez olan Dünya'nın gerçek hazinelerine ev

sahipliği yapmaktadırlar ve bu hazinelerin korunmasından sorumlu ana aktörler de yine bu ülkelerdir. Buna karşılık, eğer gelişmiş ülkeler biyolojik çeşitliliğin korunmasına yönelik aktivitelere samimi olarak dâhil olmazlarsa, biyoteknolojik araştırmalar yapmak ve dolayısıyla milyarlarca dolar kazanmak için kullanabilecekleri kaynaklar yok olmuş olacak.

Sonuç olarak, anlaşmaların uygulanması, oluşturulan rejimlerin başarısını gösterecek ve edinilen deneyim ve dersler temelinde bu rejimler gelişmeye devam edecektir. Ancak, bu tür anlaşmalara taraf olmanın hükümetler tarafından bir lütuf eylemi olmadığı unutulmamalıdır; aksine bu anlaşmalar gelecek nesillerin iyiliği için bir zorunluluktur.

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Bölümü / Department : ULUSLARARASI İLİŞKİLER / INTERNATIONAL RELATIONS

TEZİN ADI / TITLE OF THE THESIS (**İngilizce** / English) : BİYOLOJİK ÇEŞİTLİLİK SÖZLEŞMESİ (BÇS) REJİMİNİN YASAL TEMELLERİNİN İNCELENMESİ / EXPLORING THE LEGAL FOUNDATIONS OF THE CBD REGIME

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