

**INTERNATIONAL LEGAL REGIME ON ACCESS AND BENEFIT
SHARING OF GENETIC RESOURCES: A CRITICAL STUDY**

*Thesis submitted to Jawaharlal Nehru University for
award of the Degree of*

DOCTOR OF PHILOSOPHY

AMRENDRA KUMAR



**CENTRE FOR INTERNATIONAL LEGAL STUDIES
SCHOOL OF INTERNATIONAL STUDIES
JAWAHAR LAL NEHRU UNIVERSITY
NEW DELHI**

2017



CENTRE FOR INTERNATIONAL LEGAL STUDIES
SCHOOL OF INTERNATIONAL STUDIES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI 110067 INDIA

Ph. (o) 011-26704338

Date: 26/07/2017

DECLARATION

I declare that the thesis entitled “**International Legal Regime on Access and Benefit Sharing of Genetic Resources: A Critical Study**” submitted by me for award of the degree of **Doctor of Philosophy** of Jawaharlal Nehru University is my original work. This thesis has not been previously published or submitted for any other degree of this University or any other University.


Amrendra Kumar

CERTIFICATE

We recommend that this thesis be placed before the examiners for evaluation.


PROF. BHARAT H. DESAI
(CHAIRPERSON, CILS)

Chairperson
Centre for International Legal Studies
School of International Studies
Jawaharlal Nehru University
New Delhi - 110067


PROF. BHARAT H. DESAI
(SUPERVISOR)

ACKNOWLEDGEMENT

This acknowledgement has been presented to express deep sense of gratitude and regards to all the persons and institutions for the assistance, encouragement and resources provided for completing this thesis. First of all, I express my deep gratitude to Almighty God who provided me the strength and motivation to pursue the research and studies in this reputed university. Then, I would acknowledge to such persons and institutions which rendered all possible help to put this task to the end.

I take honour to express my deep sense of gratitude to Prof. Bharat H.Desai, Centre for International Legal Studies, School of International Studies of this university for his able, experienced and scholarly guidance in writing this thesis. He has provided his precious time despite his hectic academic schedules to supervise this work. This work would not have been possible without his support, supervision and suggestions since beginning to finality.He has inspired me a lot during the course work, student meetings and the Friday Seminars held at the centre on different time and occasions.

I also wish to express my sincere gratitude to our esteemed Prof. B.S. Chimini, Centre for International Legal Studies, School of International Studies of this university for his encouragement and inspiration during my research and studies at the centre. His inputs on the synopsis and draft of the thesis has been remarkable which would not be forgotten in my academic life. I would like to give my sincere thanks to two other respected teachers of this centre Dr. V.G. Hegde and Mr. Fazil Jamal for their academic interaction and motivation during the research period.

I am also indebted to other teachers and scholars of the school for their support and encouragement for my academic endeavours. I would also be thankful to all the research scholars –seniors and juniors- of the centre for their academic interaction and cooperation. They have contributed in so many ways by giving inputs and sharing the experiences during seminars, lectures and cultural events.

I am very much thankful to the officials and staffs of the School and the Centre especially to Smt. Savitri Bisht and Shri Hariom Patel for their support and assistance on different time and occasions. I would not forget to thank to the wardens and staffs of my hostel who have extended all help and assistance for peaceful stay and study.

It would be my duty to acknowledge certain academic and administrative institutions such as University Grants Commission for the financial support providing the fellowships without which this research study would have been difficult task. I would also acknowledge the help and assistance of the officials and staffs of the JNU Central Library, ISIL Library and ILI Library for supplying the necessary books and journals.

I would also be thankful to Mr. Yusuf and Mr. Birendra for the work of typing, printing and binding of this thesis. Both of them have provided great support through the services of Photostats and Print of the necessary reading and reference materials.

I am highly indebted to my family and friends whose constant inspiration, unstinted love and heartfelt blessing have helped me to finish this thesis within time. They have provided constant support and motivation in my academic and personal life which helped me a lot in completion of this research work.

I have tried to put on record my gratitude to all, who help me in this endeavour and any name which has been left out is simply inadvertent.

AMRENDRA KUMAR

ACRONYMS

ABS CH	Access and Benefit Sharing Clearing House
ABS	Access and Benefit Sharing
AHWG	Ad-Hoc Working Group
BG	Bonn Guidelines
CBD	Convention on Biological Diversity
CGRFA	Commission on Genetic Resources for Food and Agriculture
CNA	Competent National Authority
COP	Conference of Parties
DNA	Deoxyribonucleic Acid
FAO	Food and Agriculture Organization
EEZ	Exclusive Economic Zone
GEF	Global Environment Facility
GMO	Genetic Modified Organism
GRs	Genetic Resources
ICNP	Intergovernmental Committee for the Nagoya Protocol
IGC	Intergovernmental Committee
ILCs	Indigenous and Local Communities
ILO	International Labour Organisation
IUPGR	International Undertaking on Plant Genetic Resources
IPR	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resource for Food and Agriculture
IUCN	International Union for Conservation of Nature and Natural Resources
LMO	Living Modified Organism
MATs	Mutually Agreed Terms
MEAs	Multilateral Environment Agreements
MOP	Meeting of Parties
NBA	National Biodiversity Authority
NFP	National Focal Point
NGO	Non-Governmental Organisation
NP	Nagoya Protocol
NPIF	Nagoya Protocol Implementation Fund
PGRs	Plant Genetic Resources

PIC	Prior Informed Consent
PIP	Pandemic Influenza Preparedness
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SMTA	Standard Material Transfer Agreement
TK	Traditional Knowledge
TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on Human Environment
UNCLOS	United Nations Convention on the Law of the Sea
UNDRIP	United Nations Declaration on the Rights of the Indigenous People
UNFCCC	United Nations Framework Convention on Combating Climate Change
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
UNO	United Nations Organisation
UNESCO	United Nations Educational, Social and Cultural Organisation
UNTAD	United Nations Trade and Development
UPOV	International Union for the Protection of the New Varieties of Plants
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wide Fund for Nature

CONTENTS

	<i>Page No.</i>
<i>Certificate</i>	
<i>Acknowledgment</i>	<i>i - ii</i>
<i>Acronyms</i>	<i>iii - iv</i>
CHAPTER I: INTRODUCTION	1-31
International Law and Genetic Resources	
(i) Legal Definition of Genetic Resources	
(ii) Legal Status of Genetic Resources	
(iii) Legal Control of Genetic Resources	
International Biodiversity Law and Genetic Resources	
(i) UN Conference on Human Environment, 1972	
(ii) World Charter for Nature, 1982	
(iii) World Commission on Environment and Development, 1988	
(iv) UN Conference on Environment and Development, 1992	
(v) Convention on Biological Diversity, 1992	
Access and Benefit Sharing Legal Regime and Genetic Resources	
(i) Multilateral ABS System under FAO Regime	
(ii) Bilateral ABS System under CBD Regime	
Legal Issues under Bilateral ABS Regime	
Objective and Scope of the Study	
Research Questions	
Hypotheses	
Research Methodology	
Structure of the Study	
CHAPTER II: UTILIZATION OF GENETIC RESOURCES	32-61
Introduction	
Kinds of Genetic Resources	
(i) Human Genetic Resources	
(ii) Animal Genetic Resources	
(iii) Plant Genetic Resources	
(iv) Marine Genetic Resources	
Potential Value of Genetic Resources	
(i) Ecological Value	
(ii) Economic Value	
(iii) Social Value	
(iv) Cultural Value	
Ownership over Genetic Resources	
(i) Sovereign Ownership	
(ii) Community Ownership	
(iii) Exclusive Ownership	

Potential Providers of Genetic Resources

- (i) Nation States
- (ii) Research Institutions
- (iii) Indigenous and Local Communities
- (iv) Individual and Intermediaries

Potential Users of Genetic Resources

- (i) Industries
- (ii) Universities
- (iii) Botanical Gardens
- (iv) Gene Banks/Seed Banks

Biotechnological Utilization of Genetic Resources

- (i) Hybridization and Development of Plants
- (ii) Discovery of 'Centers of Origin' of Plants
- (iii) Impact of Green/ Gene Revolution

Legal Concerns on Utilization of Genetic Resources

- (i) Use of Biotechnology
- (ii) Rise of Bio-Propecting
- (iii) Problems of Bio-Piracy

Legal Regime on Utilization of Genetic Resources

- (i) Multilateral Legal Mechanism
- (ii) Bilateral Legal Mechanism

Critical Evaluation

Conclusion

**CHAPTER III: INTERNATIONAL LEGAL FRAMEWORK ON
ABS REGIME**

62-103

Introduction

Pre-CBD Regime

CBD Regime

A. Convention on Biological Diversity

- (i) Conservation of Genetic Resources
- (ii) Sustainable Use of Genetic Resources
- (iii) Access and Benefit Sharing over Genetic Resources
- (iv) Access to and Transfer of Technology
- (v) Financial Resources and Mechanism

Post- CBD Regime

A. Bonn Guidelines on Access and Benefit Sharing

- (i) Overall ABS Process
- (ii) Prior Informed Consent
- (iii) Mutually Agreed Terms

B. Nagoya Protocol on Access and Benefit Sharing

- (i) Access to Genetic Resources
- (ii) Access to associated Traditional Knowledge
- (iii) Fair and Equitable Benefit Sharing
- (iv) Compliance Measures

- (v) Access to Technology
- (vi) Financial Mechanism
- Relationship with other International Instruments
 - (i) Existing International Instruments
 - (ii) Future International Instruments
- Critical Evaluation
- Conclusion

CHAPTER IV: INSTITUTIONAL FRAMEWORK ON ABS REGIME 104-139

- Introduction
- ABS Related International Institutions
 - (i) United Nations General Assembly
 - (ii) United Nations Environment Programme
 - (iii) International Union for Conservation of Nature
 - (iv) Global Environment Facility
 - (v) Food and Agriculture Organization
 - (vi) World Trade Organization
 - (vii) World Intellectual Property Organization
 - (viii) International Union for Protection of New Varieties of Plants
 - (ix) World Health Organization
- CBD Regime Institutions
 - (i) Conference of Parties (COP)
 - (ii) Subsidiary Bodies (SBSTTA)
 - (iii) Secretariat
- Nagoya Protocol Institutions
 - (i) Meeting of Parties (MOP)
 - (ii) Subsidiary Bodies
 - (iii) Secretariat
 - (iv) ABS Clearing House
 - (v) Competent National Authority
 - (vi) National Focal Point
 - (vii) Designated Check Point
- Critical Evaluation
- Conclusion

CHAPTER V: IMPLEMENTATION FRAMEWORK ON ABS REGIME

140-166

- Introduction
- Domestic Measures for Implementation
 - (i) Legislative Measures
 - (ii) Administrative Measures
 - (iii) Policy Measures
- Essential Elements for Domestic ABS Measures
 - (i) Legal Certainty, Clarity and Transparency
 - (ii) Fair and Non-Arbitrary Access Rules and Procedures
 - (iii) Clear Rules and Procedures for PIC and MATs

Other Relevant Measures for Implementation	
(i) Modal Contractual Clauses	
(ii) Code of Conducts, Guidelines and Best Practices	
(iii) Customary Law, Community Protocol and Procedure	
Enforcement Mechanism	
(i) Compliance Mechanism for National Legislation	
(ii) Compliance Mechanism for International Instrument	
(iii) Dispute Settlement Mechanism	
(iv) Monitoring and Reporting	
(v) Assessment and Review	
Other Tools and Techniques for Enforcement	
(i) Capacity Building and Development	
(ii) Public Participation and Involvement	
(iii) Public Awareness and Education	
Critical Evaluation	
Conclusion	

CHAPTER VI: CONCLUSIONS	167-177
--------------------------------	----------------

REFERENCES	i-xi
-------------------	-------------

ANNEXURES	i-xliii
------------------	----------------

I: CONVENTION ON BIOLOGICAL DIVERSITY, 1992.

II: 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, 2010.

CHAPTER I

INTRODUCTION

This thesis aims to critically analysis the existing international legal regime on access and benefit sharing of genetic resources under international law. The international legal regime on access and benefit sharing of genetic resources generally known as “‘Access and Benefit Sharing (ABS) Regime’ includes the Convention on Biological Diversity (CBD), its Nagoya Protocol and Bonn Guidelines along with complimentary instrument, International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).”¹ The CBD and its Nagoya Protocol provide bilateral ABS mechanism for overall genetic resources distinctive to the multilateral ABS mechanism provided under ITPGRFA for specific plant genetic resources. The scope of this study is limited to the bilateral ABS mechanism provided under the CBD regime on utilization of genetic resources and associated traditional knowledge.

The CBD is the first international framework convention setting down the basic principles and obligations for the conservation of biological resources and sustainable use of biological resources along with access to such resources and sharing the benefit arising out of their utilization.² Each party to this convention is under obligation to implement those principles and obligations in the domestic jurisdiction through national policies and legislations. However, the ABS principles and third objective of the CBD have not been adequately implemented due to range of contentions and complications for long time. Another attempt was further made to provide more detail guidance on ABS process through adoption of Bonn Guidelines to assist member states and other stakeholders in formulation of ABS legislation or arriving on ABS

¹International Regime is constituted of the Convention on Biological Diversity, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, as well as complementary instruments, including the International Treaty on Plant Genetic Resources for Food and Agriculture and the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization; CBD COP Decision X/1: Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from the Utilization, 2010, (UNEP/CBD/COP/DEC/X/1), *See*, Full Text, available at:<http://www.cbd.int/doc/decisions/cop-10/en.pdf> Accessed on 12 July, 2016.

²Convention on Biological Diversity, 1992 (hereinafter be referred as “CBD”) was adopted on 5 June, 1992 at UN Conference on Environment and Development at Rio de Janerio, Brazil. It came into force on 29 December, 1993 after adequate number of ratifications and signatures. Around 193 countries are currently parties making it universal in application and implementation. Convention on Biological Diversity, 1992; *ILM*, Vol.31, 1992, p.822; *See*, Full Text, available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

agreements.³ Still, few countries enacted domestic ABS legislation due to its voluntary and non-binding nature. Then, the World Summit on Sustainable Development (WSSD) called for “the negotiation of international legal regime to promote and regulate the fair and equitable sharing of the benefits arising from the utilization of genetic resources.”⁴ After several years of intense negotiations under CBD regime, “the Nagoya Protocol on Access and Benefit Sharing was consequently adopted to implement the third objective of the CBD by setting up principle and procedure for the implementation and development of ABS regime.”⁵ In this context, the CBD, its Bonn Guidelines and newly adopted Nagoya Protocol collectively enrich the bilateral legal system on access and benefit sharing of genetic resources and associated traditional knowledge under international law. In view of this, the researcher examines access and benefit sharing bilateral mechanism under the preview of the CBD regime in international law.

International law and Genetic Resources

It is fact that nature, ecosystems, resources, wildlife and many more, are of environmental concerns for international community due to its potential value and utility. This is responsibility of international community to act individually or collectively to address the environmental concerns at global, regional, domestic or combination of all or any of these level.⁶ Hence, international community develops

³The Bonn Guidelines were adopted unanimously by about 180 member states of the CBD. Although they are not legally binding, but served as vital tool for the full implementation of the CBD. CBD COP Decision VI/24: Access and Benefit Sharing as Related to Genetic Resources, which adopted Bonn Guidelines on Access to Genetic Resources and Sharing of Benefits Arising out of Their Utilization, 2002; (UNEP/CBD/COP /DEC/VI/24A). (hereinafter be referred as “Bonn Guidelines”) See, Full Text, available at: http://www.cbd.int/doc/publication/bonn-gdls_en.pdf. Accessed on 12 July, 2016.

⁴ Johannesburg Plan of Implementation of the World Summit on Sustainable Development: Para 44 (o): Negotiate within the framework of the Convention on Biological Diversity, bearing in mind the Bonn Guidelines, an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources. World Summit on Sustainable Development (2002); available at: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/english/WSSD_Planimpl.pdf. Accessed on 12 July, 2016.

⁵Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization to the Convention on Biological Diversity, 2010. (hereinafter be referred as “Nagoya Protocol”) It has been adopted on 29 October, 2010 and came into force on 12 October, 2014. Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; See, CBD COP Decision X/II: Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization; 2010 (UNEP/CBD/COP/DEC/X/II) available at: <http://www.cbd.int/abs/doc/protocol/nagoyaprotocol-en.pdf>. Accessed on 12 July, 2016.

⁶It has been argued that the international community has to protect the environment and manage the natural resources not only for the sake of themselves but also for the sake of nature itself. The environmental concerns could not be addressed under the north-south divide. See, Jeffery M. et. al. (2008), *Biodiversity Conservation Law+ Livelihoods: Bridging the North- South Divide*, New York: Cambridge University Press, p. 1

international law to regulate the activities and relations of the states through customs, treaties, recognized principles and other sources of law. In this sense, the international law has important role to play in protecting the environment and conserving the biodiversity in such ways: Firstly, “it provides mechanisms and procedures for negotiating the necessary rules and standards, adopting the treaties and conventions and supervising their implementation and enforcement.”⁷ Secondly, “it facilitates and promotes co-operation between states, international organizations and non-governmental organizations constituting the process of international law making and governance.”⁸ Thirdly, “it provides the guidance for arriving on multilateral treaties, framework conventions, additional protocols, resolutions and declarations to create specific regulatory regime.”⁹ Fourthly, ‘it motivates for reinstatement of or compensation for environmental damage on the basis of state responsibility or individual human rights in trans-boundary and domestic conditions and assists in setting up the national standards and rules including code of conducts, guidelines and best practices for addressing the environmental concerns or problems.’¹⁰

In view of this, the global environment as a whole and in particular has been governed under the international law on different issues such as marine pollution by oil spills and dumping, hazardous wastes and chemicals, ozone depletion, climate change, preserving species, habitats and resources.¹¹ For the preservation and exploitation of the natural resources, there has been large corpus under international law providing the legal definition, status and control of such resources. However, the conservation and management of genetic resources are mostly dealt under the international environmental law including access and benefit sharing regime. It includes not only the public international law but also relevant aspect of private international law.¹² Here, it is essential to explain the definition, status and their legal control of genetic resources under the public international law.

⁷ It has been indicated that the contemporary international law requires to be considered with new body of specific international law and the application of general international law specifically for environmental law. The law making techniques have themselves evolved as result of the legal developments brought by the environmental law making activities of the states. *See*, Birine P. and Boyle A. (2002), *International Law and The Environment*, New York: Oxford University Press, p. 7.

⁸*Ibid.*

⁹*Ibid.* at p. 8.

¹⁰*Ibid.*

¹¹Due to the trans-boundary existence and effect, public international law addresses several environmental concerns which are inherently global in character and affect all states, not equally but at least to the extent that international law is warranted. *See*, Kiss A. and Shelton D. (1999), *A Guide to International Environmental Law*, Leiden: MartiunsNijhoff Publishers, p. 155.

¹²*Ibid.* at p. 176.

(i) Legal Definition of Genetic Resources

Before discussing the access and use of genetic resources, the definition and scope of the genetic resources are important for the legal control and management. The relevant international instruments have generally used the term of ‘biological resources’, ‘genetic resources’ and ‘genetic material’ for all purposes. Naturally, genetic resources include population, species and gene pool which possess important traits and characteristic in living organisms.¹³In simple terms, genetic resources are genetic material found in animal, plant and microbial or other organisms. This has been legally defined as “genetic material of actual or potential value” and genetic materials are “any material of plant, animal, microbial or other origin containing functional units of heredity”.¹⁴However, it is ‘actual and potential value’ which differentiate the genetic resources, microorganisms and other biological resources from simple genetic material. Along with the functional units of heredity, the potential value and utilization has enlarged the nature and scope of the genetic resources.

Generally, genetic resources are used as source of biological information that are used to develop new plants or products or change existing plants or products, either through traditional breeding methods or through biotechnology.¹⁵In view of this, the utilization of genetic resource is quite significant in the context of its access and benefit sharing. Hence, ‘utilization of genetic resources’ includes research and development on the genetic and/or biochemical composition of genetic resources including through the application of biotechnology.” Here, biotechnology means “technological application that uses biological systems, living organisms or derivatives thereof, to makes or modify products or processes for specific use”.¹⁶In this definition, the biological system, living

¹³Oli K.P. et. al. (2007), “Glossary of Access and Benefit Sharing Terms”, Kathmandu: International Centre for Integrated Mountain Development; available at: <http://www.books.icimod.org/glossary/abs/eng.pdf> Accessed on 15 July, 2016.

¹⁴See n.2, Article 2: Use of Terms: “*Genetic resources*” means genetic material of actual or potential value. “*Genetic material*” means any material of plant, animal, microbial or other origin containing functional units of heredity.

¹⁵ Laird S. and Wynberg R. (2008), “Access and Benefit Sharing in Practice: Trends in Partnership across the Sectors,” CBT Technical Series No. 38, Montreal: Secretariat of CBD; p.12, available at: <http://www.cbd.int/doc/publications/cbd-to-38-en-pdf>. Accessed on 15 July, 2016.

¹⁶See n.6, Article 2: Use of Term: “*Utilization of genetic resources*” means to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology as defined in Article 2 of the Convention; “*Biotechnology*” as defined in Article 2 of the Convention means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.

organism and derivatives have been included. In this context, “derivatives means a naturally occurring biochemical compound resulting from the genetic expression or metabolisms of genetic resources, even if it does not contain functional units of heredity.”¹⁷It means that any material of biological origin containing functional heredity accessed for the utilization and development of products and process by way biotechnology would be genetic resources as well. However, these genetic resources could also be accessed and used for the trade and consumption as ‘commodity’ which is beyond the scope of the utilization. However, these genetic resources are not naturally and fairly found among the nations due to the geographical locations and climatic situations. This has led the international community to explore the legal status and control over the genetic resources for its optimal and sustainable use across the nations and generations.

(ii) Legal Status of Genetic Resources

These genetic resources are the part of natural resources which are regulated for conservation, management and utilization under national and international law. Initially, international law had permitted the use of natural resources by determining the property rights allocated among states. Subsequently, the legal control of natural resources was based on the acquisition of sovereignty over land territory and territorial seas.¹⁸ However, the legal status of natural resources varies due to its existence in one state, shared by several states, or held in common spaces for benefit of all.¹⁹ Accordingly, the basic principles on the status of genetic resources has been provided under international law.

First of all, there has been provided sovereign rights to the nations over natural resources found in their territorial jurisdiction. The United Nations General Assembly (UNGA) through its resolution proclaimed “the right of people and nation to permanent sovereignty over their natural wealth and resources”; and recognized “the sovereign right of every state to dispose of its natural wealth and resources in

¹⁷*Ibid.* “Derivative” means a naturally occurring biochemical compound resulting from the genetic expression or metabolism of biological or genetic resources, even if it does not contain functional units of heredity.

¹⁸*See n.6*, at p. 137.

¹⁹*Ibid.*

accordance with their national interests.”²⁰ However, the same UNGA had already outlined in previous resolution that “the right of developing countries to determine access to their natural resources is prerequisite to foster their economic development in accordance with their national interest.”²¹ It also highlighted that “commercial agreements shall not contain economic or political condition violating the sovereign rights of the under developing countries including the right to determine their own plans for economic development.”²² Subsequently, the UNGA in above said resolution stated that:

“In case the authorization for activities of exploitation development and disposition of natural resources is granted by a state to a foreigner, the profit arising from such activity must be shared in the partiesfreely agreed upon in each case between investors and the recipient state”.²³

In this way, this clearly specified that there is permanent sovereignty of the states over their natural wealth and resources which must be exercised in the interest of the nation and the well-being of the people concerned. Furthermore, UNGA adopted two resolutions: *first*, “‘Declaration on the Establishment of the New International Economic Order’ which proclaimed the full permanent sovereignty of every state over its natural resources and all economic activities including the right to nationalize resources or to transfer their ownership to nationals.”²⁴*Second*, the “‘Charter of Economic Rights and Duties of States’ asserted that every state has and shall freely exercise full permanent sovereignty including possession, use and dispose of overall

²⁰The Resolution on Permanent Sovereignty over Natural Resources was adopted on 14 December 1962 by 87 votes in UN General Assembly. The resolution has been adopted for the promotion and financing of economic development in under-developed countries and in connection with the right of peoples to self-determination as human rights. *See*, UN General Assembly Resolution 1803 (XVII): Permanent Sovereignty over Natural Resources, 1962, available at: http://www.legal.un.org/al/ha/ga_1803.html. Accessed on 20 July, 2016.

²¹UN General Assembly in its 360th Meeting of the Sixth Session adopted the Resolution on Integrated Economic Development and Commercial Agreements for creating the conditions doe under developed countries to acquire machinery, equipment and raw material for economic development. *See*, UN General Assembly Resolution 523 (VI): Integrated Economic Development and Commercial Agreements, 1952, available at: <http://www.un.org/documents/ga/res/6/ares6.html>. Accessed on 20 July, 2016.

²²*Ibid.*

²³*See n.20.*

²⁴The NIEO Declaration was adopted in UN General Assembly in its Sixth Special Session on 1 May, 1974 proposed by the developing countries dealing with trade and commodity including natural resources. *See*, UN General Assembly Resolution 3201 (S-VI): Declaration on the Establishment of New International Economic Order, 1972. (A/Res/S-VI/3201); available at: <http://www.un-documents.net/s6r3201.html>. Accessed on 20 July, 2016.

its natural resources.”²⁵ There has been also development of multilateral treaties and rules of customary international law concerning conservation of biological resources qualifying the sovereignty of state.

For the shared natural resources, the UNGA has provided the basic principle that “states do not have unlimited sovereignty with regard to shared resources, where the resources do not fall wholly within the exclusive control of one state and on common property of all states.”²⁶In 1970, UN General Assembly called for “an adequate international standards for the conservation and utilization of natural resources common to two or more states to be established and affirmed that there should be cooperation between states on the basis of information exchange and prior consultation.”²⁷ Further, the same charter also provided the principles stating that:

“In the exploitation of natural resources shared by two or more countries, each state must cooperate on the basis of a system of information and prior consultation in order to achieve optimum use of such resources without causing damage to the legitimate interests of others.”²⁸

This has also led to the Governing Council of UNEP to adopt similar kind of principles which endorsed that “shared resources are subject to obligations of trans-boundary cooperation and equitable utilization between two or more states.”²⁹ The shared resource have been well indicated as: inter-state rivers, enclosed seas, mountain chain, forests, biological resources and migratory species.³⁰ The main purpose for regulating the use of such shared resources is to ensure the balance of interests between the states concerned. This could also be applicable in trans-boundary existence of the genetic resources among small group of states in geographical contiguity.

²⁵This Charter was adopted by the UN General Assembly in its Twenty Ninth Session on 12 December, 1974. It consists of a Preamble, three Chapters and thirty four articles addressing the fundamental principles of economic relations, economic rights and duties and common responsibility towards international community. See, UN General Assembly Resolution, 3281(XXIX): Charter of Economic Rights and Duties of States, 1974.(A/Res/29/3281) available at: <http://www.un-documents.net/a29r3281.html>. Accessed on 20 July, 2016

²⁶See n.20.

²⁷See n.24.

²⁸See n.25.

²⁹The principles were drafted by UNEP in response to UN General Assembly Resolution 3129 (XIVIII) of 13 December 1973. Progress reports on implementation of the principles were submitted to the General Assembly through the UNEP Governing Council in 1981 (UNEP/GC.9/5/Add.2) and again in 1985 (UNEP/GC.13/9/Add.1). See, UNEP Principles of Conduct in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States, 1978; available at: <http://www.un.org/documents/ga/res/34/a34res186.html>. Accessed on 20 July, 2016.

³⁰See n.7 at p. 140.

There are certain natural resources which are generally found in common space primarily in the areas beyond national jurisdiction. "It remains open for legitimate and reasonable use by all states and may not be appropriated to the exclusive sovereignty of one state."³¹ It is termed as common property which includes most of living resources of the areas of High Seas and Airspace. "Once living resources are held in common in this way, no single user can have exclusive rights over them nor the right to prevent others from joining in their exploitation."³² However, the availability of free resources leads to over-exploitation and minimizes the interest of any individual state in conservation efforts. Hence, it cannot be effectively protected without the support of all states exploiting the resources. "It is regulated and managed through treaties supervised by inter-governmental bodies with adequate scientific knowledge and flexible management of such common resources."³³ Here, the concept of common property is not to be confused with the concept of common heritage. The common heritage refers to all the living and non-living resources of nature found in the global environment. It is specifically employed in the moon treaty and law of the sea which implies that "the resources of these areas cannot be appropriated to the exclusive sovereignty of states but must be conserved and exploited for the benefit of all without discrimination."³⁴ However, the legal status of the 'common heritage' has been debatable in recent times as the expression 'common concerns' are used in such place for the common interest of all states for ecological and cultural protection.³⁵

Apart from this, there has been demand of the exclusive rights over the biological resources exclusively owned through intellectual property rights regime. "An exclusive right as patent has been provided on genetic material where the gene has been removed and isolated through invention/ innovation."³⁶ It has been claimed that "an isolated and purified gene does not exist in such form in nature, hence exclusive

³¹*Ibid.* at p. 141.

³²*Ibid.* However, the principles of international law requires states to prevent and control the utilization and exploitation of those resources found in the common space. Like, birds and wild animals inhabits in the common spaces and migrate through them.

³³*Ibid.* at p. 142.

³⁴*Ibid.*

³⁵*Ibid.* at p.143.

³⁶ It has been well observed that there has been global pressure since 1990s to extend the intellectual property protection to the genetic material to reap the benefits exclusively. See, Safin S. (2004), "Hyper-ownership in a Time of Biotechnological Promises: The International Conflict to Control of the Building Block of Life" *The American Journal of International Law*, Vol. 98, No. 4: 641-685, p. 645.

ownership would be provided on them on its invention and discovery.”³⁷ The ability to patent such genes subsequently prevent all others from making or using that gene. Not only this, there has been assertion and expansion of other forms of intellectual property rights over plants, animals and living modified organisms which are part of natural resources.³⁸ In response to the extension of intellectual property right on genetic material, biodiversity rich countries sought to assert the sovereign rights over such material on its exploitation and utilization under international law.

(iii) Legal Control over Genetic Resources

Based on the legal status of the natural resources, there has been evolution of international legal regime for its conservation and management to maintain the ecological balance of the earth. Due to extinction and exploitation of the species, resources and habitats, there has been need to protect the overall biological diversity from all perspective such as science, environment and law. In this context, international environmental law has played significant role in the protection of environment in general and conservation of natural or biological resource in particular.³⁹ It has provided norms, standards and practices either as hard law or soft law for the mitigation of pollution, prevention of degradation and promotion of conservation of biological resources.⁴⁰ However, the legal norms and principles about conservation of biological resources have existed for centuries. It was the 19th century, when certain treaties and other instruments were concluded with objective of conservation of animals and birds with utilitarian purposes.⁴¹ The major international concerns for the conservation and preservation of natural resources and wild animals started buildings in the last three decades of the 20th century.⁴²

³⁷*Ibid.* at p. 646.

³⁸Tripathi S.K (2003),“Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore: International, Regional and National Perspective, Trends and Strategies” *Journal of Intellectual Property Rights*, Vol. 3, 468-477, p. 471.*See also*, Cullet P. (2005), *Intellectual Property Protection and Sustainable Development*, New Delhi: Lexis Nexis, p.12.

³⁹*See n 11* at p.76.

⁴⁰*Ibid.*

⁴¹These were related to the conservation of fish, fur seals, whales, tunas, game animals, birds useful for agriculture etc.in Europe and Africa. After the 1960s, there had been huge change in perception on environment protection, resources utilization and population expansion which led to the progressive development of international environmental law. Nanda V. P. and Pring G. (2003), *International Environmental Law and Policy for the 21st Century*, Second Ed., Leiden: MartinusNijhoff Publishers, p. 248.

⁴²*Ibid.* at p. 251

The early trends of international conservation law were either regional dealing with specific geographic locations or sectoral dealing with specific species, habitats, heritage or sites.⁴³ Still, they have regulated the access, use and management of the natural resources and contributed in development as well as implementation of the norms and principles within, between and beyond the national jurisdiction. The major regional treaties with regard to nature conservation has been indicated as: “African Convention on Conservation of Nature and Natural Resources, 1968 (African States); Convention for the Conservation of Biological Diversity and Protection of Priority Wild Areas, 1992 (Central America), Convention on the Conservation of European Wildlife and Natural Habitats, 1979 (Europe), Agreement on the Conservation of Nature and Natural Resources, 1985 (Asia), the Convention on the Conservation of Nature in South Pacific 1976 (Pacific region).”⁴⁴

Along with this, certain important sectoral conservation law also evolved at regional and global level due its ecological and economic value are highlighted as : “Agreement on the Conservation of Polar Bears, 1973; the Convention of Migratory Species of Wild Animals, 1979; Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973; Convention on Wetland of International Importance, 1971 and Convention concerning the Protection of the World Cultural and Natural Heritage, 1972.”⁴⁵ Apart from these, there is separate corpus of international law for areas beyond national jurisdiction such as Antarctica and High Seas. The United Nations Convention on Law of the Sea (UNCLOS) regulates “natural resources, habitats and related activities in scientific research and exploration in the high seas and coastal areas.”⁴⁶ For Antarctic region, there are different multilateral treaties which allow and regulate the peaceful activities and scientific research for the conservation of the natural resources in Antarctica.⁴⁷

⁴³Klemm C. (1993), "Biological Diversity Conservation and the Law: Legal Mechanism for Conserving Species and Ecosystem" Environmental Policy and Law Paper No. 29, p.2, Bonn: IUCN, available at: <http://www.iucn.org/dbth-wpd/EPLP-29.pdf>. Assessed on 2 July, 2016.

⁴⁴*Ibid.* at p. 8

⁴⁵*Ibid.* at p. 14

⁴⁶It comprises 320 articles and nine annexes, governing all aspects of sea, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters. The Convention was opened for signature on 10 December 1982 and there are more than 150 member countries are parties to it. UN Convention on the Law of the Sea, 1982, *See*, Full Text, available at: http://www.un.org/dept/los/convention_agreements/text/unclos.html. Accessed on 20 July, 2016

⁴⁷Antarctic Treaty, 1959, 402 UNTS 71, *See*, Full Text, available at: <http://www.ats.aq/e/ats.html>. Convention on Conservation of Antarctic Seals, 1972, Convention on Conservation of Antarctic Marine Living Resources, 1980, *See*, Full Text, available at: http://www.ccamlr.org/en/organ/cmmlr_convention.html Accessed on 22 July, 2016.

In addition, there are other branches of international law which are directly or indirectly applicable to the legal control of the genetic resources based on the utility and value to the human being specially in the field of trade, health, agriculture, human rights and intellectual property rights. Under WTO regime, TRIPs specifically deals with issues related to genetic material for patenting the inventions/innovations.⁴⁸ Under WIPO regime, the negotiations are going for an international legal instrument to ensure the effective intellectual property protection for genetic resources, traditional knowledge and cultural expression.⁴⁹ Besides, there are two important instruments relating to conservation and utilization of plant genetic resources which are “International Convention on Protection for New Varieties of Plants, 1991”⁵⁰ and “International Treaty for Plant Genetic Resources for Food and Agriculture, 2001.”⁵¹ From human rights perspective, there are two foundational human rights treaties on “Civil and Political Rights”⁵² and “Economic, Social and Cultural Rights,”⁵³ which provide basic rights to use and protect genetic resources and traditional knowledge in national territories. Besides the “ILO Convention concerning Indigenous and Tribal

⁴⁸It is an international legal agreement between all the member nations of the World Trade Organization which sets down minimum standards for the regulation of intellectual property. It was adopted on 15 April, 1994 and came into force on 1 January, 1995. Agreement on Trade Related Aspects of Intellectual Property Rights, 1995, *See, Full Text*, available at: http://www.wto.org/english/doc_e/legal_e/27-trips.html. Accessed on 20 July, 2016.

⁴⁹WIPO Intergovernmental Committee is a forum where WIPO member states discuss the intellectual property issues that arise in the context of access to genetic resources and benefit-sharing. It was established in 2000 for reaching out on international legal instrument on each of these matters which was continued till today. World Intellectual Property Organization, "Intergovernmental Committee on Traditional Knowledge, Traditional Expression and Folklore and Genetic Resources", available at: <http://www.wipo.int/tk/en/igc.html>. Accessed on 20 July, 2016

⁵⁰ This multilateral treaty is to provide and promote an effective protection of new plant varieties for the benefit of society. It was adopted initially in 2 December, 1961 and recently revised in March, 1991. International Convention on Protection of New Varieties of Plants, 1991, *See, Full Text*, available at: <http://www.upov.int/about/en/pdf/pub437.pdf>. Accessed on 20 July, 2016

⁵¹It was adopted by the Thirty-First Session of the Conference of the Food and Agriculture Organization of the United Nations on 3 November 2001. It facilitates access to the genetic materials of the 64 crops in the Multilateral System for research, breeding and training for food and agriculture. International Treaty for Plant Genetic Resources for Food and Agriculture, 2001, *See, Full Text*, available at: http://www.fao.org/plant_treaty/en.html. Accessed on 20 July, 2016.

⁵² This is one of the multilateral human rights treaty adopted by the United Nations General Assembly through its Resolution 2200A (XXI) on 16 December 1966 and came in force on 23 March 1976. International Conventions on Civil and Political Rights, 1976, *See, Full Text*, available at: <http://www.treaties.un.org/doc/publications/unit/./vol/999.html>. Accessed on 20 July, 2016

⁵³It is also multilateral human rights treaty adopted by the United Nations General Assembly through same Resolution 2200A (XXI) on 16 December 1966 and came in force on 3 January, 1976. International Covenant on Economic, Social and Cultural Rights, 1976, *See, Full Text*, available at: http://www.treaties.un.org/doc/publications/unit/1976/CH_IV_03.html. Accessed on 20 July, 2016.

People, 1991”⁵⁴ and “UN Declaration on the rights of Indigenous Peoples, 2007”⁵⁵ also recognize the rights of indigenous people to use and manage their natural resources including genetic resources.

There have been hundreds of treaties -bilateral and multilateral- dealing with legal control of the use of genetic resources in the field of environment, trade, agriculture, health and human rights etc. But, there was need for greater responsibility and clarity for conservation and utilization of genetic resources with broader mandate and effective coordination at international level. This had subsequently led to the adoption of CBD for overall protection and conservation of biological resources in 1992. It has subsequently developed corpus of international biodiversity law regulating the activities of access and benefits sharing on utilization of the genetic resources.

International Biodiversity Law and Genetic Resources

Prior to the 1970s, the most of the international agreements on biological resources addressed “utilitarian concerns in protecting species, habitats and ecosystem or region.”⁵⁶ But after 1970s, there has been huge public concerns over the environment, “particularly loss of endangered species, habitats and ecosystem, natural and cultural sites.”⁵⁷ There were hundreds of multilateral environmental agreements that time for the protection of environment at regional and global level.⁵⁸ “They were either sectoral or regional nature of international instruments resulting into considerable gaps in coverage and effectiveness.”⁵⁹ Among them, around thirty percent of those agreements address the biodiversity related issues aiming to protecting specific

⁵⁴ This has been the most important operative international law guaranteeing the rights of indigenous peoples adopted by International Labour Organization, better known as Indigenous and Tribal Peoples Convention, 1989. It was established in 1989 and came into force on September 5, 1991. ILO Convention concerning Indigenous and Tribal Peoples, 1989 (No.169), See, Full Text, available at: <http://www.ilo.org/dyn/normlex/en.pdf>. Accessed on 20 July, 2016.

⁵⁵ It is comprehensive international instrument on the rights of indigenous peoples adopted by the UN General Assembly on 13 September 2007. It establishes a universal framework of minimum standards for the survival, dignity and well-being of the indigenous peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to the specific situation of indigenous peoples. UN Declaration on the Rights of Indigenous Peoples, 2007, See, Full Text, available at: <http://www.un.org/esa/socdev/unpfi/documents/DRIPS.html>. Accessed on 20 July, 2016.

⁵⁶ See n.41, at p. 249.

⁵⁷ *Ibid.* at p. 251.

⁵⁸ See n. 43 at p. 6. It has been most evolving branches of international law- the law dealing with around 1,000 multilateral agreements and 1,500 bilateral agreement as well as declarations, resolutions and other legal authorities on the environmental concerns. See also, Desai B.H. (2003), *Institutionalizing International Environmental Law*, New York: Transnational Publishers. p. 110.

⁵⁹ *Ibid.* at p. 111.

species or regulating the activities. There was no convention that supported actions to conserve the genetic species at ecosystem level and focused on in-situ conservation within and outside protected areas at global level.⁶⁰ The other major concerns were “the cases of bio piracy with the proliferation of biotechnological research and bio-prospecting making considerable profit without sharing the benefits to biodiversity rich countries by the technologically developed countries.”⁶¹ Taking account all these concerns, international community felt to develop an international legal instrument on the conservation of the genetic resources under international law.

(i) UN Conference on Human Environment, 1972

Early regulatory measures on biodiversity conservation were scattered in fragmented way in international law. The regulatory measures adopted were insufficient because of their limited mandate and specific scope dealing with species, habitats and sites. However, the fundamental change of perceptions towards the biodiversity conservation were reflected in the Stockholm Declaration 1972, which emphasizes to protect both species and their habitats as whole.⁶² The principle states that “the natural resources of the earth including air, water, land, flora and fauna and especially representative samples of natural ecosystem must be safeguarded for the benefit of present and future generations through careful planning or management.”⁶³ It provides that “Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitats in planning for economic development.”⁶⁴ It states that:

“The States have sovereignty rights to exploit the own resources pursuant to their own environmental policies and has 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.”⁶⁵

⁶⁰See n.43, at p. 17.

⁶¹Sampath G.L. (2005), *“Regulating Bio-prospecting: Institutions for Drug Research, Access and Benefit Sharing”* New York: UNU Press. p. 24. See also, Grajal A. (1999), “Biodiversity and National State: Regulating Access to Genetic Resources Limits Biodiversity Research in Developing Countries” *Conservation Biology*, Vol. 13, No.1: 6-10, p. 7.

⁶²The United Nations Conference on the Human Environment held in Stockholm, Sweden from 5 to 16 June 1972, was first international conference on the protection of environment. It is better known as Stockholm Conference which adopted the Stockholm Declaration providing principles for the preservation and enhancement of the human environment. United Nation Conference on Human Environment, 1972. See, Full Text, available at: <http://www.un-documents.net/unchedec.html>. Accessed on 20 July, 2016.

⁶³*Ibid.* Principle 2.

⁶⁴*Ibid.* Principle 4.

⁶⁵*Ibid.* Principle 21.

There are two important principles ‘principles of state sovereignty and ‘no harm principle’ provided under this declaration. Further, it calls upon that “all international matters concerning the protection of environment should be handled in a cooperative way through multilateral or bilateral arrangements and assistance of the international organizations.”⁶⁶ Above all, Stockholm Declaration has been considered as ‘basic principles of conservation law’.

(ii) World Charter for Nature, 1982

Major efforts for codification and development of legal norms on biodiversity conservation were made by United Nations Environment Programme (UNEP), International Union for Conservation of Nature (IUCN) and World Wide Fund for Nature (WWF). They prepared ‘World Conservation Strategy, 1980’ with three major goals: “to maintain essential ecological processes, preserve genetic diversity and sustainable use of species and ecosystems”.⁶⁷ Such objective have been reaffirmed subsequently by UNGA in ‘World Charter for Nature, 1982.’⁶⁸ The Charter provides the general principles that “the genetic viability on earth shall not be compromised, the population levels of all life forms, wild and domesticated must be at least sufficient for their survival and to this necessary habitats shall be safeguarded.”⁶⁹ Hence, there has been added that “all areas of the earth both land and sea, shall be subject to these principles of conservation and ecosystem as well as the land, marine and atmosphere resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity but not in such a way as to undergone the integrity of these other ecosystem with which they co-exist.”⁷⁰ In pursuance to this, the states have been obligated by providing that “taking into account the sovereignty of states over their natural resources, such states shall give effect to the provision of the present charter through its competent organs and in co-operation with other states.”⁷¹ In this way,

⁶⁶*Ibid.* Principle 24.

⁶⁷This Strategy was adopted in 1980 by UN General Assembly, prepared by IUCN and commissioned by UNEP with WWF. It aimed to help the states to achieve sustainable development through conservation of living resources. *See*, Full Text, World Conservation Strategy: Living Resource Conservation for Sustainable Development, 1980; available at: http://www.portals.iucn.org/library/efiles/documents/wcs_004.html Accessed on 20 July, 2016.

⁶⁸World Charter for Nature was adopted by United Nations member states on October 28, 1982. It proclaims five principles of conservation affecting nature. World Charter for Nature, 28 October 1982, A/RES/37/7, available at: <http://www.un.org/documents/ga/res/37/a37r007.html>. Accessed on 20 July, 2016.

⁶⁹*Ibid.* Principle 2.

⁷⁰*Ibid.* Principle 3.

⁷¹*Ibid.* Principle 22.

the Charter sets the basic norms of international environmental law on biodiversity conservation and management.

(iii) World Commission on Environment and Development, 1988

Its report recommended for the promotion of sustainable development emphasizing “the need to preserve biological diversity to abide by the principles of optimum sustainable yield in the use of natural resources.”⁷² One of its principles required the states “to maintain ecosystem and related ecological process essential for the functioning of the biosphere in all its diversity, in particular those important for food production and other aspect of human survival and sustainable development.”⁷³ It also called upon the states “to maintain maximum biological diversity by ensuring the survival and promoting the conservation in their natural habitats of all species of flora and fauna.”⁷⁴ Its conclusion at the end called for “a new biodiversity convention to protect 'universal biological resources' for present and future generations.”⁷⁵ In this way, it prepared the basic grounds for particular convention on biodiversity conservation keeping in view of sustainable development.

(iv) UN Conference on Environment and Development, 1992

The major event took place in year 1992, known as “‘UN Conference on Environment and Development (UNCED)’ at Rio de Janeiro (Brazil), where Rio declaration was adopted to promote environment protection and sustainable development.”⁷⁶ Though, this declaration does not specially speak on conservation of biological resources, but certain principles are quite relevant to it. It states that “state shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the earth's ecosystems”.⁷⁷ For this purpose, the states have to reduce and eliminate

⁷²It is better known as ‘Brundtland Report’ which aimed to examine the issues of environment and development. It introduced the Concept of Sustainable Development and prepared the ground for the UNECD, 1992. Chapter VI: Species and Ecosystem: Resources for Development; Report of the World Commission on Environment and Development, 1988. (UN/A/42/427), *See*, Full Text, available at: <http://www.un-documents.net/our-comman-future.pdf>. Accessed on 20 July, 2016.

⁷³*Ibid.* Chapter VI, para 2.

⁷⁴*Ibid.* Chapter VI, para 4.

⁷⁵*Ibid.* Chapter VI, para 6.

⁷⁶It was major international conference held in Rio de Janeiro from 3 to 14 June 1992, also known as the Rio Conference and Rio Summit or Earth Summit. Its Rio Declaration signed by over 170 countries consisted of 27 principles intended to guide countries for sustainable development. United Nations Conference on Environment and Development, 1992. *See*, Full Text, available at: <http://www.un.org/geninfo/bp/enviro.html>. Accessed on 20 July, 2016.

⁷⁷*Ibid.* Principle 7.

unsustainable patterns of production and consumption.⁷⁸ It also purposes that “states should recognize and support the identity, culture and interest of indigenous and local communities and enable them for effective participation in the achievement of sustainable development.”⁷⁹ Its declaration also contributed certain principles for conservation of biodiversity giving rights to the states to exploit their own resources:

“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 and developmental 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.”⁸⁰

There has been given sovereign right to states to exploit their own resources and responsibility to restrain the activities detrimental to other states and other areas. In line with it, there was adopted the Convention on Biological Diversity (CBD) as umbrella convention for overreaching theme of activities not covered by the existing convention on conservation of biological diversity.

(v) Convention on Biological Diversity, 1992

It finds its origin in year 1987, when Governing Council of UNEP requested its Executive Director “to establish an Ad-hoc Working Group of Experts to investigate the desirability and possible form of umbrella convention to rationalize the current activities in this field and to address other areas which might fall under such convention.”⁸¹ This group in its first meeting in 1988 prepared a draft provisions. Subsequently, “they agreed for a legally binding framework instrument for conservation and sustainable utilization of biological diversity in second meeting in 1990.”⁸² Further, they requested the UNEP Secretariat to prepare the draft of the convention which was completed and adopted with the name “Convention on

⁷⁸*Ibid.* Principle 8.

⁷⁹*Ibid.* Principle 22.

⁸⁰ *Ibid.* Principle 2.

⁸¹Glowka L. et.al (1994), “A Guide to The Convention on Biological Diversity,” IUCN Environmental Law and Policy Paper 30; Gland: IUCN Publication, available at: <http://www.iucn.org/dbth-wpd/EPLP-30.pdf>. Accessed on 20 July, 2016.

⁸²The Second Session of the Ad Hoc Working Group of Experts on Biological Diversity held on 19 - 23 February 1990; Geneva, Switzerland and Report of the Ad Hoc Working Group on the Work of its Second Session was submitted for a legal instrument on biological diversity on 23 February, 1990. (UNEP.Bio.Div.2/3); available at: <https://www.cbd.int/doc/?meeting=BDEWG-02>. Accessed on 20 Aug, 2016.

Biological Diversity”in UNCED, 1992.⁸³ The convention lays down guiding principles for the conservation of biodiversity where member states are required to take into account in developing national law and policy to implement its objectives. It has three main objectives: “conservation of biodiversity; sustainable use of its components and fair and equitable sharing of the benefits arising from the utilization of genetic resources.”⁸⁴The convention translates these objectives into binding obligations through substantive provisions which include:measures for conservation both *in-situ* and *ex-situ*,sustainable use of biological diversity and its components,access to and benefit sharing of biological resources,technological cooperation,transfer of technology and financial mechanism. For implementation of these obligations, it has been supplemented with specific protocols and detailed guidelines to achieve the aforesaid objectives and purposes.

In pursuance of this, the convention provides under Article 28 that parties must co-operate in formulating protocols and adopting them in Conference of Parties (COP).⁸⁵ Consequently, two protocols have been adopted under CBD regime to date for elaborating and implementing the obligations for specific issues on biosafety from living modified organisms and access and benefit sharing on the utilization of biological resources or microorganisms. The Cartagena Protocol was adopted “to ensure an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, and risks to human health on trans-boundary movement.”⁸⁶ The obligations find its origin from Article 19(3) of the CBD, which calls for the consideration of modalities of a protocol setting out appropriate procedure on the field of trans-boundary movement, transfer, handling and use of living modified organisms of international level. The Nagoya Protocolwas recently adopted for “proper and effective implementation of Article 15 and 8(j) of the CBD for ABS regime on the

⁸³See n.2. Convention on Biological Diversity, 1992.

⁸⁴*Ibid.*CBD, Article 1.

⁸⁵*Ibid.*CBD, Article 28.

⁸⁶It is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003. Around 171 countries are parties to it.*See*, Full Text, Cartagena Protocol on Biosafety to The Convention on Biological Diversity, 2000; available at: <http://www.cbd.int/doc/legal/cartagena-protocol.pdf>. Accessed on 15 July, 2016.

utilization of genetic resources and associated traditional knowledge.”⁸⁷ It regulates access and benefit sharing process through its binding provisions on the utilization of the genetic resources and associated traditional knowledge. Both the protocols contribute in the biodiversity conservation and management at international and national level under the CBD regime.

Access and Benefit Sharing Legal Regime and Genetic Resources

The origin of the ABS regime under international law could be traced regulating the common natural resources in 1970s. At that time, the natural resources were considered “Common Heritage of Mankind”⁸⁸ and they were freely accessible for exploration and exploitation without any restriction. All such activities were pursued for the benefits of all and benefits derived from the resources were equitably shared. However, this has not been done specifically for the genetic resources, but the norms have been the guiding factor in the development of ABS regime for subsequent years. Accordingly, the ABS regime in relation to the genetic resources and associated traditional knowledge has been evolved under the CBD regime providing bilateral legal system under international law. Another attempt to develop the legal regime on access to and benefit sharing of plant genetic resources has been made through multilateral system under Food and Agriculture Organization (FAO).

(i) Multilateral ABS System under FAO Regime

The FAO initially adopted an international undertaking in 1983 for plant genetic resources which stated that “plant genetic resources are a heritage of mankind and consequently should be available without restriction.”⁸⁹ However, FAO subsequently tried to make balance between the farmers and innovators by establishing the farmer's rights on the improved use of plant genetic resources. In between, the negotiations in

⁸⁷See n.5.Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization to the Convention on Biological Diversity, 2010.

⁸⁸‘Common Heritage of Mankind’ also known as common heritage of humankind or common heritage principle is a principle of international law which holds that defined territorial areas and elements of humanity's common heritage should be held in trust for future generations and be protected from exploitation by individual nations and corporations. See, Arnold .P. (1975), “The Common Heritage of Mankind as a Legal Concept” *International Lawyer*, Vol.9, No. 1: 153-158, p.154.

⁸⁹The FAO Conference adopted this International Undertaking on Plant Genetic Resources through Resolution 8/83, on 23 November 1983. At the time of its adoption, it was only international instrument specifically dealing with genetic resources for food and agriculture. See, Full Text, FAO International Undertaking on Plant Genetic Resources, 1983, available at: <http://www.fao.org/nr/cgrfa/cgrfa-about/history.html>. Accessed on 15 July, 2016.

this regard continued for the binding multilateral system for the conservation and utilization of plant genetic resources under FAO regime. In year 2001, FAO adopted binding treaty which created multilateral ABS system to facilitate access to and transfer of plant genetic resources for global food security based on ‘Standard Material Transfer Agreement (SMTA)’.⁹⁰ Its objectives has been assigned:

The objective the Treaty are conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use in harmony with Convention on Biological Diversity for sustainable agriculture and food security.”⁹¹

There are three basic objectives conservation, sustainable use and access and benefits sharing on utilization of plant genetic resources, but in harmony with CBD. In pursuance of these objectives, this multilateral system covers “the plant genetic resources for food and agriculture listed in its Annex I.”⁹² First of all, the state parties recognized “the sovereign rights of states over the plant genetic resources;” and agreed to “establish a multilateral system which is efficient, effective and transparent for both to facilitate access to plant genetic resources for food and agriculture and to share in fair and equitable way the benefit arising from the utilization of these resources on complementary and mutually reinforcing basis.”⁹³ The state parties also agreed to “take the necessary legal or other appropriate measures to provide, such access to plant genetic resources provided under Annex I to other state parties through multilateral system.”⁹⁴ It also ensures that “benefits accessing therefrom are be shared fairly and equitably based on standard material transfer agreements.”⁹⁵ Though, this has been multilateral ABS system but limited with its scope for plant genetic resources only to address the food security problems at global level.⁹⁶ Still, this treaty has provided enough guidance in the development of bilateral ABS system under the CBD regime.

⁹⁰See n.47 FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

⁹¹ *Ibid.* ITPGRFA, Article 1.

⁹²*Ibid.* ITPGRFA, Article 3.

⁹³*Ibid.* ITPGRFA, Article 10.

⁹⁴*Ibid.* ITPGRFA, Article 12.

⁹⁵*Ibid.* ITPGRFA, Article 13.

⁹⁶ Moore G. and Tymowski W (2007), “Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture”, IUCN Environmental Policy and Law Paper No. 57, p.6; Gland: IUCN Publication; available at: <http://www.iucn.org/doc/eng/ITPGRFA/EPLP-30.pdf>. Accessed on 20 July, 2016.

(ii) Bilateral ABS System under CBD Regime

The bilateral ABS system has been evolved under CBD regime for the overall genetic resources and associated traditional knowledge supplemented by its Nagoya Protocol and Bonn Guidelines. There are certain legal principles under the CBD regime which are relevant for interpretation and implementation of the ABS process such as: “principle of state sovereignty; principle of conservation and sustainable use of biological resources; principle of access and benefit sharing; principle of cooperation; and principle of common but differential responsibilities.”⁹⁷ Its objectives are as such:

“The objectives of this convention are the conservation of biological diversity; sustainable use of its components; and the fair and equitable sharing of the benefits arising out of utilization of genetic resources, including by appropriate access to genetic resources, and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”⁹⁸

One of the objective of the CBD is “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.”⁹⁹ To achieve this objective, the states have been given “sovereign right to exploit their genetic resources pursuant to their own environmental policies” and “these rights would apply to the components of biological diversity in area within limits of its national jurisdiction and to the processes and activities within the area of its national jurisdiction or beyond the limits of national jurisdiction.”¹⁰⁰ After defining the principle of sovereign rights of state and scope of jurisdiction, “the authority to determine access to genetic resources has been provided to national government subject to the domestic legislation for environmentally sound uses.”¹⁰¹ The CBD simply obligates the parties to ‘endeavor’ to create conditions to facilitate access to genetic resources which would be provided by that parties which are countries of origin of such resources or by acquired the genetic resources in accordance with this convention.

⁹⁷ Fisher E. (2008), “Legal and Paralegal Rules for Biodiversity Conservation: A Sequence of Conceptual, Linguistic and Legal Challenge,” in Jeffery M. et. al. (ed.), *Biodiversity Conservation Law+ Livelihoods: Bridging the North- South Divide*, New York: Cambridge University Press, p. 106.

⁹⁸ See n. 2. CBD, Article 1.

⁹⁹ *Ibid.*

¹⁰⁰ *Ibid.* CBD, Article 3.

¹⁰¹ *Ibid.* CBD, Article 15 (2).

First of all, “access to genetic resources has been provided subject to prior informed consent of the providing party unless otherwise determined by that party.”¹⁰²In lieu of this, the party has “to take legislative, administrative or policy measures as appropriate to share the results of research and development as well as benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way with the party providing such resources on mutually agreed terms.”¹⁰³However, this also disclaims that these provisions of the CBD in this regard “shall not affect the rights and obligations of any party deriving from any existing international agreement except on serious damage or threat to biological diversity.”¹⁰⁴ All these obligations are to be implemented in the domestic jurisdiction of the member states through legislation or regulatory requirements. But, it remained unimplemented in most of the member states especially obligation to achieve its third objective on access and benefit sharing.

For the implementation of the third objective and Article 15 of the CBD, "the Bonn Guidelines on Access Genetic Resources and the Fair and Equitable Sharing of Benefits arising out of the Utilization (2002)" was adopted under the CBD regime.¹⁰⁵ It was specially designed “to assist states and other stakeholders while establishing legislative, administrative or policy measure on access and benefit sharing and while negotiating ABS contractual agreements.”¹⁰⁶ For this purpose, it provides the general provisions, role and responsibilities of institutions and stakeholders, necessary steps and strategy for ABS process and other implementation measures required for ABS system.¹⁰⁷Though, it has been non-binding and voluntary in nature, but served important role in the implementation of the ABS obligations of the convention.

In between, there are certain regional ABS legal regimes regulating access to and benefit sharing over genetic resources and traditional knowledge.¹⁰⁸ These regional

¹⁰²*Ibid.* CBD, Article 15 (5).

¹⁰³*Ibid.* CBD, Article 15 (7).

¹⁰⁴*Ibid.* CBD, Article 22.

¹⁰⁵*See n.3* Bonn Guidelines, 2002.

¹⁰⁶Tully S. (2003), “The Bonn Guidelines on Access to Genetic Resources and Benefit Sharing from their Utilisation”, *Review of European Community and International Environment Law*, 12(1), 84-98, p.84.

¹⁰⁷*Ibid.* at p.85.

¹⁰⁸Medaglia J.C., et al. (2012), "Overview of National and Regional Measure on Access to Genetic Resources and Benefit Sharing: Challenges and Opportunities in Implementing the Nagoya Protocol" Montreal: CISDL, p.74; available at: <http://www.cisd.org/biodiversity-biosafety1-overviewofABS-measure.pdf> Assessed on 18 July 2016.

measures are very useful in the sense that they allow neighboring provider countries with similar types of genetic resources to set the same ABS conditions and standards to user countries in trans-boundary existence of the same genetic resources and traditional knowledge.¹⁰⁹ Apart from this, several states have passed the national legislation on ABS process for the genetic resources or some are in the process of doing so due to its importance and effectiveness.¹¹⁰ Still, this has been remained unimplemented in many states due to different contentions and complications among the states and stakeholders. This has led to the international community to look for an effective and binding legal instrument to implement ABS principles on utilization of genetic resources with more legal clarity, certainty and transparency.

Consequently, the Conference of Parties (COP) of the CBD 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 on 29 October 2010 at Nagoya, Japan.”¹¹¹ The objective of this protocol is “the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.”¹¹² To achieve this objective, the protocol consists of thirty six articles along with non-exhaustive list of monetary and non-momentary benefits given in its annexure. It applies to genetic resources and associated traditional knowledge as well as the utilization of such resources and knowledge.¹¹³ It is internationally binding instrument which facilitates and regulates the ABS system through principles, procedures and institutions to achieve the objectives of the CBD and the protocol itself.¹¹⁴ It insists on appropriate domestic legislative, administrative or policy measures for access and benefit sharing for genetic resources and associated traditional knowledge. However, it must be

¹⁰⁹ *Ibid.* at p.75.

¹¹⁰ *Ibid.* at p.76.

¹¹¹ *See n.5*, Nagoya Protocol, 2010.

¹¹² *Ibid.* Nagoya Protocol, Article 1.

¹¹³ *Ibid.* Nagoya Protocol, Article 3.

¹¹⁴ Greiber T., et.al. (2012), “An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing”, Environmental Policy and Law Paper No. 83, Gland: IUCN Publication, p. 13; available at: <https://portals.iucn.org/library/efiles/documents/eplp-083.pdf>. Accessed on 04 July, 2016.

relevant to the utilization of genetic resources and associated traditional knowledge as per the objective and scope of the protocol and convention.

For access to genetic resources, it provides that “access to genetic resources for their utilization shall be subject to the prior informed consent of the party that has acquired the genetic resources in accordance with the CBD or to the country of origin of such resources and based on MATs.”¹¹⁵ In addition to this, prior informed consent or approval and involvement of the indigenous and local communities is required where the established rights of such ILCs exist to grant access to genetic resources in accordance with the domestic access and benefit sharing legislation or regulatory requirements.¹¹⁶ Similarly, it obligates the party to take national measures ensuring that “traditional knowledge associated with genetic resources held by indigenous and local communities is accessed with their PIC or approval and involvement of these ILCs and on the establishment of mutually agreed terms.”¹¹⁷ In other words, the ILCs have the right to grant access not only to genetic resources held by them but also traditional knowledge associated with genetic resources as well.¹¹⁸

To share the benefits on utilization of genetic resources, the protocol purposes that “the benefit sharing arising from the utilization of genetic resources as well as subsequent application and commercialization shall be shared in a fair and equitable manner with the party providing such resources that is the country of origin of such resources or the party has acquired in accordance with CBD.”¹¹⁹ Further, same obligations for benefit sharing has been provided for “the utilization of genetic resources that are held by indigenous and local communities in accordance with domestic legislation on their established rights over those genetic resources.”¹²⁰ In addition, “the benefits arising from the utilization of traditional knowledge associated with genetic resources are also to be shared in a fair and equitable way with concerned ILCs holding such knowledge.”¹²¹ Benefit sharing in these three instances

¹¹⁵ See n. 5. Nagoya Protocol, Article 6.

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.* Nagoya Protocol, Article 7.

¹¹⁸ Buck M. and Hamilton C. (2011), “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” *Review of European Community & International Environmental Law*, 20(1): 47-61, p.51.

¹¹⁹ See n. 5. Nagoya Protocol, Article 5 (1).

¹²⁰ *Ibid.* Nagoya Protocol, Article 5 (2).

¹²¹ *Ibid.* Nagoya Protocol, Article 5 (5).

mentioned shall be based on the mutually agreed terms. The benefits in this regard have been prescribed as monetary or non-monetary in the annexure of the protocol. For all these instances, “the parties are under obligation to take legislative, administrative or policy measures ‘as appropriate’.”¹²² There would be required well defined minimum standard of benefit sharing obligations for the countries, communities and corporations in the domestic jurisdiction.¹²³

In compliance with domestic ABS measures, the protocol requires all the parties “to establish ‘appropriate, effective and proportionate’ legislative, administrative or policy measures to provide that genetic resources utilized in their jurisdiction have been accessed in accordance with PIC and MAT, as required by the domestic ABS legislation of the other party.”¹²⁴ Similar requirement is needed for the “traditional knowledge associated with genetic resources which has been accessed with PIC or approval and involvement of the ILCs along with MAT, as required by the domestic ABS legislation of the other party where such ILCs are located.”¹²⁵ The protocol requires appropriate, effective and proportionate measures above prescribed for the cases of non-compliance as well. However, the parties are required to cooperate ‘as far as possible’ and ‘as appropriate’ in the cases of alleged violation of domestic access and benefit sharing legislation made in this regard. Further, there is also required to issue an international recognized certificate of compliance fulfilling the criteria of PIC and MAT under domestic ABS legislation.¹²⁶ Along with this, parties have been encouraged to make the compliance with mutually agreed terms including the provisions of dispute resolution, opportunity to seek legal recourse, access to justice and mutual recognition of foreign judgments and arbitral awards.¹²⁷

To support the compliance and implementation of the ABS regime, the CBD and its Protocol call upon to establish administrative and facilitative institutions at international and national level. The CBD establishes the Conference of Parties (COP), subsidiaries bodies, and secretariat to steer, supervise and review the entire

¹²²*Ibid.* Nagoya Protocol, Article 5 (3).

¹²³Jonge B.D. (2013), “Towards a Fair and Equitable ABS Regime: Is Nagoya leading us in the Right Direction?” *Law, Environment and Development Journal*, 9/2: 241-155, p.243; available at: <http://www.lead-journal.org/content/1324.pdf>. Accessed on 15 July, 2016.

¹²⁴ *See n. 5.* Nagoya Protocol, Article 15.

¹²⁵*Ibid.* Nagoya Protocol, Article 16.

¹²⁶*Ibid.* Nagoya Protocol, Article 17.

¹²⁷*Ibid.* Nagoya Protocol, Article 18.

process of implementation and development.¹²⁸ The COP is governing body which take initiatives in decision making, law making, programme of works, budget allocation, review and reporting for the overall realization of the objectives of the convention. Being separate legal instruments, Nagoya Protocol also establishes the Meeting of Parties (MOP), subsidiary bodies and secretariat, but designates its power and functions to convention related institutions.¹²⁹ Besides, it separately creates “‘Access and Benefit Sharing Clearing House (ABS CH)’ to serve as means for sharing information related to ABS and to make available to parties for implementation of this protocol.”¹³⁰ It also calls upon to establish “‘Global Multilateral Benefits Sharing Mechanism’ to address the fair and equitable sharing of benefits derived from the utilization of genetic resources that occur in trans-boundary situation or where the PIC is not possible to be obtained.”¹³¹ The protocol also outlines the necessary institutional arrangements to be made out at the domestic level to implement the ABS regime. It asks member states to designate competent national authorities, national focal points and checkpoints to monitor facilitate and implement the ABS process at domestic level.¹³² The overall institutional structure intended to make the backbone of the CBD regime to implement the ABS principles at national, regional and international level.

To implement the ABS procedure and principle, the state parties are required to take necessary measures at domestic jurisdiction to make it operative at national and local level. In this regard, “they have to take appropriate, effective and proportionate legislation, administrative or policy measures complying with the norms of legal certainty, clarity and transparency, fair and non-arbitrary access procedure, and clear rules and procedure for prior informed consent and mutually agreed terms.”¹³³ Additionally, the protocol provides for compliance mechanism, enforcement

¹²⁸Moregra E. and Tsioumani E. (2010), “Yesterday, Today, and Tomorrow: Looking Afresh at the Convention on Biological Diversity,” *Yearbook of International Environmental Law*, Vol.21 (1): 3-40, p.6.

¹²⁹Moregra E. et al. (2014), *Unravelling The Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing To the Convention on Biological Diversity*, London: Brill Publishers, p. 335.

¹³⁰ See n.5. Nagoya Protocol, Article 10.

¹³¹*Ibid.* Nagoya Protocol, Article 14.

¹³²Young T. R. (2013), “An International Cooperation Perspective on the Implementation of Nagoya Protocol,” in Moregera et.al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenge*, Leiden: Martinus Nijhoff, p. 469.

¹³³ See n. 5. Nagoya Protocol, Article 6(3).

mechanisms and other tools and techniques for implementation of the ABS regime.¹³⁴ The capacity building and awareness raising have been also considered important to support the implementation and development of the ABS regime.¹³⁵ In view of the detail provisions of the Nagoya Protocol, there has been provided detail multilateral compliance and enforcement mechanism to achieve the objective of the convention and protocol itself.

Legal Issues under Bilateral ABS Regime

There are certain legal issues derived from the CBD and its legal instruments which have remained unresolved or unaddressed and even some are answered but in only in part for the implementation and development of ABS regime. Consequently, the operation and implementation of ABS regime at the domestic level has been doubted by several states, stakeholders and scholars in recent times. Hence, it is pertinent to make inquiry on some of the core legal issues on ABS regime under the preview of CBD and its Nagoya Protocol as below:

Firstly, the basic objectives of the CBD and Nagoya Protocol for fair and equitable benefit sharing is based on the utilization of genetic resources. But, the debate is going on the legal definitions of 'genetic resources', 'derivatives' and 'utilization of genetic resources', 'subsequent application and commercialization' in this regard. The protocol does not however include the term 'utilization of traditional knowledge' in its objective nor define it under the 'use of terms'. It is matter of inquiry to address the legal definition and clarification for certainty and clarity in purview of different activities undertaken in jurisdiction of the party providing genetic resources.

Secondly, the term 'access to genetic resources' is not defined in the CBD or the Nagoya protocol. There is also no clarity on the mandatory requirement of PIC because of the reference of the term 'unless otherwise determined by the party'. In result, if country has no specific ABS rules and regulations in place by the time, the access would be provided legitimately without prior informed consent. Even no guidance has been provided on the specific procedural and substantive requirements

¹³⁴Glowka L. and Normand V. (2013), "The Nagoya Protocol on Access and Benefit Sharing: Innovations in International Environmental Law," in Moregera et.al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenge*, Leiden: Martinus Nijhoff, p. 37.

¹³⁵*Ibid.*

for community PIC over traditional knowledge associated with genetic resources. There has been also use of the term 'prior and informed consent' for traditional knowledge instead of 'prior informed consent' used for the genetic resources. It is also matter of examination that how these obligation for access to genetic resources and associated traditional knowledge would be implemented when it is qualified with 'in accordance with domestic law' and 'as appropriate'.

Thirdly, there are also legal issues under consideration on the status of the indigenous and local communities, holders of the genetic resources and associated traditional knowledge among ILCs, their customary and collective rights to be included in the domestic ABS legislation. These questions are relevant particularly for those parties who have such ILCs in their territories. The issue of compliance regarding access and use of traditional knowledge held by the ILCs is also critical in the implementation of the ABS regime.

Fourthly, the legal issues arise on the relationship of the protocol with other international instruments dealing with the genetic resources and traditional knowledge. Though, it did not intend to create hierarchy between them but did not provide the guidance as to how to resolve any conflict that may arise between them. It mandates parties to implement the protocol in 'mutually supportive manner' with other relevant international instrument, but it remains to be examined situations on conflict of competing interests on regulation of the use of genetic resources.

Fifthly, the CBD and Nagoya Protocol also provide for specific measures that must be taken by parties to ensure with domestic requirements and contractual clauses on access and benefit sharing. It is matter of inquiry that how the user side measures would contribute the compliance obligations with view to fair and equitable benefits sharing. The fairness and equity are also critical aspect for benefit sharing in the ABS transactions domestically entered between the parties. There are provisions for monitoring in utilization of genetic resources, but no such reference to the utilization of traditional knowledge has been made. The internationally recognized certificate of compliance has not been required for traditional knowledge associated with genetic resources. These are major concerns for effective compliance and implementation of the ABS regime for genetic resources and associated traditional knowledge.

Sixthly, there is also need to consider how an ABS institutional framework would ensure establishment and implementation of process and procedure at national and international levels. The competency and capabilities of the institutions prescribed under CBD and the Nagoya Protocol are also under debate to ensure cross sectoral ABS process and implications such IPRs, trade and human rights. The jurisdiction and function of specific authorities and institutions to be established under domestic jurisdiction are also vital for the implementation of the ABS regime which need to be examined in this study.

Objective and Scope of the Study

Access and Benefit Sharing over genetic resources and traditional knowledge has been mostly a *niche* of legal scholarship and practice in recent years. Hence, this study aims to pursue detailed examination of the framework convention CBD, Bonn Guidelines and newly adopted Nagoya Protocol for better understanding of the bilateral ABS system. It makes an examination and explanation of ABS obligations on the utilisation of genetic resources and associated traditional knowledge under the CBD regime. It also places under scanner the implementation measures adopted by some of the states in their domestic jurisdiction and regional cooperation evolved for the trans-boundary existence of the genetic resources on ABS. It traces the role of CBD regime specific institutions and protocol related institutions in the regulation, implementation and enforcement at domestic level. However, the study has been limited to bilateral ABS system within the scope of utilisation of the genetic resources only and not used for the general purposes as 'commodity'. During elaboration and explanation, there would be critical analysis on these issues within the limitation of international ABS regime.

Research Questions

The study intended to address certain questions in the preceding chapters as such:

1. Does the international legal regime ensures proper access to genetic resources and traditional knowledge associated with genetic resources between member states?
2. Does the international legal regime facilitates the fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge?
3. Does the international legal regime promotes equal protection to the traditional knowledge associated with genetic resources?

4. How the institutions provided under international legal regime would support and execute the principles and procedure of ABS in user as well as provider countries?
5. How the principles and procedures established by the international legal regime on access and benefit sharing for genetic resources are implemented in the states?

Hypotheses

For the purpose of this study, some assumptions have been placed for inquiry in the preceding chapters as such:

1. Access and Benefit Sharing system envisaged by the CBD and its legal instruments provides weak obligations on sharing of the benefits arising from the utilization of genetic resources and associated traditional knowledge.
2. Institutional arrangements provided in the CBD and its instruments are insufficient and ineffective for ABS process for the genetic resources and associated traditional knowledge.
3. Access and Benefit Sharing system enshrined in the CBD and its legal instruments provides wide flexibility to member states for its implementation and enforcement in domestic jurisdiction.

Research Methodology

The study would essentially be doctrinal and use analytical method based on primary and secondary sources. The primary sources include relevant international legal instruments, declarations, decisions and resolutions. However, the study has mainly analysed the international legal regime on the ABS on the basis of documents and decisions of the CBD COP. The secondary sources include available books, research articles and papers, briefs and opinions published in various journals and magazines. Although, researcher has made certain informal meeting with some experts of this field, they are not cited in the work as they were based on the published material. The reports, technical studies and research papers of research institutes, industries and other entities have also been referred in this study. Besides, this study has also used online authentic material and updated information from websites of governmental and non-governmental organizations. However, special attention has been made to rely on recent materials as far as possible. All the major points have been substantiated in the footnotes by authoritative sources.

Structure of the Study

First chapter introduces the concept of Access and Benefit Sharing (ABS) under international law. It discusses legal definition, status and control of genetic resources under international law. It makes an overview on the biodiversity conservation law and discusses the Access and Benefit Sharing (ABS) concept provided under Convention on Biological Diversity and the Nagoya Protocol. It places the legal issues for discussion addressing the access and benefit sharing of genetic resources and associated traditional knowledge. Over all, it sets the background, aims and objectives, discipline required for the present study.

The second chapter provides the basic explanation of the genetic resources and their utilisation for the access and benefit sharing regime. It analyses the definition of the genetic resource, its kinds and value for the humankind. The role and responsibilities of the host and recipient parties are also outlined in this chapter. There is also discussion on the biotechnological utilisation and the legal requirements for the utilisation under international law. The critical analysis has been also made at the end of the chapter evaluating the actual status of the ABS regime for the genetic resources.

The third chapter analyses principles and obligations provided under international legal instruments such as Convention on Biological Diversity, Bonn Guidelines and Nagoya Protocol regarding access and benefit sharing for genetic resources and associated traditional knowledge. It also makes discussion on the relationships of the CBD regime with other international instruments dealing with genetic resources and associated traditional knowledge. There has been made critical analysis on the terms, nature and scope of the provisions essential for the formulation of the domestic legislation and regulation of the ABS system.

The fourth chapter outlines the importance of institutions for any MEAs and institutional arrangements made for the ABS regime under CBD specific institutions and Protocol related institutions. The affiliation of such institutions with other international instruments and institutions are also highlighted in the context of utilisation of genetic resources. The power and functions of the governing bodies, administrative bodies, competent authorities and designated checkpoints have highlighted in this chapter. The role of these institutions in law making, decision making, capacity building, monitoring

and reporting for the proper implementation and enforcement of the ABS system has been critically analysed at end.

The chapter five elaborates the implementation measures which must be applied by the parties as 'legislative, administrative and policy measures' provided under the convention and the protocol. It also explains other relevant measures such as modal contractual clauses, codes of conducts, customary protocols to be included in the implementation measures. It discusses the enforcement measures and analysis different tools and technique for the enforcement of the ABS system. This chapter at the end makes critical review on the progress and achievements in the implementation and enforcement of the ABS regime.

The concluding chapter makes an overview of the discussion of the present study within the preview of the access and benefit sharing provided under CBD regime. It summarizes the major findings highlighting the variable consequences and difficulties on implementation of the ABS regime and make suggestions to be taken account for further deliberations on the ABS regime.

CHAPTER II

UTILISATION OF GENETIC RESOURCES

Introduction

From millions of year, all living creatures including human interact with each other and their surrounding ecosystem for survival and support of their life. The diversity in environment creates the favorable conditions to sustain the life on the Earth. Under such environment, “biodiversity not only contributes to the life and livelihood of mankind, but also supports to security, resilience, health and freedom of choice and action.”¹ Biodiversity under the ecosystem includes the variety of species found in deserts, lakes, rivers, fields, forests, wetlands, seas and other landscape. These variety of species are found in the different habitats under terrestrial, marine and aquatic ecosystems. Accordingly, it has been defined as “biological diversity means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complex of which they are part; and includes diversity within species, between species and of ecosystems.”² In other words, it includes all the species under the kingdom of plant and animal living in their profound ecosystems.

The biological diversity found in the ecosystem may be divided into three levels: “the variety of living organisms, the genetic differences among those organisms and the communities and ecosystems in which they belong from.”³ *First*, “ecosystem diversity includes the variety of habitats that occur within a region.”⁴ The biological community together with the physical environment associated with it is called an ecosystem. The ecosystem diversity includes the diversity of the habitat and the diversity of the community that inhabits it along with biotic components as well as abiotic components. In simple term, ecosystem diversity may be attributed to diversity in ecosystems that include arctic, forest, grassland, wetland, freshwater and marine. *Second*, “species

¹ Ramakrishna P.S. (2010) *Premier on Characterizing Biodiversity: Trans-disciplinary Dimensions*, Delhi: National Book Trust, p. 12. See, also; Sahai S. (2014), *Biodiversity Matters*, Delhi: Gene Campaign, p. 103; available at: <http://genecampaign.org/pub/doc/eng.pdf>. Accessed on 12 Aug., 2016.

² Bharucha E. (2013), *Textbook of Environmental Studies for Undergraduate Courses*, Delhi: UGC Publications, p. 85.

³ *Ibid.* at p.86.

⁴ *Ibid.* at p.87.

diversity refers to the variety of species within a region.”⁵ A group of organisms that are able to interbreed freely under natural conditions to produce viable offspring is called a species. Species are distinct unit of diversity and each plays specific role in ecosystem. Hence, species diversity is sometimes considered important to biological diversity for the identification and utilization of individual species for biodiversity conservation and management. *Third*, “genetic diversity refers to 'the variation of genes within a species.’”⁶ It is a kind of diversity that refers to the total number of genetic characteristics in the genetic make-up of a species. Such genetic characteristic depends on the gene which is building block of life.

It has also been outlined that “gene denotes a group of organism sharing number of heritable characteristics which are reproductively isolated from another parts or forms.”⁷ Above all, genes serve as a link between generations of plants, animals and living organisms making them cumulatively part of genetic resource on earth. The genetic resources have countless values for all the living creatures for the survival and services. The human being have used these resources for the food, medicines and recreations from time immemorial. The biotechnological utilization and commercial development of the genetic resources has further influenced the international community to regulate through legal regime at national and international level.

Kinds of Genetic Resources

As we know that extensive genetic resources exist in vast diversity within and between species of plants, animals and micro-organisms. Its importance has been outlined as such that “Genetic resources are significant at each of the level of diversity and include population, gene pool or races of a species which possess unique traits and characteristic.”⁸ It has been also stated that:

“When a living organism or living material taken from an organisms is used to breed improved varieties, or for further research and development, or is maintained so as to conserve that particular species, it is called as 'genetic resources’.”⁹

⁵*Ibid.* at p.88.

⁶*Ibid.* at p.89.

⁷Sachi, P. and Tvedt. M.N. (2010), “Genetic Resources' in the CBD: The Working in the Past, The Present and the Future”, FNI Report: 4/2010, Bonn: FNI; available at: <https://www.fni.no/getfile.php/131744/Filer/Pub/FNI-R0410.pdf>. Accessed on 20 July, 2016.

⁸*See n.2* at p.90.

⁹*See n.1* at p. 35.

In simple words, genetic resources are genetic material generally found in animal, human, plant and marine substance in the form of genes, resins, chemicals, enzymes and proteins etc. It has been defined in legal term as such:

“*Genetic resource* means genetic material of actual or potential value; *Genetic material* any material of animal, plant and microbial or other organisms containing functional units of heredity.”¹⁰

In other words, the any such materials found in the animal, human, plant and marine substance with actual and potential value are genetic resources. It is ‘actual and potential value’ which differentiate these genetic resources from simple genetic material. There has been further added that “genetic resources are sources of inherited biological information that can be used to develop new plants or products or change existing plants or products, either through traditional breeding methods or through biotechnology.”¹¹ For the purpose of breeding and research, genetic resources from plants, animals and microorganisms are conserved *ex-situ* as cloned genes, seeds, embryos, tissues or organisms in a descent state; or *in-situ* in confined or controlled environments such as botanical gardens, zoological parks, seed banks, gene reserves.¹² In this context, such genetic resources could be explained in four parts:

(i) Human Genetic Resources

The human organisms are used as genetic resources which are isolated or extracted from body as DNA, fluids, cells and tissues for collection of genetic samples and database benefiting for the human health and nutrition.¹³ It has been considered important for medical research and drug development along with the process of gene transition, gene therapy and protein synthesis. Such material, sample and database of the human organisms have been recently collected through getting access to the

¹⁰See, Article 2: Use of Terms, Convention on Biological Diversity, 1992. It was adopted on 5 June, 1992 at UN Conference on Environment and Development at Rio de Janeiro, Brazil. It came into force on 29 December, 1993 after adequate number of ratifications and signatures. Convention on Biological Diversity, 1992; *ILM*, Vol.31, 1992, p.822; See, Full Text, available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

¹¹Laird S. and Wynberg R. (2008), “Access and Benefits Sharing in Practice: Trends in Partnership across Sectors” CBT Technical Series No 38: Montreal: Secretariat of CBD; p.12, available at: <http://www.cbd.int/doc/publications/cbd-to-38-en.pdf>. Accessed on 15 July, 2016.

¹²*Ibid.* at p.14.

¹³Kate ten K. and Laird S. (1999), *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefits Sharing*, London: Earth Scan, p. 45.

human genetic resources for the biomedical research and drug development.¹⁴ In this regard, the human genome project was major milestone to unravel the human 'genome' for research and development.¹⁵ However, its access and use for academic research as well as commercial research are largely unregulated area. The second meeting of the Conference of the Parties of the CBD interpreted the convention in such a way as to exclude human genetic resources from its provisions on access and benefit sharing.¹⁶ However, these issues are also under review in WHO and UNESCO on scientific, social and ethical aspects in recent times. The important instruments dealing with it are: Universal Declaration on the Human Genome and Human Rights (1997);¹⁷ International Declaration on Human Genetic Data (2003)¹⁸; Universal Declaration on Bio-ethics and Human Rights (2005);¹⁹ and UN Declaration on Human Cloning (2005).²⁰

(ii) Animal Genetic Resources

The genetic material from the body of the animals and birds such as gene, tissue, protein, venom, urine etc. are used for developing the drugs, vaccines and hybrid specimen.²¹ It is basically collected from wild as well as domesticated animals which have economic, scientific and cultural importance to human for the present or future.

¹⁴*Ibid.* at p.46.

¹⁵ Human Genome Project (1990) where the initial research on human was set up for first five-year plan and report was published as "Understanding Our Genetic Inheritance: The Human Genome Project, 1991-1995," available at: <http://www.genome.gov/12011239.html>. Accessed on 20 July, 2016.

¹⁶Second Meeting of the Conference of the Parties to the Convention on Biological Diversity, Jakarta, Indonesia, 6 – 17 November 1995; *See*, CBD, COP Decision II/11: Access to Genetic Resources; available at: <http://www.cbd.int/decision/cop2/detils.html>. Accessed on 2 Aug, 2016.

¹⁷ It was adopted unanimously by UNESCO on 11 November 1997 and then by UN General Assembly by Resolution RES/53/152 on 9 December, 1998. Universal Declaration on Human Genome and Human Rights, 1997. *See*, Full Text, available at: <http://www.unesco.org/new/en/social-and-human-sciences/theme/bioethics/humane-genome-and-human-rights.html>. Accessed on 5 Aug, 2016.

¹⁸It was adopted unanimously on 16 October 2003 at UNESCO's 32nd General Conference in the field of bioethics and human research. Universal Declaration on Human Genetic Data, 2003. *See*, Full Text, available at: <http://www.unesco.org/en/social-and-human-science/theme/human-genome-data.html>. Accessed on 5 Aug, 2016.

¹⁹It was adopted by UNESCO's General Conference on 19 October 2005 to set universal standards in the field of bioethics with due regard for human dignity and human rights. Universal Declaration on Bioethics and Human Rights, 2005. *See*, Full Text, available at: <http://www.unesco.org/new/en/social-and-human-sciences/theme/bioethics/bioethics-and-human-rights.html>. Accessed on 5 Aug, 2016.

²⁰The General Assembly adopted this declaration in 82nd Plenary Meeting on 8 March, 2005 to take all measures necessary to prohibit all forms of human cloning in as much as they are incompatible with human dignity and the protection of human life. UN Declaration on Human Cloning, 2005. *See*, Full Text, available at: <http://www.un.org/press/en/2005/ga10333.doc.html>. Accessed on 5 Aug, 2016.

²¹*See n. 15* at p. 47.

With the help of biotechnology, the animal genetic resources are used for breeding and making hybrid of the animals for the commercialization.²² For the first time, FAO adopted the “State of the World's Animal Genetic Resource (2007) which provided a comprehensive global assessment of the role, value and status of the animal genetic resources.”²³ Then, “Global Plan of Action for Animal Genetic Resources (2007) was adopted with twenty three priorities areas for the sustainable use, development and conservation of animal genetic resources.”²⁴ There has been also adapted “Interlaken Declaration on Animal Genetic Resources (2007) providing the common and individual responsibilities for the conservation, sustainable use and development of animal genetic resources.”²⁵ However, there has been no legally binding instrument dealing with particularly the conservation and management of animal genetic resources till now.

(iii) Plant Genetic Resources

These are living material such as chromosomes, genes, enzymes, resins and genes traits and hereditary characteristics found in plants and trees in their parts above or below the earth.²⁶ Both farmers and professional breeders seek to access the diversified genetic material in order to develop or improve agriculture and farming varieties.²⁷ The basic purpose of such crop development and protection are pursued for increased production, pesticides resistant, better taste, color and size for food and

²²*Ibid.* at p. 48.

²³It is a FAO report prepared and published in 2007. This report presents an analysis of the state of livestock diversity, the influence of livestock-sector trends on the management of animal genetic resources, the state of capacity to manage animal genetic resources, including legal and policy frameworks, and the state of the art in tools and methods for characterization, valuation, use, development and conservation. FAO State of World's Animal Genetic Resources, 2007; available at: <http://www.fao.org/docrep/010/a1260e.html>. Accessed on 8 Aug, 2016.

²⁴It was adopted in September 2007 by the FAO which comprises twenty-three strategic priorities aimed at combating the erosion of animal genetic diversity and at using animal genetic resources sustainably. The FAO Global Plan of Action for Animal Genetic Resources, 2007, available at: <http://www.fao.org/docrep/010/a1260e.html>. Accessed on 8 Aug, 2016.

²⁵FAO International Technical Conference on Animal Genetic Resources for Food and Agriculture was held in September 2007 at Interlaken, Switzerland. The Conference adopted the Interlaken Declaration on Animal Genetic Resources, which affirms countries' commitment to the implementation of the Global Plan of Action and for ensuring that the world's livestock biodiversity is utilized to promote global food security. FAO Interlaken Declaration on Animal Genetic Resources, 2007; available at: <http://www.fao.org/docrep/010/a1404e.html>. Accessed on 8 Aug, 2016.

²⁶See n. 15 at p. 48.

²⁷Santilli J. (2012), *Agro biodiversity and The Law: Regulating Genetic Resources, Food Security and Cultural Diversity*, London: Earth Scan, p. 4.

agriculture.²⁸ Given the significance of the plant genetic resources, its importance for conservation, sustainable use and development are later realized by international community for global food security. Consequently, FAO established the “Commission on Genetic Resources for Food and Agriculture in 1983 as a forum to deal specifically with issues related to plant genetic resources.”²⁹ Further, the “Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture was adopted in 1996.”³⁰ Finally, the “International Treaty on Plant Genetic Resources for Food and Agriculture (2001) was adopted for multilateral system to facilitate access to plant genetic resources and to share the benefits in a fair and equitable ways.”³¹ The treaty provides for sharing the benefits of using plant genetic resources through information exchange, access to and the transfer of technology and capacity building. Apart from this, “Convention on Biological Diversity (1992) was also adapted for conservation and sustainable use of genetic resources along with bilateral system of access and benefit sharing system.”³² It sets forth the conditions for access and benefit sharing between countries providing and using genetic resources and associated traditional knowledge through bilateral agreement.

(iv) Marine Genetic Resources

It includes genes, organisms and materials found from different populations, species and organisms, like fish, mammals and other plants organisms found in varieties of habitats in the seas and rivers.³³ Importantly, “the marine genetic resources comprise

²⁸*Ibid.* at p.8

²⁹It was established as permanent forum for governments to discuss and negotiate matters specifically relevant to biological diversity for food and agriculture. It aims to evolve the policies for the sustainable use and conservation of genetic resources for food and agriculture and the fair and equitable sharing of benefits derived from their use. FAO Commission on Genetic Resources for food and Agriculture, 1983; available at: <http://www.fao.org/nr/cgfra-home/en.html>. Accessed on 8 Aug, 2016.

³⁰ FAO has carried out the global plan of action for the conservation and utilization of plant genetic resources across the world. FAO Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, 1996; available at: <http://www.fao.org/nr/cgfra/cgfra-globalplan/en.html> Accessed on 8 Aug, 2016.

³¹It was adopted by the Thirty-First Session of the Conference of the Food and Agriculture Organization of the United Nations on 3 November 2001. It facilitates access to the genetic materials of the 64 crops in the Multilateral System for research, breeding and training for food and agriculture. FAO International Treaty on Plant Genetic Resources for Food and Agriculture, 2001; See Full Text, available at: <http://www.fao.org/3/a-i0510e.pdf>. Accessed on 8 Aug., 2016.

³²*See n. 10.*

³³ FAO (2008), Aquaculture Development: Genetic Resource Management, Guidelines for Responsible Fisheries, No. 5, Rome; p. 12, available at: <http://www.fao.org/docrep/011/i0283e/i028300.html> Accessed on 8 Aug., 2016.

aquatic fisheries, turtles, tunas, dolphin and other marine animals.”³⁴ The distribution and regulation of such resources have been divided into areas within national jurisdiction and beyond national jurisdiction. In the areas beyond national jurisdiction, “the marine genetic resources are considered to be the 'Common Heritage of Humankind' and are subject to special rules under the United Nations Convention on the Law of the Sea (UNCLOS).”³⁵ On the other hand, “marine genetic resources found within exclusive economic zone (EEZ) are subject to national laws as provided under the provisions of CBD (1992).”³⁶ Under national jurisdiction, the coastal states have the sovereign rights to allow, prohibit and regulate marine resources on prior informed consent from national competent authorities based on mutually agreed terms.³⁷ For areas beyond national jurisdiction, specialized ABS rules for the marine genetic resources have not yet been developed and international community is presently debating the desirability of a new international instrument for the conservation and sustainable use of marine biodiversity.

Potential Value of Genetic Resources

The genetic resources including species, populations, communities and ecosystems, landscapes and regions, have countless values and benefits to human at all these levels.³⁸ However, there are two viewpoints exist on its value for the protection and management as: *Firstly*, the intrinsic value focuses on conserving all species for the evolution of nature.³⁹*Secondly*, the anthropocentric value refers for the conservation of biodiversity for economic, social, cultural, aesthetic or recreational value.⁴⁰In broader sense, the genetic resource and its utilization has increased the value manifold especially to anthropocentric value with ecological, economic, social and cultural

³⁴*Ibid.* at p.13.

³⁵The Convention was opened for signature on 10 December 1982, but came into force in 1994. It comprises 320 articles and nine annexes, governing all aspects of sea, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters. United Nations Convention on Law of the Sea, 1982; Chapter XII. See, Full Text, available at: http://www.un.org/dets/los/convention_agreement/text/unclose_e.pdf. Accessed on 10 Aug., 2016.

³⁶*See n.*10. CBD, Article 3.

³⁷*Ibid.* CBD, Article 15.

³⁸ Posey D.A. (1999), “Culture and Nature: The Inextricable Link,” in Posey et. al. (ed.) *Cultural and Spiritual Value of Biodiversity*, Nairobi: UNEP Publication; p.3; available at: http://www.unep.org/publication/Search201=3211/cultural-spiritual_value.pdf. Accessed on 10 Aug., 2016.

³⁹*Ibid.* at p.5.

⁴⁰*Ibid.* at p.6.

implications. The potential value is recognized on these terms when its utility becomes evident to the person and institutions for commercial and industrial application. It has been observed in this sense that:

“The actual value of the genetic material becomes evident in its current and evolving situations. Such value is estimated either during access when the value is evaluated or during utilization when the value of genetic material is captured. The value of genetic material is found mostly potential at the time of access to genetic resources. But at the time of utilization of genetic resources evident and also easily realized in terms of pecuniary and commercial benefits.”⁴¹

Much of the value of any given genetic resources rests in its unique qualities rather than the amount of genetic material accessed.⁴² Sometimes, these genetic resources associated with traditional knowledge lies in the hand of indigenous peoples who further add the intellectual, cultural and spiritual value through traditions and religions.⁴³ In this context, value of genetic resources are existent in multiple forms as:

(i) Ecological Value

In view of the ecological value, “genetic diversity is essential for preserving ecological pressures, such as fixing and recycling of nutrients, soil formation, circulation of air and water and other ecosystem services.”⁴⁴ The human, animal and plant are very much dependent on such services to complete the web of life on earth.⁴⁵ The fungi, small soil invertebrates and even microbes are essential for ecological balance on the earth. In other sense, “the living or genetic organisms become producers i.e. which manufacture food, consumer i.e. plants, animals and invertebrates that live on producers, and decomposers i.e. worms, insects, bacteria and fungi to break down the organic material.”⁴⁶ Every creatures is interlinked through food chains to form a food web living in different habitats such as forests, deserts, mountains, arid areas and seas. These genetic resources hold immense value for not only the ecology and environment but also the human survival and security.

⁴¹See n.13 at p.20.

⁴²*Ibid.* at p.21

⁴³Sahai S. (2004), *Protection of Traditional Knowledge of Biodiversity*, New Delhi: Gene Campaign publications, available at: <http://genecampaign.org/pub/TK/doc.pdf>. Accessed on 12 Aug., 2016. See also, Venkataraman K. (2009), “India's Biodiversity Act, 2002 and its Role in Conservation”, *Tropical Ecology*, 50(1): 23-30, p.23.

⁴⁴See n.2 at p. 54.

⁴⁵*Ibid* at p. 55

⁴⁶*Ibid.* at p. 57

(ii) Economic Value

The genetic resources and its varieties have been decisive in improving overall economic development of any country especially in biodiversity rich countries. Food, clothing, housing, energy and medicines are directly or indirectly linked to genetic diversity present in the biosphere. "Such genetic resources added with biotechnology have increased the productivity and quality of the products in agriculture, horticulture, pharmaceutical, natural care and cosmetics stimulating the trade and commerce."⁴⁷ The industries are dependent on identifying components of great economic value from the wide variety of genetic resources and have utilized these genetic resources and their derivatives around the world.⁴⁸ For any kind of individual products, "genetic resources and their derivatives fetch prices that range from just a few cents or millions of dollars and often command price far higher than standard indicators of value."⁴⁹

(iii) Social Value

As humans are also part of ecosystem and depend directly or indirectly on several genetic resources for the life and livelihoods. The primitive societies and modern societies both have been beneficiary of the genetic resources. The indigenous and local communities have close association with these genetic resources and associated traditional knowledge. "Many plants and animals have been domesticated for agriculture food, medicines and transport for communities and societies for long time."⁵⁰ Not only this, farmers and other forest dwellers have developed better crops by selective breeding in agriculture.⁵¹ In line with this, new species of plants and animals are being constantly discovered and domesticated by the indigenous societies and local communities around the world.⁵² Now, new crop varieties are being developed by cultivators using the genetic material through biotechnology for the

⁴⁷All these sector derived their product directly or indirectly from the genetic resources, hence extended the value and demand for the commercial purposes. See, Kate ten K. and Laird S. (2000), "Biodiversity and Business: Coming to Terms with the 'Grand Bargains'," *International Affairs*, 76(1): 241-264, p.241.

⁴⁸ See n.13 at p. 3

⁴⁹*Ibid.* at p. 2

⁵⁰Ruiz M. and Vernooy R. (2012), "The Policy and Legal Context for Access and Benefit Sharing," in Ruiz M. and Vernooy R. (ed.) *The Custodians of Biodiversity: Sharing Access to and Benefits of Genetic Resources*, New York: Earth Scan. p.13.

⁵¹Kamau E.C. (2013), "Common Pool of Traditional Knowledge and related Genetic Resources: A Case Study of San-Hoodia" in Kamau E.C. and Winter G. (ed.), *Common Pool of Genetic Resources: Equity and Innovation under International Biodiversity Law*, London: Routledge, p.54.

⁵²*Ibid.* at p.55.

fulfillment of the need of modern societies. In this way, these are adding the social value to the genetic resources across the communities and countries in the world.

(iv) Cultural Value

There has been several cultures and cultural practices which have grown from the genetic diversity and which in turn have impacted this diversity as well. There are thousands of indigenous peoples and local communities who have strong cultural and spiritual connotations with genetic resources.⁵³ Not only this, they have developed the distinct traditional knowledge and innovations associated with genetic resources in different languages, songs, stories and folklore. “Most of the persons among the community believe it as sacred by associating the plants, animals and birds with foods and goddesses and by worshipping leaf, trees, rivers, ponds, mountains and landscapes.”⁵⁴ Besides, genetic diversity endorsed with ethical, moral and aesthetic value making the interconnections between the culture and nature. In India particularly, images and symbols from wild species have been used in Hinduism and Buddhism and deities such as Lord Ganesh and Hanuman and the vehicles of several deities that are animals have been venerated for thousands of years.⁵⁵ This has been an important part of ancient philosophy of many cultures in India and abroad.

Despite these values imbibed in the genetic diversity, it is declining rapidly. Human needs have drastically escalated over the years in direct proportion to the growing population which translates into an unprecedented demand on the earth’s capacity to produce and provide for long time.⁵⁶ The appetite of beneficiaries of such value and benefits has grown far beyond the necessity of survival by wasteful consumption and uncontrolled utilization of the genetic resources.⁵⁷ Now, there has been described a number of values of the genetic diversity such as consumptive and non-consumptive value.⁵⁸ However, such valuation may provide a crude estimate of the value of genetic

⁵³See n.38 at p.7.

⁵⁴Vankataraman K. (2008), “Access and Benefit Sharing and The Biological Diversity Act of India: Progress Report” *Asian Biotechnological and Development Review*, Vol.10, No.3: 69-80, p.71.

⁵⁵*Ibid.* at p.72.

⁵⁶See n.2.p. 226.

⁵⁷*Ibid.* at p. 242.

⁵⁸CBD (2013), “Valuing the Biodiversity of Dry and Sub-humid Lands” Technical Series No.71. Montreal: Secretariat of the Convention on Biological Diversity, p.18 available at: <http://www.cbd.int/abs/doc/technical/doc/en/00071.pdf>. Accessed on 12 July, 2016.

resources, but could not adequately capture its extensive ecological, cultural and aesthetic value in current time.⁵⁹ In this regard, the countries have been made conscious of “the intrinsic value of biological diversity along with ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological resources and its components.”⁶⁰ Besides, there has been also recognized about “the public awareness of the economic value of ecosystems and biodiversity and fair and equitable sharing of this economic value with the custodians of biodiversity.”⁶¹ This has tended the international community to establish the legal status and actual ownership of genetic resources for taking the benefits most out of the value attached to it.

Ownership of the Genetic Resources

After defining genetic resources and the potential value of it, the question on ownership affects the core of the access and benefit sharing regime i.e. legal certainty to find out the true owner or authorized person. Because, it is the legal owner or heir of genetic resources who is to be recognized for the rights and duties embedded with it. Most of the countries and communities have developed certain legal system regarding the ownership and control over the property. Accordingly, the genetic resources have been divided among these categories: moveable property, intangible property, common property, sovereign property, intellectual property.⁶² Within these categories of property, there may be dozens of specialized sub-categories subjects to separate and unique rules including who owns the genetic resources, how ownership is obtained and what limits apply to such owners of genetic resources.⁶³ Each country divides this genetic resources among these categories differently and allocates right and duties to individual person accordingly.

⁵⁹Verschuuren B. (2002), “An Overview of Cultural and Spiritual Values in Ecosystem Management and Conservation Strategies” Research Paper, Netherlands: Foundation for Sustainable Development; available at: <http://www.sustainabledevelopment.org/researchpaper/eng.pdf>. Accessed on 22 Aug, 2016.

⁶⁰See n. 12, Preamble Of CBD.

⁶¹Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from Their Utilization to the Convention on Biological Diversity (2010), (UNEP/CBD/COP/DEC/X/II). It has been adopted on 29 October, 2010 and came into force on 12 October, 2014. See Preamble, available at: <http://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf>. Accessed on 12 July, 2016.

⁶² Young T.R. (2008), “The Challenge of a New Regime: The Quest for Certainty in ‘Access to Genetic Resources and Benefit Sharing’,” *Asian Biotechnology and Development Review*, Vol. 10, No. 3: 113-126, p.123

⁶³*Ibid.* at p. 124.

(i) Sovereign Ownership

Generally, the nations have sovereignty over the natural resources including genetic resources, but not complete ownership. Because, the natural resources are national property under territorial sovereignty, hence the status and ownership of such resources are subject to national policy and regulation.⁶⁴ If the national governments grant land and resources ownership to the certain provinces and indigenous communities within the national jurisdiction, it does not affect national sovereignty over genetic resources.⁶⁵ In this way, the national government can also grant administrative powers to other agencies to ensure such sovereignty over the genetic resources in some other cases wherever required. In certain condition, some states claim an overriding ownership right to the genetic resources, when they reserve their final rights to grant the access to genetic resources in certain territories. For the bioprospecting projects, the hosting country grants the consent and then it is their discretion to obtain necessary consent from the individual or communities or the approval or involvement.⁶⁶ In this way, it is under sovereign power of a country to provide the right, ownership and possession over the property through legislations, regulations and policies.

(ii) Collective Ownership

The ownership over the genetic resources is disseminated among the individual, agencies and institutions under national jurisdiction. Every country in which a genetic material is found *in-situ* has sovereign right on the genetic resources. However, there is differentiation of the ownership within the country among individual and communities who are the real custodians of the genetic materials.⁶⁷ When the natural distribution of resources extends to more than one country, the parallel ownership with same country is provided under transboundary cooperation.⁶⁸ Despite this differences of ownership, “the country or community in transboundary situations that owns the specimen of genetic resources may grant access to these genetic resources consulting with other country or

⁶⁴*Ibid.* at p. 125.

⁶⁵Oli K.P. (2009), "Access and Benefit Sharing from Biological Resources and Associated Traditional Knowledge in the HKH Region: Protecting Community Interest" *International Journal of Biodiversity and Conservation*, Vol. 1 (5): 105-118, p. 107.

⁶⁶*Ibid.* at p. 110.

⁶⁷*Ibid.* at p. 111.

⁶⁸*Ibid.* at p. 117.

country sharing with them.”⁶⁹ Where the resources and related knowledge are shared between communities, it is pertinent to reach an agreement on the collective or co-ownership between communities and other stakeholders.

(iii) Exclusive Ownership

Initially, genetic resources as part of global commons were not exclusive property of any single country or community. No one had an exclusive right to prevent the others from exploiting the genetic resources, but this traditional paradigm was eroded by the extension of patent system to living organisms and genetic materials. Now, “patent system or exclusive right under intellectual property rights may be obtained when the gene is isolated and a useful function for it is identified.”⁷⁰“Such intellectual property rights over genetic resources has provided exclusive rights and ownership to individual and community creating a kind of 'hyper ownership'.”⁷¹ Under these circumstances, the potential of the genetic resources may not be fully realized which could further diminish the opportunities to conserve the global genetic resources.⁷² There has been growing assertion and expression of other forms of intellectual property rights over plants and seeds over the years.

In sum, all such categories of the ownership and control exist in the domestic jurisdiction of the country where the genetic resources are proposed to be accessed. However, one has to consider ownership issues in the context of who within the provider country is legally entitled to provide the consent for the access to genetic resource and entitled to receive benefits arising from the use. The question of the ownership of genetic material has remained unsettled in most of the countries, however, issues relating to assessing genetic resources located in situ is determined from the ownership and physical control over the genetic resources.⁷³

⁶⁹Nijar G.S. (2010), "Incorporating Traditional Knowledge in an International Regime on Access to Genetic Resources and Benefit-Sharing: Problems and prospects" *European Journal of International Law*, Vol. 22 (2):462-480, p. 468.

⁷⁰Safrin S. (2004), "Hyper-ownership in a Time of Biotechnological Promises: The International Conflict to The Building Blocks of Life," *American Journal of International Law*, Vol. 98, No. 4: 642-695.p.644.

⁷¹*Ibid.* at p. 667.

⁷²*Ibid.* at p. 685

⁷³Nijar G.S. (2011), “The Nagoya Protocol on Access and Benefits Sharing of Genetic Resources: Analysis and Implementation of Options for Developing Countries” Research Paper 36, Malaysia: South Centre, available at: www.southcentre.org/index.php?option=com_docman&task=pdf Accessed on 15 July, 2016.

Providers of Genetic Resources

For the access to genetic resources, one is to find out the rightful owner and authorized person or institution within the provider country. There is range of stakeholders who play dominant role in providing or facilitating the access to the genetic resource within country. The relevant stakeholders for the access to genetic resources would usually comprises: nation states, research institutions, indigenous and local communities, intermediaries and individual.⁷⁴ Generally, these stakeholders held their genetic resources in the public and private land or area and become legally authorized owner to provide the access to genetic resources depending on their political, legal and social system.

(i) Nation States

The nation states play pivotal role in providing the access to genetic resources within the national jurisdiction. Because, it is the state which retains mostly the sovereign rights and responsibilities to protect and conserve the natural resources. Hence, states have the power to provide the access to the genetic resources in the public land and protected areas.⁷⁵ However, their permission is also required over the private land or other areas owned by individuals and indigenous communities. For this purpose, different state authorities or agencies are authorized to grant permission for access the genetic resources. Here, state authorities play number of roles in access, transfer, uses for research and development of genetic resource through national collection of genetic material or organism and even distribution and sale of products derived from genetic resources.⁷⁶ The government under its sovereign power play active role in the access, transfer and transportation of the genetic resources and microorganism.

(ii) Research Institutions

The academic and research institutions have made important contributions in bio-discovery and development. They become instrumental in providing the facilitated access to genetic resources for commercial development and utilization. They generally acquire the genetic resources or specimen for the academic research from

⁷⁴ See n.13at p.24.

⁷⁵ Jeffery M. (2002): "Bioprospecting: Access to Genetic Resources and Benefit Sharing under the Convention on Biodiversity and the Bonn Guidelines," *Singapore Journal of International & Comparative Law* 6:747-808.p.754.

⁷⁶ See n.13at p. 40.

different countries and coordinate with other biology related departments for innovative results.⁷⁷ However, “there are large number of biotechnological industries which enter into partnership with academic institutions to use their invention and innovation indirectly accessing their genetic resources.”⁷⁸ Sometimes, these research institutions also often form the launching pad for small startup business and industries through commercial partnership.

(iii) Indigenous and Local Communities

Indigenous and local communities have been considered the real owner and custodian of the genetic resources and associated traditional knowledge. They have owned, used and provided these resources and knowledge for centuries through their belief, practices and cultural traditions within their traditional territories.⁷⁹ Such genetic resources and associated knowledge cannot be accessed without their full participation and cooperation. The academic and commercial bio-prospectors generally seek access to genetic resources in their traditional territories in forest, mountains and islands.⁸⁰ Not only this, they have provided the lead for the discovery of certain genetic material and knowledge for the utility in the drugs development and medicines.⁸¹ Hence, their role as major stakeholders has now significant in the access of genetic resources and associated knowledge.

(iv) Individuals/Intermediaries

Certain individuals such as scientists, practitioners, collectors and harvesters may provide and help in accessing the genetic resources within the country. They have either acquired proprietary rights by keeping and developing it in their private lands, backyards and gardens, or by intellectual property rights over the genetic material and plant varieties i.e. crop plants, medicinal plants, fruits, flowers etc.⁸² Sometimes, intermediaries or brokers play key role in obtaining access to genetic resources and in determining benefit sharing relationship. These intermediaries have also built up private libraries or nurseries of genetic resources by acquiring and breeding the plants

⁷⁷*Ibid.*

⁷⁸*See n. 11 at p.14.*

⁷⁹*See n.65 at p.106.*

⁸⁰Rosendal G.K. (2006), "Balancing Access and Benefit Sharing and Legal Protection of Innovations from Bioprospecting" *The Journal of Environment and Development*, 15(4), 428-447.p.430.

⁸¹*Ibid.* at p.431.

⁸²*See n.13 at p. 44.*

and animals with huge investment and management.⁸³ Collaboration between the intermediaries and users through research alliance has become another important source of genetic resources.

However, the scope of the access to genetic resources totally depends on the legal acquisition or permission to enter the land or area and take the specimen or material from these potential providers with prior consent and conditions. The users usually choose to access the materials only from well-established and reputable hosting parties through contract to avoid the legal actions.⁸⁴ To avoid the risk of legal actions, loss of reputation and risk of losing channels for the supply of raw material in the future, they ensure that genetic material are acquired under agreements containing terms and conditions between hosting and recipient parties in the source country.⁸⁵

Users of Genetic Resources

Generally, genetic resources are used by different types of user parties such as researcher, bio-prospectors, herbalist, public and private companies for different purposes like basic research and commercial development. Each of them undertakes research and development indistinct way and uses the genetic resources differently taking the resources from different providers. However, practice and procedure are common for the different users seeking the access to genetic resources from the providers. “These diversified users continue to demand the genetic resources which are either accessed directly from nature or required indirectly through ex-situ collections i.e. gene bank, seed bank, botanical gardens and nurseries etc.”⁸⁶ Majority of the users also maintain in-house collections of genetic resources including microorganisms and derivatives i.e. enzymes, purified compounds and extracts.⁸⁷ The potential users of such genetic material may be categories as follows:

(i) Industries

The diversified industries play important role in the utilization and application of the genetic resources and associated traditional knowledge. For biotechnological

⁸³*Ibid.*

⁸⁴*See n.47. p.250.*

⁸⁵*Ibid.* at p. 251.

⁸⁶*See n.13 at p. 46.*

⁸⁷*Ibid.*

utilization and commercial development, “there is wide range of industries which try to access the genetic resources for different uses of pharmaceutical, seed, crop protection, horticulture, cosmetic and personal care, food and beverage.”⁸⁸ The pharmaceutical industries look forward for the access to genetic material for discovery and development of medicines in different stages from bioprospecting to clinical trials.⁸⁹ The seed and crop industries are heavily dependent on genetic resources for plant breeding and GM crops for the food and agriculture. It has been found that “crop protection industry with the help of biotechnology utilized the genetic material for making the herbicides, insecticides and fungicides.”⁹⁰

Thousands of species of herbs, shrubs and trees are used for horticulture, ornamental and commercial floriculture which are accessed from wild and the garden either selecting or breeding for long time.⁹¹ Further, “cosmetic and personal care industry finds their genetic material from plants, animals and marine resources for herbal and cosmetic products i.e. bath items, hair products, skin care, perfume and fragrance.”⁹² In some sector such as the seed, horticulture and the botanical industries, all products sold are derived from genetic resources and some other sector like pharmaceutical, cosmetics and crop protection industries use value added genetic resources passing through different stages i.e. discovering, screening and developing the products. It has been estimated that “the combined annual global market of products derived from genetic resources lied between US \$ 500 billion to US \$ 800 billion in year 2006.”⁹³

(ii) Universities

The universities researching in the genetic material for academic and non-commercial research often maintain libraries of genetic resources that may contain samples of seeds, samples, microbial cultures, pathogenic fungi, enzymes and extracts from plants.⁹⁴ In this way, universities and networks of research scientists and scholars are

⁸⁸Suneetha M. and Pisupati B. (2009); “Benefit Sharing in ABS: Options and Elaboration” UNU_IAS Report, Sibuya-ku (Japan): United Nations University Press p. 20; available at: http://www.cbd.int/abs/doc/unu_report_2009.en.html. Assessed on 2 Aug, 2016.

⁸⁹ See n.13 at p. 49.

⁹⁰*Ibid.* at p. 193.

⁹¹*Ibid.* at p. 164.

⁹²*Ibid.* at p. 263.

⁹³*Ibid.* at p. 9. The estimated global market value of biotechnology using the genetic resources for the production in the chemicals, pharmaceuticals, papers, food and feed industries has been found as between US\$ 56 billion and US\$ 120 billion. See n. 47 at p.247.

⁹⁴*Ibid.* at p. 210.

important users of the genetic resources and consequently getting the patents on the results of the research derived from it. Further, “the collaboration between the industries and universities through research alliance are formed to use the result as well as the libraries maintained on genetic resources.”⁹⁵ They initially collect the resources for their own academic research, subsequently allow the industries to access the specimens from their collections for commercial utilization.⁹⁶The research of the universities plays important role in collection, selection and evolution of the genetic materials for the academic purpose around the world.

(iii) Botanical Gardens

The botanic gardens collect and use genetic materials around the world either by doing expeditions in the specified area or by receiving specimens from the providers of the genetic resources. The botanic gardens have traditionally exchanged materials from their collections with each other across the countries. “Around 200 botanic gardens worldwide produce catalogues of seeds which they distribute to other botanic gardens other institutions around the world.”⁹⁷ The scope of material listed in catalogues varies enormously from garden to garden. The botanic gardens use the seeds and cuttings of the plants which is further kept in ex-situ repository for materials sourced from the wild and other sources. “The botanic gardens are among the first organizations involved in horticulture to begin to come to terms with the CBD and with legal and political implications of supplying materials to companies for commercialization.”⁹⁸ Even now, several botanic gardens are endeavoring to acquire and supply material under agreement both to satisfy legal requirements and to protect their ability to collect in the future.

(iv) Gene Banks

The genetic material or germ plasma are collected and used by the gene bank or seed bank around the world. There are different kinds of gene banks such as institutional gene bank, national gene bank, regional gene bank and international gene bank.⁹⁹“Much of the

⁹⁵*Ibid.* at p. 211.

⁹⁶ Winter G. (2013), “Knowledge Commons, Intellectual Property and the ABS Regime,” in Kamau E.C. and Winter G. (ed.) *Common Pools of Genetic Resources: Equity and Innovation in International Biodiversity Law*, London: Routledge, p.286.

⁹⁷*See n. 13* at p. 173

⁹⁸*Ibid.* at p. 175.

⁹⁹*Ibid.* at p. 136.

germplasma is collected worldwide with international collaboration and is conserved in such international gene bank.”¹⁰⁰ A national gene bank works with national institutes or under the responsibility of one institutes which collaborates with other national institutes in the same country. Similarly, seed banks also keep large *ex-situ* collections of genetic resources to be provided for development or utilization. They have different types of collection of such material or germplasma like base collection, active collection, field collection and core collection of gene pool.¹⁰¹

However, the economic value of the genetic material varies with the sectors in commercial and non-commercial research and development. The range of sectors involved in it are the diversified industries, research universities, botanical gardens, gene sources and seed banks to utilize the genetic material for above said purpose. Hence, all these potential users look on utilization of the genetic resource and associated traditional knowledge for commercial development and application. The utilization of such genetic resources could be traced under the history in the eighteenth century for the breeding the plants and animals.

Potential Utilization of Genetic Resources

For long time, human beings have been using the plants, manipulating the organism and transferring the seeds for higher yielding crops and medicines. For multiple and stronger yield, farmers chose to use and replant the seeds for desirable results and characteristics in agriculture. Selection of best variety of plant for food, medicine and other allied purposes, transportation of such variety from other countries and continued improvement in the crops remained one of the primary activities of farmers. In due course of the time, there had been great evolution in agricultural produce which had been further revolutionized by the industrial and technological development involving biodiversity.¹⁰² There have been major events which cumulatively influenced the international community for biotechnological utilization and commercial development of the genetic resources:

¹⁰⁰*Ibid.* at p. 137.

¹⁰¹Biber-Klemm S. et al. (2014), “Governance Options for *Ex-situ* Collections in Academic Research” in Oberthur S. and Rosendal K. (ed.), *Global Governance of Genetic Resources: Access and Benefit Sharing after the Nagoya Protocol*, London: Routledge, p.215.

¹⁰² Agriculture has been such an activity where people in various parts of the world are directly and indirectly dependent on each other for the genetic resources and associated traditional knowledge. See, Brush B.S. (2005), “Protecting Traditional Agricultural Knowledge”, *Journal of Law and Policy*, Vol. 17: 59-109, p. 71.

(i) Hybridization of Plants

For the first time, scientist George Mendel discovered the hidden codes of gardens peas that could be passed on the subsequent generations, which changed thinking about existing genetic evolution.¹⁰³ Subsequently, William Bateson used the Mendel's work as a basis for his own studies and popularized the codes calling 'gene', and became the 'father of the science of genetics'.¹⁰⁴ This resulted into further development of understanding about the gene function and development. It helped the breeder to reduce the amount of time and materials used in breeding experiments and developments. Because of this event, plant hybridization got popularized for high yielding varieties. The breeders kept large collections of genetic resources in their nurseries for breeding affords through pollination or cross- pollination. Consequently, hybridization influenced all sectors of agriculture and industry not only in developed countries but also developing countries. The impact of the hybridization has been witnessed in the animal and husbandrylivestockcommercial utilization and development.

(ii) Discovery of 'Centre of Origin' of Plants

A geneticist Nikolai Vavilov who theorized that there was discrete 'centers of origin' by identifying eight regions of the earth for world's food crops.¹⁰⁵To acquire the greater access to the potentially useful genetic materials, he called for a global inventory of both cultivated plants and their wild relatives. He then established a network of research and experimental stations in his country maintaining links with related centers in other parts of the world. This has been outlined that "by locating a center of genetic diversity for crop, one could pinpoint its origin which subsequently became the 'center of origin' for plants."¹⁰⁶ These centers were China, India, Central Asia, Middle East, the Mediterranean, and Abyssinia, South Mexico, Central America, Southern America. These centers were not uniformly distributed across the

¹⁰³ There has been highlighted the agricultural development and innovations held in the eighteenth century till the twenty first century around the world. *See, Bhattarai A.M. (2015), Protection of Himalayan Biodiversity: International Environmental Law and A Regional Legal Framework*, London: Rutledge, p. 81.

¹⁰⁴*Ibid.*

¹⁰⁵*Ibid.* at p. 82

¹⁰⁶*Ibid.* at p. 83.

world, but only in the tropics or subtropics.¹⁰⁷ Consequently, Vavilov's identification of these centers and his mission for the collection of genetic resources brought a kind of new surge in the collection of these resources at national and international levels.

(iii) Impact of Green/Gene Revolution

Another milestone was the rise of 'Green Revolution' in late 1960s, when a new set of high yield varieties in wheat and rice was introduced to increase the agricultural production. There were two major events took place: *firstly*, “the wheat variety was developed by inserting dwarfing genes from a Japanese variety into Mexico wheat lines which fetched unpredicted wheat yields;” and *secondly*, the “International Rice Research Institute produced a dwarf variety of rice by inserting a new gene originating from China.”¹⁰⁸ These two discoveries boosted the production of rice and wheat to cover the food requirements of an increasing human population without requiring a simultaneous expansion of the cultivation field. This positive result also encouraged other research institutions to experiment, collect and use the gene resources for better yield and healthy food around the world. The green revolution has been further succeeded by gene revolution in the agricultural development. The gene revolution refers to the use of genetically engineered, genetically modified and transgenic crops which have significant impacts on the agriculture.¹⁰⁹ The genetically modified crops varieties are now in widespread use in both developed and developing countries and its global production have increased rapidly since 1996.¹¹⁰ However, there has been political, socio and economic repercussion of this green revolution, which are still realized at the instance of economic equity, agricultural stability and environmental security even after the gene revolution.

Now, the question arises whether this gene revolution has triggered the repetition of the experiences of the green revolution in developing countries. In this regard, two past-experiences of the green revolution are quite relevant. *Firstly*, “the most enduring

¹⁰⁷*Ibid.* The center of origin is a geographical area where a group of organisms either domesticated or wild, first developed its distinctive properties. Nikolai Vavilov initially identified eight centers later subdivided them in 1935. More details available at: http://www.biodiversityinternational.org/file_admin/biodiversity/publications/version/47/ch06.html. Accessed on 20 July, 2016.

¹⁰⁸ See n. 103. at p. 84.

¹⁰⁹ Guneratne C. (2012), *Genetic Resources, Equity and International Law*, Cheltenham: Edward Elgar Publishers, at.p.35.

¹¹⁰*Ibid.* at p. 36.

consequence of green revolution was the entrenched in developing countries of the economic and technological dependence on the developed countries”¹¹¹ which exist even today. *Secondly*, “the development of green revolution crops was funded by the developed countries, now the gene revolution and its products are also largely funded and contracted by the corporate entities generally based in developed countries.”¹¹² This has further raised the legal concerns among the countries in recent times as well.

Legal Concerns on Utilization of Genetic Resources

Based on the above development, there has been several legal concerns about the wise and sound use of the genetic resources in view of the recent trends of biotechnology, bioprospecting and bio-piracy. There have been trends of unqualified use of biotechnology, unethical bioprospecting and recent cases of bio piracy which has led the international community to evolve the legal regime on the utilization of genetic resources. The recent trends could be traced as such:

(i) Use of Biotechnology

Initially, the biotechnology was used for selectively breeding the plants and animals to create new varieties with desirable characteristics such as color, size or disease resistance. The old mode of breeding has been done usually within a single species for desired traits. However, modern biotechnology distinctly from old one, allows genes to be transferred between distant relatives and unconnected organisms. Under biotechnology, “the recombinant technology has made it possible for scientists and breeders to reach out to myriads of plants, animals and micro-organisms to make 'transgenic plants'.”¹¹³ The biotechnology produces this 'transgenic plants' which possess specific qualities such as insect infestation and draught or frost resistance and to provide higher yield in production. Hence, “development of special traits and increase in yield have remained thrust area of the new biotechnology for food, fodder, fuel and medicines.”¹¹⁴ It has facilitated the pest control traits, agronomic traits, seed

¹¹¹Bosselmann K. (1999), “Plants and Politics: The International legal Regime Concerning Biotechnology and Biodiversity,”*Cornell Journal of International Environmental Law and Policy*, Vol.7: 111-120, p.113.

¹¹²*Ibid.*

¹¹³Sampath G.L. (2005), *Regulating Bio-prospecting: Institutions for Drug Research, Access and Benefit Sharing*, New York: UNU Press. p. 36.

¹¹⁴Sahaal B.A. (2007), “Biodiversity, Biotechnology and the Environment”, in McManis R. (ed.), *Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge*, London: Earth Scan, p. 137.

sterility for hybrid systems and output traits such as plant color and vitamin enrichment in agricultural production and protection.¹¹⁵ Thus, growth of biotechnology has supported the breeding and drug development after using genetic material purposes for natural, chemical and pharmaceutical products and purposes. The genetic engineering has further raised certain apprehensions and concerns for human health and environment through bio-medical research and genetically modified crops and foods in current scenario.¹¹⁶ Besides, the biotechnological use of genetic resources has been limited to specific countries having technological and financial capabilities.

(ii) Rise of Bio-prospecting

The growth of biotechnology is always dependent on bioprospecting for supply of genetic materials from the biodiversity which are analyzed and manipulated with the help of bioinformatics and genomics to achieve the desired results. “‘bioprospecting’ refers to the search for these natural resources from the wild including plant and animal species, to be screened for their potential application in manufacturing drug products.”¹¹⁷ It is not a novel phenomenon and this is being carried on by villagers, herbalists, trained botanists for long time. However, modern bioprospecting originates with western scientists who accompanied the expeditions in biodiversity rich countries to access the genetic resources and associated knowledge. There was unrestricted practice of bioprospecting by the southern countries in the north countries.¹¹⁸ This has become later on the matter of contention between the developed countries and developing countries as well.

(iii) Problem of Bio-piracy

The unauthorized search for and misappropriation of biological resources especially in developing countries have been considered as 'bio-piracy'.¹¹⁹ It has been defined as “unauthorized extraction of biological resources and/or associated traditional knowledge from developing countries, or to the patenting to spurious inventions based

¹¹⁵*Ibid* at p. 138.

¹¹⁶*Ibid.* at p. 139.

¹¹⁷Mgbeoji I. (2006), *Global Bio-piracy: Patents, Plants and Indigenous Knowledge*, New York: Carnell University Press, p.106.

¹¹⁸*Ibid.* at p.107.

¹¹⁹Lewinski S.V. (2008), *"Indigenous Heritage and Intellectual Property: Genetic Resources, Traditional Knowledge and Folklore"* New York: Walters Kluwer, p. 212.

on such knowledge or resources without compensation.”¹²⁰ In other words, “the use of intellectual property systems to legitimate the exclusive ownership and control over biological resources and biological products and processes that have been used over centuries in industrialized cultures.”¹²¹ However, it has not been legally defined in either national or international law. Nevertheless, it is being intensely debated in international fora in the context of the utilization of genetic resources due to some recent examples of the bio-piracy. The recent instances include: “Hoodia of the Kalahari Desert, Neem tree found in South and South East Asia, the Quinoa from the Andean Countries of South America, the Aylaurasca wine from the Amazon and the Euola Bean from Mexico.”¹²² Not only this, bio piracy has also taken place in relation to the traditional ecological knowledge of indigenous and local communities for the commercial purpose without enriching those communities. As traditional knowledge is freely available, “makes it susceptible to appropriation without compensating to the communities from where it originated and discriminated in public domain.”¹²³ This instances of bio piracy have been raised and resisted by countries and communities which has become the matter of debate in international law and diplomacy.

Legal Regime on Utilization of Genetic Resources

The uncontrolled appropriation of the genetic resources collected prior to or even after the colonial rule continued in 1970s and 1980s. Most of the research centers were established as indicated by Vavilov in the north, but the centers of origin of biodiversity were in south. Because of this, “the countries rich in biodiversity from south brought up the issue of use of pre-existing genetic resources of international regulations through bio-diplomacy.”¹²⁴ The basic objectives were to protect the rights over their genetic resources and traditional knowledge as well as to prevent loss and misappropriation of the biological diversity. This objective was to be implemented by means of legal mechanism or system to regulate access to genetic resources for

¹²⁰*Ibid.* at p.214.

¹²¹*Ibid.* at p.215.

¹²²Daniel R. (2015); *Biodiversity, Access and Benefit Sharing: Global Case Studies*, London: Rutledge, p. 12.

¹²³Sahai S. (2004), *Protection of Traditional Knowledge of Biodiversity*, New Delhi: Gene Campaign Publication, p.12, available at: <http://genecampaign.org/pub/TK/eng.pdf>. Accessed on 12 Aug., 2016.

¹²⁴*See n.103* at p.92.

commercial and non-commercial purposes.¹²⁵ The international community has been informed about “the access and use of genetic resources by the north from south, the inequalities of access, uncompensated use and sharing of benefits the issue of IPRs and stopping of bio-piracy.”¹²⁶ Consequently, two different legal frameworks were established by international community with two different approach in 1990s. But the common features of the two frameworks were that both rejected the doctrine of the ‘common heritage of mankind’ as applied to genetic resources and seek to establish equitable access to genetic resources and sharing of the benefits arising out of it. The first legal framework has been evolved under CBD regime which envisaged a bilateral approach to access and benefit sharing agreements where producers and users of the genetic resources have to enter into mutually agreed terms.¹²⁷ The second legal framework has been under FAO regime as multilateral system of access and benefit sharing agreement where all the parties have to enter standard material transfer agreements for specific plant genetic resources specified in it.¹²⁸

(i) Multilateral System

The international plant treaty was adopted by the nations under the FAO regime which provided “multilateral system solely for the purpose of utilization and conservation for research, breeding and need for food and agriculture and not for chemical, pharmaceutical and other non-food industrial purpose.”¹²⁹ The facilitated access is provided pursuant to material transfer agreement and the conditions of this could apply to subsequent transfer including any person or entity. The treaty covers plant genetic resources listed in Annex I and state parties are called upon to take legal or other appropriate measures to provide access to other state parties and legal persons through the multilateral system.¹³⁰ In lieu of this, “the benefit sharing under the multilateral system comes in the form of exchange of information, access to and transfer of technology, capacity building, monetary and other benefits of commercialization.”¹³¹ Above all, this treaty provides an efficient, effective and

¹²⁵See n. 109 at p 72.

¹²⁶*Ibid.* at p. 73.

¹²⁷See n. 10. CBD, Article 15.

¹²⁸See n. 31. ITPGRFA, Article 4.

¹²⁹*Ibid.* ITPGRFA, Article 12.

¹³⁰*Ibid.* ITPGRFA, Article 11.

¹³¹*Ibid.* ITPGRFA, Article 13.

transparent multilateral system to facilitate access and share benefits arising from the utilization. Here, the multilateral system was preferred in place of a bilateral system for “efficient exchange of plant genetic resources encouraging the negotiations of benefit sharing.”¹³² The preference to a multilateral system was due to its importance for global food security only. However, when such plant genetic resources are used for other profitable applications, then are required to be dealt under the bilateral system provided by the CBD.

(ii) Bilateral System

The biodiversity convention provides bilateral system for overall genetic resources through access and benefit sharing agreements between providers and users of the resources. Access to genetic resources is premised on three principles under this bilateral system; sovereignty over genetic resources, prior informed consent and a voluntary agreement on benefit sharing i.e. MATs. The access to genetic resources has been provided on prior informed consent and mutually agreed terms subject to the provisions of the CBD.¹³³ Genetic resources have covered all such genetic materials which include samples of plant, animals, microbial or other organisms containing functional units of heredity.¹³⁴ In this context, genetic resources are biological resources needed or used for their genetic material and not for their other attributes. It means biological materials which are non-genetic in nature, are not covered by provisions relating to access and benefit sharing under the bilateral system in CBD. The bilateral system for genetic resources depends upon the mutually agreed terms on access, use and sharing of benefits for more clarity and certainty, minimization of costs, delineation of obligation of the user and providers, flexibility in the conditions, and adherence to fair and equitable sharing of benefits under the agreement.¹³⁵ Apart from the CBD, the Bonn Guidelines and Nagoya Protocol also support in the attainment and implementation of the ABS regime.

¹³²Visser B. (2013), “The Moving Scope of Annex I: The List of Crops Covered under the Multilateral System,” in Halewood S. (ed.), *Crop Genetic Resources as a Global Commons: Challenges in International Law and Governance*, London: Routledge, p.265.

¹³³ See n.127.

¹³⁴ See n. 10. CBD, Article 2.

¹³⁵Buck M. and Hamilton C. (2011), “The Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits arising from their Utilization to the CBD.” *Review of European Community and International Environment Law*, 20(1), 47-61, p.48.

Thus, both the legal frameworks not only provided the basic principles and procedures for conservation of genetic resources, but also its utilization with proper access and equitable sharing of the benefits arising out of such resources. Though, there has been two different system-multilateral and bilateral-dealing with genetic resources. However, both the system rejected the notion of common heritage of mankind over genetic resources and established the national sovereignty over the genetic resources. Besides, both systems provide facilitated access to genetic resources but different mode of agreements such as multilateral treaty among the states and other one bilateral agreement between the parties dealing with genetic resources as per the domestic ABS legislations or regulatory requirements.¹³⁶The bilateral system has wider scope and applicability in access and benefit sharing system of genetic resources which makes it matter of examination in this study.

Critical Evaluation

After discussing the basic nature and kinds of genetic resources, it becomes important to critically analysis its status, scope, use and conservation in the context of ABS regime. Genetic resources are generally found the animal, plant and marine substance in their body and parts which are essential to maintain the life and sustain the livelihood. The term ‘genetic resources’ needs to be sufficiently dynamic and flexible to cope with rapid developments in the biotechnological knowledge and advancement.¹³⁷These has been used to develop new plants or products or change existing plants and products either through traditional breeding methods or through biotechnology.¹³⁸ In view of this, the protection and preservation of all kinds of genetic resources human, animal, plant and marine has become critical for human development and environment protection in current scenario.

The intrinsic and anthropocentric value of the genetic resources have been widely recognized for long time.¹³⁹ Not only this, the genetic resources and their utilization in

¹³⁶Halewood M. et. al.(2013), “Implementing ‘Mutually Supportive’ Access and Benefit Sharing Mechanisms under The Plant Treaty, Convention on Biological Diversity and Nagoya Protocol” *Law, Environment and Development Journal*, 9/2: 70-95, p.72; available at: <http://www.lead-journal.org/content/13068.pdf> Accessed on 15 July, 2016.

¹³⁷Tavdt M. and Schei P.(2014), “The term ‘Genetic Resources’: Flexible and Dynamic while Providing Legal Certainty” in Oberthur S. and Rosendal G. (ed.), *Global Governance of Genetic Resources: Access and Benefit Sharing after the Nagoya Protocol*, London: Routledge, p. 18.

¹³⁸ See n.102 at p.72.

¹³⁹See n.40, at p.20.

current time have increased the value manifold with ecological, economic, social and cultural imperatives and implications.¹⁴⁰ Due to the values attached with genetic resources, the countries and communities who are real owner and custodian of these resource have claimed the ownership and control. The question of ownership is dependent upon the legal status of the genetic resources and nature of property. The legal status and control of such resources are assigned through different kinds of legal and political system of the countries and communities.¹⁴¹ Certain genetic resources and associated traditional knowledge may be shared by different adjoining countries and communities, where legislative and traditional legal system may also be different. Hence, question of ownership of genetic material has remained unsettled in most of the countries.¹⁴²

However, the issue relating to assessing genetic resources located in a country largely determined by the physical phenomenon and control over the resources and knowledge. To get the access to genetic resources, there is need to find out the rightful owner and authorized persons and institutions within the providing country. Such persons or institutions are major stakeholder which play dominant role in providing or facilitating the access to genetic resource within a country. But, “their legal and social status or capacity varies country to country as per their political legal and social system, which further creates problems to identify the rightful owner and to get the consent the appropriate authorities for facilitating the access to genetic resources and sharing the benefits derived from it.”¹⁴³ Basically, there are two barriers in obtaining the access in this regard: “in identifying the competent authorities and identifying the rightful holder among local communities in the provider country.”¹⁴⁴

Due to potentialeconomic value of the genetic resources, there are range of diversified users aspiring for the access to genetic resources from providers in the source country. These are biotechnological industries, universities, botanical and zoological gardens, gene and seed banks which utilizes the genetic materials for commercial and non-

¹⁴⁰*Ibid.* at p.21.

¹⁴¹Joseph R. (2010), “International Regime on Access and Benefit Sharing: Where are We Now?” *Asian Biotechnology and Development Review* 12(8): 77-94, p.78.

¹⁴² *See n.73.*

¹⁴³Kontonki, K. (2011), "The Nagoya Protocol: Statutes of Indigenous and Local Communities" Legal Aspects of Sustainable Development: Legal Working Paper, Montreal: CISDL, available at: http://www.cisd.org/tnagoya20%_stalus20%_local20%_communities.pdf Accessed on 12 Aug, 2016.

¹⁴⁴*Ibid.*

commercial purposes.¹⁴⁵ Each of them undertakes research and development indistinct way and uses the genetic resources differently by way of discovery, screening and experimenting them.¹⁴⁶ However, the practice and procedure are sometimes not followed as per the legal requirements and traditional customs to avoid the benefit of such resources and knowledge.¹⁴⁷

There has been also the cases of bio-piracy or case of misappropriation through uncompensated use and application of the genetic resources in drug discovery and development.¹⁴⁸ The potential use of the genetic resources has been started with the hybridization of plants for high yielding varieties in agriculture, but it has benefited only to some varieties in some places in the world. Another development in this regard was the discovery of 'center of origin' which was not uniformly found at the planet.¹⁴⁹ It subsequently increased to uncompensated or uncontrolled flow of the genetic material from south to north creating dichotomy between them. Then, “the use of biotechnology has added new challenges such as loss of land races and species, genetic pollution, unqualified hazardous risk, environmental harms etc.”¹⁵⁰ Even, “the source countries of genetic material have not been able to capture any significant portion of the potential benefits nor get the compensation for the services or knowledge given in bioprospecting expeditions.”¹⁵¹ The user countries have not shared the benefits to providers’ countries to promote conservation of biodiversity in lieu of the facilitated access to genetic resources and traditional knowledge.¹⁵²

The CBD and FAO regimes have provided bilateral and multilateral system respectively to regulate the conservation, access and benefit sharing of biological resources and associated knowledge. However, legal definition and scope of the

¹⁴⁵ See n.13 at p.317.

¹⁴⁶ *Ibid.* at p. 318.

¹⁴⁷ Dutfield D.(2013), “Trans boundary Resource, Consent and Customary Law” *Law, Environment and Development Journal*, 9/2:259-267, p.251; available at: <http://www.lead-journal.org/content/13259.pdf>. Accessed on 20 Aug., 2016.

¹⁴⁸ See n.111 at p. 36.

¹⁴⁹ See n.103 at p 122.

¹⁵⁰ McManis R. (2007), “Biodiversity, Biotechnology and Traditional Knowledge Protection: Law, Science and Practice,” in McManis R. and Charles R. (ed.), *Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge*, London: Earth Scan. p.3.

¹⁵¹ See n.80 at p. 432.

¹⁵² Nijjar G.S. (2011), “Food Security and Access and Benefit Sharing Laws relating to Genetic Resources: Promoting Synergies in National and International Governance,” *International Environmental Agreements*, 11:99-116, p. 101.

genetic resources is not even clear under CBD regime, specifically about derivatives and pathogens which needs to be taken account in current debate and discourses.¹⁵³

Besides, “member states have not been able to regulate and guide the activities of private actions and organizations for realizing the objectives and purposes of both system provided.”¹⁵⁴ Several issues especially those relating to access and benefit sharing such as the coordinated effort on ABS regime building, capacity building and technology transfer are under consideration in both regimes which is quite important for achieving those objectives as set out in these international legal frameworks.

Conclusion

Genetic resources including all its components are quite significant for ecological, economic and social development in contemporary period. Its potential value and biotechnological utilization make them more venerable for misappropriation and exploitation at national and international level. Hence, the conservation and management of genetic resources is important for the international community for sustained provisions and services of the biodiversity. This has led to the international community to regulate the activities detrimental to the conservation and management of genetic resources. It was necessary to highlight the types of genetic resources to be regulated, the value and ownership attached to it, persons and institutions involved, detrimental activities to be monitored and regulated for the better conservation and management including access and benefit sharing over genetic resources. In this regard, the concept of access and benefit sharing introduced under international law could play vital role in regulating such activities and relations of the countries on their genetic resources and associated traditional knowledge.

¹⁵³Bavikatte K. and Tavdt M (2015), “Beyond the Thumb rule Approach: Regulatory Innovations for Bioprospecting in India,” *Law, Environment and Development Journal*, 11/1: 1-20, p.4; available at: <http://www.lead-journal.org/content/15001.pdf>. Accessed on 20 Aug., 2016.

¹⁵⁴Moregera E. et al. (2014), *Unravelling The Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity*, London: Brills, p. 386.

CHAPTER III

INTERNATIONAL LEGAL FRAMEWORK ON ABS REGIME

Introduction

The last two decades have witnessed a growing international momentum to establish legal regime to regulate access and benefit sharing (ABS) of genetic resources for their utilization. It includes “the Convention on Biological Diversity, its Nagoya Protocol and Bonn Guidelines along with complementary instrument, International Treaty on Plant Genetic Resources for Food and Agriculture.”¹ Among these instruments, Convention on Biological Diversity (CBD) and its Nagoya Protocol provide bilateral ABS mechanism for overall genetic resources under contractual relationship, distinctive to the multilateral ABS mechanism provided for specific plant genetic resources under Food and Agriculture Organization (FAO).

The CBD is the first international legal framework regulating the bilateral relationship between providers and users for access to genetic resources and sharing the benefits arising from its utilization.² One of its objective is “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources.”³ It has been the CBD which marked a paradigm shift in principles from “uncontrolled access and unequitable sharing of benefits based on the common heritage of mankind” to “facilitated access and fair and equitable sharing of benefits recognizing the national sovereignty over genetic resources.”⁴ It provides nationally implemented principles on the access to genetic resources and fair and equitable sharing arising out of its utilization based on prior informed consent and mutually agreed terms.⁵

¹Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; CBD COP Decision X/1: Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from the Utilization, 2010, (UNEP/CBD/COP/DEC/X/1); See, Full Text, available at: <http://www.cbd.int/doc/decisions/cop-10/en.pdf>. Accessed on 12 July, 2016.

²Convention on Biological Diversity, 1992 (hereinafter be referred as “CBD”) was adopted on 5 June, 1992 at UN Conference on Environment and Development at Rio de Janeiro, Brazil. It came into force on 29 December, 1993 after adequate number of ratifications and signatures. Around 193 countries are currently parties making it universal in application and implementation. Convention on Biological Diversity, 1992; *ILM*, Vol.31, 1992, p.822; See, Full Text, available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

³ *Ibid.* CBD, Article 1.

⁴ *Ibid.* CBD, Article 3.

⁵ *Ibid.* CBD, Article 15.

But these objectives and principles of ABS remained unimplemented due to range contentions and complications among the member states. However, a non- legally binding Bonn Guidelines were subsequently adopted by the member states for the guidance in implementation and development of ABS regime in their domestic jurisdiction.⁶ It was also insufficient to meet the challenges facing the implementation of the ABS principles due to its voluntary and non-binding nature. Then, Nagoya Protocol was recently adopted under the CBD regime for an effective and binding legal regime on access to genetic resources and fair and equitable benefit sharing on its utilization.⁷ These instruments basically enrich the international legal framework on access and benefit sharing on genetic resources and associated traditional knowledge. The development of this ABS regime could be discussed in three stages pre-CBD regime, CBD regime and post-CBD regime under bilateral legal system in international law.

Pre-CBD Regime

The origin of the concept of access and benefit sharing – “the benefits derived from the utilization of particular resources to which one has access, should be shared with others”– in international law could be traced in the 1970s.⁸ At that time, access and benefit sharing was closely related to the concept of the “common heritage of humankind.”⁹ For instance, the concept appeared for the first time in the Moon Treaty which declared that “the moon and

⁶ The Bonn Guidelines were adopted in 2002 unanimously by around 180 member states of the CBD. Although they are not legally binding, but served as vital tool for the full implementation of the CBD. (hereinafter be referred as “Bonn Guidelines”) CBD COP VI Decision VI/24: Access and Benefit Sharing as Related to Genetic Resources, which adopted Bonn Guidelines on Access to Genetic Resources and Sharing of Benefits Arising out of Their Utilization, 2002; (UNEP/CBD/COP/DEC/VI/24A). *See*, Full Text, available at: http://www.cbd.int/doc/publication/cbd-bonn-gdls_en.pdf. Accessed on 12 July, 2016.

⁷ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization to the Convention on Biological Diversity. (hereinafter be referred as “Nagoya Protocol”) It has been adopted on 29 October, 2010 and came into force on 12 October, 2014. Currently, it has been ratified by around 96 member countries. Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; *See*, CBD COP Decision X/II: Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization; (UNEP/CBD/COP/DEC/X/II) available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 12 July, 2016.

⁸ Jonge B.D. (2013), “Towards a Fair and Equitable ABS Regime: Is Nagoya leading us in the Right Direction?” *Law, Environment and Development Journal*, 9/2: 241-155, p.243; available at: <http://www.lead-journal.org.content/1324.pdf>. Accessed on 15 July, 2016.

⁹ ‘Common Heritage of Mankind’ also known as common heritage of humankind or common heritage principle is a principle of international law which holds that defined territorial areas and elements of humanity's common heritage should be held in trust for future generations and be regulated for the common interests. *See*, Arnold R.P. (1975), “The Common Heritage of Mankind as a Legal Concept” *International Lawyer*, Vol.9, No. 1: 153-158, p.154.

its natural resources are the common heritage of mankind”¹⁰ and it subsequently established a provision “on the equitable sharing of all state parties in the benefits derived from these resources discovered on the Moon”.¹¹ Then, another instance found in the “United Nations Convention on the Law of the Sea”¹² which stated that “the area of the sea-bed as well as its resources are the common heritage of mankind, the exploration and exploitation of which shall be carried for the benefit of mankind as whole.”¹³ However, both the international legal instruments have not prescribed such norms specifically for the genetic resources, but have given guiding principles for the subsequent development of ABS regime.

The concept of access and benefit sharing with respect to plant genetic resources, however appeared under “International Undertaking on Plant Genetic Resources (IUPGR) of the United Nations Food and Agriculture Organization (FAO)”.¹⁴ It states that “Undertaking is based on the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restriction.”¹⁵ Though, the FAO in its subsequent resolution tried to make balance between the farmers and breeders especially those in developing countries in one hand and the biotechnology industry on the other by establishing the so-called ‘farmer’s rights’ for the benefits on the improved use of plant genetic resources.¹⁶ Finally, the multilateral system of access and benefit sharing was evolved under the FAO with the

¹⁰The Agreement was adopted by the General Assembly in 1979 which came into force in July 1984. It provides that the Moon and its natural resources are the common heritage of mankind and the exploitation of such resources should be facilitated and regulated for the nations. Agreement Governing the Activities of States on the Moon and other Celestial Bodies, 1979; 1363 UNTS 3/18, 1852M 1434 (1979). See, Full Text, available at: http://www.treaties.un.org/pages/view/details/moon_treaty.html Accessed on 12 July, 2016.

¹¹*Ibid*, Article 11.

¹² The Convention was opened for signature on 10 December 1982 and there are more than 150 member countries are parties to it. It comprises 320 articles and nine annexes, governing all aspects of sea and coastal regions. United Nations Convention on the Law of the Sea (1982), 1833 UNTS 3/21; See, Full Text, available at: http://www.un.org/dept/los/convention_agreements/text/unclos.html. Accessed on 20 July, 2016.

¹³*Ibid*, Preamble.

¹⁴The FAO Conference adopted this International Undertaking on Plant Genetic Resources on 23 November 1983. At the time of its adoption, it was only international instrument specifically dealing with genetic resources for food and agriculture. FAO International Undertaking on Plant Genetic Resources, 1983; Report of the Conference of FAO Twenty-Second Session, Resolution 8/83. See, Full Text, available at: <http://www.fao.org/nr/cgrfa/cgrfa-about/text.html>. Accessed on 15 July, 2016.

¹⁵*Ibid*, Article 3.

¹⁶The FAO adopted these two resolution in 1989 for recognizing that plant breeders’ rights are not inconsistent with the International Undertaking and simultaneously recognizing Farmers’ Rights, the resolutions aim at achieving a balance between the rights of breeders and farmers. See, FAO Resolution 4/89: Agreed Interpretation of the International Undertaking and FAO Resolution S/89: Farmer’s Rights; Rome (29 November 1989), available at: <http://www.fao.org/nr/cgrfa/cgrfa-about/history.html>. Accessed on 15 July, 2016.

adoption of binding “International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in 2001.”¹⁷ This treaty creates a multilateral ABS regime for the agricultural sector in order to facilitate access to and transfer of the plant genetic resources for global food security. It simply states that “in the exercise of the sovereign rights over their plant genetic resources for food and agriculture, states may mutually benefit from the creation of an effective multilateral system for facilitated access to these resources and for the fair and equitable sharing for the benefits arising from their use.”¹⁸ But, this has been multilateral system with limited scope in regard to plant genetic resources only. However, the CBD had been already adopted a decade earlier for overall genetic resources creating a bilateral system for ABS system.

CBD Regime

While the legal framework on access and benefit sharing is relatively recent, but the examples of conservation of biodiversity can be found throughout history. The earliest international conservation efforts are found in the late 19th and early 20th century.¹⁹ First of this kind of affords were made by IUCN General Assembly held in Madrid in 1984 which requested its secretariat to have intensive consultation on conservation of biological resources.²⁰ Then, the UNEP Governing Council at its 14th Session in 1987 requested “the Executive Director to establish on Ad-Hoc Working Groups of Experts to investigate the desirability and possible form of an umbrella convention to rationalize current activities in this field and to address other areas which might fall under such a convention.”²¹ The Ad-hoc Working Group (AHWG) in its first meeting in 1988 “prepared draft provisions along with IUCN and FAO”²² and in its second meeting in 1990 called upon that “there is a need for a

¹⁷ This was adopted by the Thirty-First Session of the Conference of the Food and Agriculture Organization of the United Nations on 3 November 2001 and came in force in 29 June, 2004. It facilitates access to the genetic materials of the 64 crops in the Multilateral System for research, breeding and training for food and agriculture. FAO International Treaty on Plant Genetic Resources for Food and Agriculture, 2001; See, Full Text, available at: http://www.fao.org/plant_treaty/en.html. Accessed on 20 July, 2016.

¹⁸ *Ibid.* Preamble.

¹⁹ Klemm G. (1993), "Biological Diversity Conservation and the Law: Legal Mechanism for Conserving Species and Ecosystems" IUCN Environmental Policy and Law Paper No. 29, IUCN: Bonn, p. 17, available at: <http://www.iucn.org/dbth-wpd/EPLP-29.pdf>. Accessed on 2 July, 2016.

²⁰ *Ibid.* at p. 17

²¹ *Ibid.* at p. 18

²² The First Session of Ad Hoc Working Group of Experts on Biological Diversity held on 16 - 18 November 1988 Geneva, Switzerland and Report of the Ad Hoc Working Group on the Work of its First Session was submitted for preparation of the draft of a convention on 9 November, 1989. (UNEP.Bio.Div.1/3); available at: <https://www.cbd.int/doc/?meeting=BDEWG-01.html>. Accessed on 20 Aug, 2016.

legally binding framework instrument to engage concrete and action-oriented measures for the conservation and sustainable utilization of biological diversity.”²³ The AHWG further requested the UNEP secretariat to prepare the first draft of the convention for negotiations with the developed and developing countries. During negotiations on the draft, the developing countries emphasized “the need to counter balance the conservation obligations they would undertake under the proposed convention with recognition of rights over the genetic material of animals and plants under their jurisdiction.”²⁴ For the same reason, they also sought “the recognition of the right to a fair and equitable share of the benefits resulting from the utilization of such material,”²⁵ which subsequently gave birth to the concept of access and benefit sharing under international environmental law.

A. Convention on Biological Diversity, 1992

After more than three years of negotiations, the CBD was eventually adopted at the United Nations Conference on Environment and Development, 1992.²⁶ It has been negotiated with view to create a treaty regime with an overreaching theme of activities not covered by the existing conventions on conservation of biodiversity. Accordingly, it has been adopted with three interrelated objectives which have to be pursued in accordance with its relevant provisions, are the conservation of biological diversity; sustainable use of its components; and the fair and equitable sharing of the benefits arising out of utilization of genetic resources, including by appropriate access to genetic resources, and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”²⁷ To achieve this, CBD has several complementary provisions that elaborate and support its three objectives including access and benefit sharing over genetic resources. The regime specific institutions have been also provided under CBD for implementation of these provisions and taking decisions in this regard such as Conference of Parties (COP), Subsidiary Body on Scientific, Technical and

²³The Second Session of the Ad Hoc Working Group of Experts on Biological Diversity held on 19 - 23 February 1990 Geneva, Switzerland and Report of the Ad Hoc Working Group on the Work of its Second Session was submitted for a legal instrument on biological diversity on 23 February, 1990. (UNEP.Bio.Div.2/3); available at: <https://www.cbd.int/doc/?meeting=BDEWG-02.html>. Accessed on 20 Aug, 2016.

²⁴See n.19 at p.19.

²⁵*Ibid.* at p.20.

²⁶See n. 2. CBD, 1992.

²⁷*Ibid.* CBD, Article 1.

Technological Advice (SBSTTA) and Secretariat. In this context, the CBD provides basic principles, procedures and institutions to achieve its objectives which may be referred in the ANNEXURE I at the end. These aspects are important for the overall implementation of the objectives adopted in the convention.

(i) Conservation of Genetic Resources

The CBD purposes to conserve the biological diversity at all level of the ecosystems including genetic resources. For this purpose, there has been used two terms in the context of conservation: “‘*in situ* conservation’ which means ‘conservation within the ecosystem and natural habitats, in case of domesticated and cultivated species in the surroundings where they have developed their distinctive properties’” and “‘*ex-situ* conservation’ means ‘conservation of component of biological diversity outside their natural habitats, which has to be done where possible in the country of origin of genetic resources.’”²⁸ Besides, it states in its preamble that “the conservation of biological diversity is a common concerns of humankind” and for that “states are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner.”²⁹ In view of this, it provides the obligations to take as far as possible and as appropriate *in-situ* measures and *ex-situ* measures within the limits of their national jurisdiction for the conservation of biological diversity.³⁰ The conservation issue has been one of the important agenda which called for the measures to take the *in-situ* as well as *ex-situ* conservation in domestic jurisdiction.

(ii) Sustainable Use of Genetic Resources

Another objective of the CBD has been the sustainable use of the components of biodiversity including genetic resources. In this context, sustainable use means a use that does not affect the productivity both in short and long term in the sense of being destroyed, used or finished. The CBD itself defined “‘sustainable use’ means the use of the components of biological diversity in a way and at a rate that does not lead to the long term decline of biological diversity, thereby maintaining its potential to meet

²⁸ *Ibid.* CBD, Article 2.

²⁹ *Ibid.* CBD, Preamble.

³⁰ It has been indicated that there is need for policy development for effective conservation of in-situ and ex-situ biological resources found in the national jurisdiction. It is the state responsibility to formulate such plans, policies and strategies in this regards. See, Glowka L.et. al. (1994), “A Guide to The Convention on Biological Diversity,” Environmental Policy and Law Paper 30, Gland: IUCN, p.3; available at: <http://www.iucn.org/dbth-wpd/EPLP-30.pdf>. Accessed on 2 Feb, 2016.

the needs and aspirations of present and future generations.”³¹The obligation has been provided to member states “to conserve biodiversity and make sustainable use of its components within the limits of their national jurisdiction and in case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control.”³²Without forbidding the use of biodiversity, it cautioned the member states to maintain compatibility between present uses and sustainable use of its components of biodiversity which would help to achieve the balance among three objectives of the convention.

Further, CBD calls for “the integration of the concept of sustainable use into relevant sectoral and cross sectoral plans, programmes and policies”³³ and in “national decision making.”³⁴ It also encourages the member states “to endeavor to provide the conditions needed for compatibility between conservation of biological diversity and the sustainable use of its components.”³⁵There has been obligation provided “to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.”³⁶ The CBD also takes into consideration the economic aspects of sustainable use in the incentives measures as well as in access and benefit sharing system. The CBD further developed this concept of sustainable use in its COP meeting by negotiating and adopting the “Addis Ababa Principles”³⁷ and “Guidelines for Sustainable Use of Biodiversity.”³⁸

(iii) Access and Benefit Sharing over Genetic Recourses

In the ABS context, CBD recognizes “the sovereign rights of states over their natural resources including genetic resources” and accordingly it provides “the authority to

³¹See n.28.

³²See n.2. CBD, Article 4.

³³*Ibid.* CBD, Article 6.

³⁴*Ibid.* CBD, Article 10.

³⁵*Ibid.* CBD, Article 8 (i).

³⁶*Ibid.* CBD, Article 8 (j).

³⁷ Secretariat of the Convention on Biological Diversity: Addis Ababa Principles and Guidelines for Sustainable Use of Biodiversity, 2004 Montreal: CBD Secretariat; *See*, Full Text, available at: <http://www.cbd.int/docs/publications/addis-gdls-en.pdf>. Accessed on 2 July, 2016.

³⁸Sixth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 7-19 April, 2002, The Hague, Netherlands; CBD COP Decision VI/12: Guidelines for Sustainable Use of Biodiversity, 2004 (UNEP/CBD/ COP/DEC/VI/12) Montreal: CBD Secretariat; available at: <http://www.cbd.int/docs/decision/cop6/en.pdf> Accessed on 2 July, 2016.

state to exploit their genetic resources within national jurisdiction.”³⁹ While exercising the sovereign rights, the states are called upon to take a cautionary approach ensuring that “it is in consonance with the Charter of the United Nations and the Principles of International Law” and the “activities within their jurisdiction or control do not cause damage to the environment of other states or areas beyond the limits of national jurisdiction.”⁴⁰This principle has been included in the provisions as:

“Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.”⁴¹

Further, access to genetic resources has been provided on prior informed consent of the providing country and where granted, based on mutually agreed terms.⁴² However, both conditions are alternatively asked with 'subject to the provisions of this article' or 'unless otherwise determined by that party'. In this way, states may impose conditions on access to their genetic resources on prior informed consent and on certain terms under bilateral agreements. Such national control over genetic resources is united by the obligation to facilitate access by other contracting parties and not to impose restrictions that run counter to the convention's objectives.⁴³ Further, the sovereign rights to genetic resources are limited to those collected after the convention's entry into force.⁴⁴ It means the plants, animals or microorganisms that have been removed to ex-situ collection prior to this date are exempted from CBD and therefore cannot be protected through ABS regime. Each contracting party has to put into place appropriate framework to enable the benefit sharing. There has been provided that:

“Each contracting party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with Contracting Party providing such resources. Such access shall be on mutually agreed terms.”⁴⁵

³⁹See n.2, CBD, Article 3.

⁴⁰*Ibid.*

⁴¹*Ibid.* CBD, Article 15 (1).

⁴²*Ibid.* CBD, Article 15(4).

⁴³*Ibid.* CBD, Article 15(2).

⁴⁴*Ibid.* CBD, Article 15(3).

⁴⁵*Ibid.* CBD, Article 15(7).

There has been three main ingredients to be incorporated in the domestic measures for ensuring the benefit sharing: fair and equitable sharing, mutually agreed terms and the commercial utilization of the genetic resources.⁴⁶ The aim is twofold: sharing of results of research and development as well as monetary benefits. Besides, the benefit sharing would also include “the sharing the results of research and development together with the benefits arising from the commercial and other utilization of genetic resources, sharing of technology using the genetic resources, participation in biotechnological activities based on the genetic resources and priority access to results and benefits arising from biotechnological use of genetic resources.”⁴⁷ For the traditional knowledge, CBD highlights in its preamble about “the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovation and practices relevant to the conservation of biodiversity and the sustainable use of its components.”⁴⁸ It also obligates the contracting parties “to respect, preserve and maintain knowledge, innovation and practice of ILCs” and “promote for approval and involvement of the holders” and “encourage the equitable sharing of the benefits arising from their utilization.”⁴⁹ The basic purpose was that genetic resources are often conserved and managed by local and indigenous communities (ILCs), hence, these traditional societies should also get benefits accordingly.

(iv) Access to and Transfer of Technology

Apart from this, CBD specifically provides for the access to and transfer of technology among contracting parties which is considered essential for the achievement of its objectives. It requires contracting states to establish a framework to provide and/or facilitate access to and transfer of technology. Here, technologies include “biotechnology specifically those which are relevant to the conservation and sustainable use of biodiversity as well as technologies that make use of genetic resources without causing significant damages to the environment.”⁵⁰ Hence, there has been provided that “access to and transfer of technology would be provided and/or facilitated to developing nation under fair and most favorable terms, including

⁴⁶ Winter G. (2009), “Towards Regional Common Pools of GRs-Improving the Effectiveness and Justice of ABS” in Kamau E. and Winter G. (ed.), *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing*, London: Earth Scan, p. 24.

⁴⁷ See n. 2. CBD, Article 19.

⁴⁸ See n. 29.

⁴⁹ See n. 36.

⁵⁰ See n. 2. CBD, Article 16(1).

on concessional and preferential terms, where mutually agreed, and were necessary in accordance with the financial mechanism established by Articles 20 and 21.”⁵¹ When such technology are subject to patents and other intellectual property rights, “such access and transfer has been provided on terms which recognizes or is consistent with, the adequate and effective protection of intellectual property rights.”⁵² The party has to take legislative, administrative or policy measures to provide the access and make the transfer of technology which uses the genetic resources provided by the other specially developing countries. This convention remained one of the few treaties that tried to delineate the respective sphere of environmental law and intellectual property along with transfer of technology.

(v) Financial Resources and Mechanism

The convention has further tied the access to genetic resources as well as access to technology with the financial mechanisms established under Articles 20 and 21. The member states undertake “to provide in accordance with its capabilities, financial support and incentives in respect of those national activities which are intended to achieve the objective of convention.”⁵³ Specifically, the developed country has been assigned “to provide new and additional financial resources to enable developing country to meet the incremental costs for implementing measures to fulfill the obligation of this convention.”⁵⁴ The contribution shall be such as to consider the need for predictability, adequacy and timely flow of funds to be decided periodically by the COP.⁵⁵ In this regard, CBD has established a mechanism for the provision of financial resources to developing country on a grant or concessional basis and such mechanism has been called upon to operate within a democratic and transparent system of governance.⁵⁶

Overall, CBD has been important milestone in the evolution of rights and obligations relating to access and use of genetic resources with firm articulation of national sovereignty over genetic resources. This convention not only espouses fundamental principles and obligations but also a nationally implemented ABS regime for regulating

⁵¹*Ibid.* CBD, Article 16(2).

⁵² Glwoka, L. (1998), “A Guide to Designing Legal Framework to Determine Access to Genetic Resources,” IUCN Environmental Law and Policy Paper. 34, Gland: IUCN Publications, p.13; available at: <http://www.iucn.org/dbth-wpd/EPLP-34.pdf>. Accessed on 12 July, 2016.

⁵³ See n.2. CBD, Article 20(1).

⁵⁴ *Ibid.* CBD, Article 20(2).

⁵⁵ *Ibid.* CBD, Article 20(3).

⁵⁶ *Ibid.* CBD, Article 21.

the access and use of genetic resources in domestic jurisdiction. These principles and procedures provided for the national implementation largely remained unimplemented devoid of legal certainty, clearly and transparency.⁵⁷Not only this, states and other stakeholders continued to experience several problems in the implementation of ABS regime due to conflict of interests and priorities among them.⁵⁸As result of this, the Conference of Parties (COP) led to recourse under Article 28 of the CBD to initiate the work for an effective legal instrument on ABS regime recognizing the differences and difficulties in implementation of the third objective of the convention.⁵⁹

Post CBD Regime

The Conference of Parties of the CBD started the negotiations to implement the ABS regime and “a regionally balanced expert panel on ABS in COP was established in fourth meeting at Bratislava in 1998 which formerly initiated the work on international instrument on ABS.”⁶⁰Then, COP in its fifth meeting at Nairobi in 2000 further “formalized the ongoing ABS process by establishing an Ad-hoc Open Ended Working Group on ABS with mandate to develop the guidelines for proper implementation and operation.”⁶¹ It came out with the “Bonn Guidelines on Access to Genetic Resources and Fair and Equitable sharing of Benefits arising out of their Utilization” adopted at COP sixth meeting in 2002 at Hague.⁶²

A. Bonn Guidelines on Access and Benefit Sharing, 2002

Bonn Guidelines has been important instruments for facilitating and implementing the ABS process at national and local levels. Though, the guidelines are voluntary in nature, but full of features with practicality, flexibility and transparency. It provides

⁵⁷Moregra E. and Tsioumani E. (2010), “Yesterday, Today, and Tomorrow: Looking Afresh at the Convention on Biological Diversity,” *Yearbook of International Environmental Law*, Vol.21 (1): 3-40, p.4.

⁵⁸*Ibid.* at p.5.

⁵⁹*See n.2.* CBD, Article 28.

⁶⁰Fourth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 4 - 15 May, 1998, Bratislava, Slovakia; *See*, CBD COP IV Decision IV/8: Access and Benefit Sharing, available at: <http://www.cbd.int/decisions/cop/m=COP-4/english.pdf>. Accessed on 20 Feb, 2016.

⁶¹Fifth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 15-26 May, 2000, Nairobi, Kenya; *See*, CBD COP V Decision V/26: Access to Genetic Resources, available at: <http://www.cbd.int/decisions/cop/m=COP-5/english.pdf>. Accessed on 20 Feb, 2016.

⁶²Sixth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 7-19 April, 2002, The Hague, Netherlands; *See*, CBD COP VI Decision VI/24: Access and Benefit Sharing as Related to Genetic Resources, which adopted Bonn Guidelines on Access to Genetic Resources and Sharing of Benefits Arising out of Their Utilization, 2002; (UNEP/CBD/COP/DEC/VI/24A) available at: <http://www.cbd.int/decisions/cop/m=COP6/english.pdf>. Accessed on 20 Feb, 2016.

general provisions, role and responsibilities of states, stakeholder participation, and the ABS process, elements for mutually agreed terms and stipulated conditions for monetary and non-monetary benefits. The scope of the guidelines covers “all genetic resources and associated traditional knowledge, innovations and practices covered by CBD and benefits arising from commercial and utilization of such resources, but excluded the human genetic resources.”⁶³ The guidelines identify “the steps in the access and benefits sharing process with an emphasis on the obligation of prior informed consent of the provider parties.”⁶⁴ It also identify the basic requirements for mutually agreed terms and defines the main role and responsibilities of users and providers.⁶⁵ There has been suggested elements to be included in ABS agreements and indicative list of both monetary and non-monetary benefits as well.⁶⁶ The guidelines are actually adopted to assist parties, governments and other stakeholders in developing overall access and benefit sharing strategies and in identifying the steps involved in the process of obtaining access to genetic resources and benefit sharing.⁶⁷ More specifically, the guidelines were intended to help them where establishing legislative administrative policy measures on access and benefit sharing and/or when negotiating contractual managements for access and benefit sharing.⁶⁸ The guidelines could be analyzed in this context for implementation as such:

(i) Overall ABS Process

For the access of benefit and sharing process, the guidelines prescribes for an overall ABS strategy for the national and regional level aiming at the conservation and sustainable use of biological diversity and promoting the equitable sharing of benefits. It indicates “the steps involved in the process of obtaining access to genetic resources and sharing of benefits which may include activities prior to access, research and development conducted on the genetic resources as well as their commercialization and other use.”⁶⁹ In accordance with Article 15 of CBD, this guidelines intended “to assist parties in the establishment of a system of prior informed consent and development of

⁶³*Ibid.* Part I, para 9.

⁶⁴*Ibid.* Part IV, para 23.

⁶⁵*Ibid.* Part II, para 16.

⁶⁶*Ibid.* Appendix I and II.

⁶⁷Tully S. (2003), “The Bonn Guidelines on Access to Genetic Resources and Benefit Sharing from their Utilisation”, *Review of European Community & International Environmental Law*, 12(1), 84-98.p. 86.

⁶⁸*Ibid.*

⁶⁹*See n. 62.* Part IV, para 22.

mutually agreed terms to ensure access to genetic resources and the fair and equitable sharing of benefits arising out of it.”⁷⁰ However, the guidelines disclaim on “changing the rights and obligations of parties under CBD and affecting the rights and obligations relating to genetic resources arising out of the mutually agreed terms.”⁷¹ This ABS strategy has to be applied at the national and local level by the member states in domestic jurisdiction.

(ii) Prior Informed Consent (PIC)

This guidelines reaffirm that access to genetic resources is subject to prior informed consent of the contracting party providing such genetic resources. The basic principles of prior informed consent have been suggested “to include the legal certainty and clarity at minimum cost with transparency along with the consent of the relevant competent national authority or other stakeholders of the provider country.”⁷² The essential element of a prior informed consent system may also include the grant of PIC by the competent authorities, timing and deadlines for both those seeking access and for those granting access, specification of use for which consent has been granted, procedures and process for obtaining PIC.⁷³ This has been generally agreed that “PIC must contain at the least the following: the party providing the genetic resources to obtain prior authorization or consent, the potential user must furnish information setting out how and by whom the genetic resources will be substantially used providing a basis upon which the provider might properly decide upon rather to withhold or grant access and upon what terms and to provide a basis upon which to effectively evaluate and facilitate benefit sharing.”⁷⁴

(iii) Mutually Agreed Terms (MATs)

The guidelines aim to insist parties and stakeholders for the adoption of mutually agreed terms to ensure the fair and equitable sharing of benefits. The basic requirement for adoption of MATs have been suggested to be well negotiated and set out to be in agreement including these elements as: “the reasonable period of time, legal certainty and clarity in the minimizing the transaction costs, the provision on user and provider obligations, developing different contractual agreement for different

⁷⁰*Ibid.* Part IV, para 24.

⁷¹*Ibid.* Part IV, para 49.

⁷²*Ibid.* Part IV, para 26.

⁷³*Ibid.* Part IV, para 27.

⁷⁴*Ibid.* Part IV, para 36.

resources and different uses through taxonomy, research and commercialization.”⁷⁵ The other basic requirements for MATs have to be taken consideration are: “the ethical concerns of particular parties and stakeholders i.e. ILCs, continued customary use of genetic resources and related knowledge, provision for the use of intellectual property rights, and joint ownership of intellectual property rights according to the degree of contribution.”⁷⁶ The mutually agreed terms should also cover the conditions obligations, procedures, types, timing, distribution and mechanism of benefits sharing.⁷⁷ At the end, this guidelines provide indicative list of terms including the limitation in its annexure.

In fact, the Bonn Guidelines have been primarily aimed at helping countries which are under process to develop suitable legislative, administrative and policy measure and other contractual arrangements under mutually agreed terms for access and benefit sharing. They are meant to be first step of evolution process in the implementation of relevant provisions of the convention related to access and benefit sharing. However, they are said to be too soft and too voluntary in nature.⁷⁸ Hence, it remained incomplete and insufficient to meet the challenge facing the implementation of ABS provisions of CBD. Consequently, a need was felt to further consolidate the purpose of CBD particularly Article 8(j) and Article 15 for the development of an international regime on access and benefit sharing. This has also been reaffirmed in the “World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002, calling upon the parties for consensus and action to have an effective legal instrument on ABS under the framework of the CBD taking account the Bonn Guidelines.”⁷⁹

Accordingly, CBD COP seventh meeting followed the WSSD call for action and broadened “the mandate of the AHWG to begin the negotiations of the international

⁷⁵ *Ibid.* Part IV, para 42.

⁷⁶ *Ibid.* Part IV, para 43.

⁷⁷ *Ibid.* Part IV, para 45.

⁷⁸ Hodges J. and Denial R. (2005), “Promises and Pitfalls: First Step on Road to the International ABS Regime” *Review of European Community & International Environmental Law* 14(2), 148-160, p.152.

⁷⁹ Johannesburg Plan of Implementation of the World Summit on Sustainable Development: Para 44 (o): Negotiate within the framework of the Convention on Biological Diversity, bearing in mind the Bonn Guidelines, an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources. World Summit on Sustainable Development (2002), available at: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/english/WSSD.pdf. Accessed on 12 July, 2016.

regime on ABS.”⁸⁰ However, the actual negotiations process for international regime on ABS started with third and fourth meeting of AHWG, where compilation of a draft text was produced as a basis for future negotiation. Then, fifth and sixth meeting of AHWG focused on the main components of the international regime on ABS. At the CBD COP eighth meeting, the AHWG was instructed “to continue with elaboration and negotiation of the international regime.”⁸¹ It was the CBD COP ninth meeting which instructed the AHWG “to finalize the international regime for consideration and adoption by the conference of the parties at its tenth meeting on an instrument to effectively implement the provisions in Article 15 and Article 8(j) of the Convention and its three objectives.”⁸² Accordingly, the seventh meeting of the AHWG developed highly bracketed text ‘Paris Annex’ with parties preferences and points of divergence. Then, the eighth meeting of the AHWG adopted further the ‘Montreal Annex’ as first complete draft of the international regime incorporating operational text on all elements. The ninth meeting of the AHWG adopted a draft protocol that has not yet finalized but was ready to be transmitted to the COP. In CBD COP tenth meeting, “An Open-ended Informal Consultative Group on ABS was established in the first plenary session to finalize the protocol text which failed to agree on a final text.”⁸³ Then, a compromise text was tabled by the Japanese COP Presidency which proved to be successful in the end. Finally, 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 was adopted by COP X on 29 October 2010.”⁸⁴ However, it was part of a package deal comprising

⁸⁰Seventh Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 9-20 February, 2004, Kuala Lumpur, Malaysia; *See*, CBD COP VII Decision VII/19: Access and Benefit sharing on Genetic Resources, available at: <http://www.cbd.int/decisions/cop/m=COP-7/english.pdf>. Accessed on 20 Feb, 2016.

⁸¹Eighth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 20-31 March, 2006, Curitiba, Brazil; *See*, CBD COP VIII Decision VIII/4: Access and Benefit Sharing, available at: <http://www.cbd.int/decisions/cop/m=COP-8/english.pdf>. Accessed on 20 Feb, 2016.

⁸²Ninth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 19-30 May, 2008, Bonn, Germany; *See*, CBD COP IX Decision IX/12: Access and Benefit Sharing, available at: <http://www.cbd.int/decisions/cop/m=COP-9/english.pdf>. Accessed on 20 Feb, 2016.

⁸³Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; *See*, CBD COP Open ended Informal Consultative Group on Access and Benefit Sharing, 2010, Nagoya, Japan; available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 20 Feb, 2016.

⁸⁴Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya; *See*, CBD COP X Decision X/1: Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization, 2010; available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 20 Feb, 2016.

“the ‘Strategic Plan for Biodiversity 2011-2020 and the ‘Aichi Targets’”⁸⁵ and the ‘Strategy for Resources Mobilization’.”⁸⁶ The text of protocol has been attached as ANNEXURE-II in this work at the end.

B. Nagoya Protocol on Access and Benefit Sharing, 2010

The Nagoya Protocol is a legally binding but supplementary agreement to the CBD which aims to develop the ABS legal system on the utilization of genetic resources and associated traditional knowledge. The protocol consists of thirty six articles along with an annexure of monetary and non-monetary benefits. It has obligations for regulating access to genetic resource and/or traditional knowledge associated with genetic resources. It also provides general obligations for sharing the benefits arising from the utilization of such resources and knowledge. The objective of the protocol has been drawn from the third objectives of the CBD as stated in first article:

“The objective of this protocol is the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of technology, taking into account all rights over those resources and technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.”⁸⁷

The main objective is the fair and equitable sharing of benefits out of the utilization of genetic resources. It also includes appropriate access to genetic resources, appropriate transfer of relevant technologies, and appropriate funding. However, all these objectives would support the conservation of biodiversity and the sustainable use of its components, connecting ABS with the other two objectives of the CBD. The scope of the protocol has been addressed for the genetic resources and benefits arising from the utilization of such resources along with traditional knowledge associated with genetic resources and to the benefits arising from the utilization of such knowledge.⁸⁸

⁸⁵Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; See, CBD COP X Decision X/2: Strategic Plan for Biodiversity 2011-20, available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 20 Feb, 2016

⁸⁶Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; See, CBD COP X Decision X/3: Strategy for Resource Mobilization, available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 20 Feb, 2016

⁸⁷See n.7. Nagoya Protocol, Article 1.

⁸⁸*Ibid.* Nagoya Protocol, Article 3.

(i) Access to Genetic Resources

It is one of the pillar of ABS system provided under Nagoya Protocol. It is considered one of the preconditions for the sharing of the benefits arising from the utilization of genetic resources. Hence, there has made linkage between the access to genetic resources and benefits sharing in the protocol's preamble. The protocol provides in its provisions "the inter-state obligations related to access to genetic resources, the obligations related to genetic resources held by ILCs, the access standards for development of domestic ABS framework, the minimum procedural requirements for PIC and the minimum requirements for MAT."⁸⁹In general, Article 6 deals with access requirements and obligations over the genetic resources by reaffirming the sovereign rights of states over their genetic resources. It states that:

"In exercise of sovereign rights over natural resources, and subject to domestic access and benefit sharing legislation or regulatory requirements, access to genetic resources for their utilization shall be subject to the prior informed consent of the party providing such resources that is country of origin of such resources or a party that has acquired the genetic resources in accordance with the Convention, unless otherwise determined by the party."⁹⁰

It obligates member states for providing access to genetic resources subject to prior informed consent for their utilization under the domestic legislation and regulatory requirements and such PIC is required from the providing party which is either the country of origin of such resources or a party that acquired the genetic resources in accordance with CBD. Here, the country of origin means a country where those genetic resources are found in *in-situ* conditions within their ecosystem and natural habitats.⁹¹ A party would be considered to have acquired genetic resources in accordance with the CBD if MAT was established and PIC were granted under Article 15(4) and (5) of the CBD.

Further, it requires the party to take necessary legislative, administrative and policy measures requiring PIC at domestic level. In developing domestic access measures, parties must respect a series of minimum requirements: "legal certainty, clarity and transparency

⁸⁹Morgera E. et al. (2014) *Unravelling The Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity*, London: Brills Publishers, p.25

⁹⁰See n.7. Nagoya Protocol, Article 6(1).

⁹¹Tvedt W. and Young T. (2007), "Beyond Access: Exploring Implementation for the Fair and Equitable Sharing Commitment in the CBD," Environmental Policy and Law Paper No. 67/2, p.12; Gland: IUCN; available at: http://www.iucn.org/dbtn_wpd/EPLP-2.pdf. Accessed on 12 May, 2016.

for their ABS legislation or regulatory requirements; fair and non-arbitrary access rules and procedures; providing information on how to apply for PIC; providing for written and cost effective PIC within reasonable time; issuances of a permit or equivalent as evidence of the decision to grant PIC and the establishment of MAT and notify the ABS CH; establishment of criteria and/or process, where applicable, for obtaining PIC or approval and involvement of ILCs, and establishment of clear rules and procedures for requiring and establishing MATs which would include dispute settlement clause, terms on benefit sharing, third party use, and change of intent, where applicable.”⁹²The parties to the protocol requiring PIC for access to their genetic resources are obliged to take these necessary domestic measures.

In addition to this, the party must take concrete steps and measures in accordance with the domestic law to ensure that the prior informed consent or approval and involvement of ILCs has been obtained for access to genetic resources. The protocol provides that “each party is also under obligation to ensure in accordance with domestic measures that PIC or approval and involvement of ILCs is obtained for such access to genetic resources where they have the established rights to grant access to such resources.”⁹³To determine the access to genetic resources, the PIC or approval and involvement of ILCs are also required where they have the established rights to grant access to such resources. In other words, it acknowledges that ILCs have the right to grant access not only to traditional knowledge associated with genetic resources but also the genetic resources as well. Not only this, CBD also states that “state shall as far as possible as appropriate promote the wider application of traditional knowledge with the approval and involvement of the holders of such knowledge and encourage equitable sharing of benefits from utilization.”⁹⁴ It is clear from both the provisions that there is a mandatory obligation for each party as the term 'shall' has been used, to take measure with the aim of ensuring that prior informed consent or approval and involvement of ILCs is obtained where they have to established rights to grant access to genetic resources.⁹⁵ Such obligations is to be fulfilled in accordance with domestic law which means that each party is free to take

⁹² See n.7. Nagoya Protocol, Article 6 (3) (a-g).

⁹³ *Ibid.* Nagoya Protocol, Article 6 (2).

⁹⁴ See n.2, CBD, Article 8 (j).

⁹⁵ Greiber T., et.al. (2012), “An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing”, Environmental Policy and Law Paper No. 83, Gland: IUCN Publication, p. 93; available at: <https://portals.iucn.org/library/efiles/documents/eplp-083.pdf>. Accessed on 04 July, 2016.

measures according to its domestic law and regulations exist or yet to be exist. The reference to 'as appropriate' implies that parties are free to opt the measures which could be legislative, administrative, policy or any other measures.

(ii) Access to associated Traditional Knowledge

Nagoya Protocol has also expended the horizons of ABS regime provided under the CBD by adding traditional knowledge associated with genetic resources. The CBD explicitly refers “the traditional knowledge under Article 8(j) through formulation ‘knowledge, innovations and practices of indigenous and local communities’, which was later used as ‘traditional knowledge associated with genetic resources’.”⁹⁶Here, the link between genetic resources and traditional knowledge has been provided by this protocol. Consequent to this, there has been given obligation to member states as:

“In accordance with domestic law, each party shall take measures, as appropriate, with the aim of ensuring that traditional knowledge associated with genetic resources held by indigenous and local communities is accessed with prior and informed consent or approval and involvement of the indigenous and local communities and that mutually agreed terms have been established.”⁹⁷

However, the term ‘traditional knowledge associated with genetic resources’ has not been defined, but there has been noted in the preamble about the “the interrelationship between genetic resources and traditional knowledge, their inseparable nature for indigenous and local communities, and the importance of the traditional knowledge for the conservation of biological diversity and the sustainable use of its components for the sustainable livelihoods of these communities.”⁹⁸ In certain cases, traditional knowledge could also be accessed without any reference to genetic resources. A potential user would be interested only in traditional knowledge and not in the genetic resources associated with it. But, the combination of traditional knowledge and genetic resources in identifying new product as well as new uses of existing product has led it associated with each other especially in the field of health and agriculture.⁹⁹ As far as indigenous and local communities are concerned, “the Nagoya Protocol along with CBD, merge the 'indigenous peoples' and 'local communities'

⁹⁶*Ibid.* at p.94.

⁹⁷*See n.7*, Nagoya Protocol, Article 7.

⁹⁸*Ibid.* Nagoya Protocol, Preamble.

⁹⁹McManis R. (2005), “Biodiversity, Biotechnology and the Legal Protection of Traditional Knowledge” *Washington University Journal of Law and Policy*, Vol.17 (1): 1-10, p.5.

together under the joint heading 'indigenous and local communities (ILCs)'. But, both are distinct legal subjects under the international law and domestic law.”¹⁰⁰ However, the provision of the Nagoya Protocol referring to ILCs mirrors the terms given under the CBD.

Further, there has been reference 'in accordance with domestic law' and 'as appropriate' to provide the parties flexibility in manner to take measure in domestic jurisdiction. “The cumulative effect of the reference to 'accordance with domestic law' and 'as appropriate' renders the prior and informed consent or approval and involvement requirement as the absolute discretion of a party.”¹⁰¹ Both the terms 'prior and informed consent' or 'approval and involvement' suggest two different standards where parties are free to opt which one to apply while obtaining the access of traditional knowledge associated with genetic resources. “Prior and informed consent has acquired status under international law, but 'approval' on the other hand, although appearing in Article 8(j) of CBD is rarely employed in international law.”¹⁰² Consequently, member states have this flexibility to opt for measures aiming to ensure either that access of traditional knowledge associated with genetic resources is determined based on 'prior and informed consent' or 'approval and involvement'. The other prerequisite is required to ensure that “such access to TK associated with genetic resources shall be on 'mutually agreed terms' established between the party and ILCs.”¹⁰³ The terms and conditions on which the pertinent parties agree, are called mutually agreed terms and normally form the content of any ABS agreement.

In addition, such access requirements regarding genetic resource and traditional knowledge associated to genetic resources are subject to special consideration and specific situations. For the specific situation, the protocol provides obligation to 'endeavor to cooperate' in trans-boundary existence of genetic resources and associated traditional knowledge where countries or communities share their genetic resources and/or associated traditional knowledge.¹⁰⁴ It identifies two instances in

¹⁰⁰ See n.95 at p. 91

¹⁰¹ *Ibid.* at p.95.

¹⁰² Swiderska K. et.al. (2007), “Community Protocol, Free, Prior Informed Consent- Overview and Lesson Learnt”, in Swiderska K. (ed.), *Biodiversity and Culture: Exploring Community Protocols, Rights and Consent*, London: International Institute for Environment and Development; available at: http://www.iied.org/doc/publications/overview_biodiversity_culture.pdf. Accessed on 15 Sept, 2016.

¹⁰³ See n. 97.

¹⁰⁴ See n.7 Nagoya Protocol, Article 11.

which trans-boundary cooperation is required: “when the same genetic resources are found in the territory of more than one country and when the same traditional knowledge is shared by indigenous and local communities located in several parties.”¹⁰⁵ The purpose of such cooperation is to implement this access and benefit sharing regime between them. The choice of the means or measures to identify and apply has been left to each party by using term ‘as appropriate’ or ‘where applicable’.

Besides, the party has mandatory obligations to treat certain situations or cases under special consideration for access and benefit sharing while developing and implementing ABS legislations. The protocol identifies three situations for special considerations: “non-communal research contributing to conservation and sustainable use of biodiversity; emergency cases in connection with human, animal, or plant health, and genetic resource for food and agriculture.”¹⁰⁶ Here, parties have to take into account special consideration when developing general rules implementing the protocol in their domestic legal system.¹⁰⁷ Firstly, it specifically requires parties to create favorable conditions to promote and encourage research contributing to the conservation and sustainable use of biodiversity. The basic obligations are twofold: “the need to promote simplified access measure to pure scientific research and other research for non-commercial purposes and the need to address the situation of a post-access interest that deviates from MAT at the time of access through negotiations of PIC and MAT.”¹⁰⁸ It also specifies that this should be implemented particularly when such research is carried out in developing countries.

Secondly, it establishes the obligation for parties to ‘pay due regard’ in cases of emergencies that threaten or damage human, animal or plant health. In view of this, “parties may take into consideration the need of expeditious access to genetic resource and expeditious fair and equitable sharing of benefits arising out for the use of such genetic resources.”¹⁰⁹ The use of term ‘may take into consideration’ gives an indication that each party has discretion to decide which action to undertake. It also

¹⁰⁵ See n.89 at p.210. See also, Dutfield G. (2013), “Trans-boundary Resources, Consent and Customary Law” *Law, Environment and Development Journal*, Vol.9 (2):259-263, p.260; available at: [Http://www.lead-journal.org/content/13259.pdf](http://www.lead-journal.org/content/13259.pdf). Accessed on 10 Aug. 2016.

¹⁰⁶ UNCTAD (2012), “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; Technical Study; p.25; available at: http://www.unctad.org/documents/technical_study/en.pdf Accessed on 5 Aug, 2016.

¹⁰⁷ *Ibid.* at p.26.

¹⁰⁸ See n.7 Nagoya Protocol, Article 8 (a).

¹⁰⁹ *Ibid.* Nagoya Protocol, Article 8(b).

enables the parties to take into consideration the need for 'expeditious' access to genetic resources and 'expeditious' benefit sharing arising out of the use of genetic resources including access to affordable treatment by those in need specially in developing countries.¹¹⁰

Taking into account the importance of genetic resources for food and agriculture and its special role for food security, "states shall take special consideration in regard to access to genetic resources for food and agriculture in two situations: first, plant genetic resources for food and agriculture listed under Annexure I of ITPGRFA, and second, all other genetic resources for food and agriculture."¹¹¹ For the first instances, party to this protocol that is also party to the ITPGRFA may consider in conjunction with Article 4(4) inserting a provision in its ABS legislation.¹¹² In connection with other genetic resources, a party may consider implementing this provision in conjunction with Art. 4(3) of this protocol, which requires due regard to be paid to 'useful and relevant on going work or practices' under relevant international organization as long as they are supportive of and do not run counter to the objective of the CBD.¹¹³

(iii) Fair and Equitable Benefits Sharing

Benefit sharing is another central pillar of the ABS regime. It has been considered as a logical consequence of the recognition of the rights of countries and communities over genetic resources and the traditional knowledge associated with these resources. The CBD provides the basic principles for sharing the benefits in fair and equitable way with countries and communities.¹¹⁴ Despite this, it has been largely overlooked by the countries in their legal and policy implementation. Consequently, this Nagoya Protocol reaffirmed the benefit sharing requirements established by the CBD and provided binding obligation for the parties to share the benefits according to legislative, administrative or policy measure in this regard.¹¹⁵ It sets out the

¹¹⁰Wilke M. (2013), "A Health Look at Nagoya Protocol-Implications for Global Health Governance," in Elisa Moregra et al. (eds.) *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implication Challenge*, Leiden: Martunis Nijhoff, p. 126.

¹¹¹ See. 7, Nagoya Protocol, Article 8(c).

¹¹²*Ibid.* Nagoya Protocol, Article 4 (4).

¹¹³*Ibid.* Nagoya Protocol, Article 4 (3).

¹¹⁴See n.2, CBD, Article 15.

¹¹⁵See n.7, Nagoya Protocol, Article 5.

obligations for state parties in three instances: “obligation to share benefits arising from the utilization of genetic resources, obligation to share benefits with ILCs when benefits derived from genetic resources held by these communities and obligation to share benefits arising from the utilization of traditional knowledge with ILCs holding such knowledge.”¹¹⁶All these obligations are to be fulfilled by the national legislative, administrative or policy measures. In this regard, there has been given indicative list of monetary and non-monetary benefits in the annexure of the protocol.¹¹⁷

First of all, the Nagoya Protocol specifies the benefit sharing obligations for the utilization of genetic resources as such:

“In accordance with Article 15, paragraph 3 and 7 of the Convention, benefits arising from the utilization of genetic resources as well as subsequent applications and commercialization shall be shared in fair and equitable way with the party providing such resources that is the country of origin of such resources or a party that has acquired the genetic resource in accordance with the Convention. Such sharing shall be upon mutually agreed terms.”¹¹⁸

It establishes an interstate obligation to share benefits arising from the utilization of genetic resources as well as subsequent application and commercialization with the party providing such resources. The interstate benefits sharing obligation is generally specified at the time of access when the PIC is obtained and MATs are established. Benefit sharing obligation has been linked with utilization of genetic resources and its ‘subsequent application and commercialization.’ Though, the ‘utilization of genetic resources’ has been defined in the protocol but ‘subsequent application and commercialization’ has not been defined in the protocol. Another precondition is that “benefits must be shared in a fair and equitable way on mutually agreed terms.”¹¹⁹By taking legislative, administrative or policy measure as appropriate, state has to create obligation for private user under its jurisdiction to share benefits on MATs to implement the international benefits sharing obligations.¹²⁰Besides, “such benefits arising from the utilization of genetic resources must be shared with the party providing the resources that is the country of origin of such resources or a party that

¹¹⁶ See n. 89 at p.112. See also, Tavdt W. and Fauchald K. (2011), “Implementing the Nagoya Protocol on ABS: A Hypothetical Case Study on Enforcing Benefit Sharing in Norway,” *Journal of World Intellectual Property*, Vol. 14 (5): 383-402, p. 384.

¹¹⁷ See n.7. Nagoya Protocol, Annexure. The same annexure has been adopted from the Bonn Guidelines of the Convention on Biological Diversity, 2002.

¹¹⁸ *Ibid.* Nagoya Protocol, Article 5(1).

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.* Nagoya Protocol, Article 5(3).

has acquired the genetic resources in accordance with CBD.”¹²¹ In other words, those countries that have acquired resources without PIC and MATs from the country of origin after the convention came into force will have no rights under the protocol.

Apart from this, it focuses on the benefits sharing obligations on the utilization of genetic resources that are held by ILCs.¹²² It deals with an internal situation in which each party has to share benefits with indigenous and local communities holding genetic resources within the domestic jurisdiction. It has been further integrated with the 'established right' over the genetic resources held by ILCs. In this regard, it refers to take legislative, administrative or policy measures as appropriate, with the aim of ensuring fair and equitable sharing of benefits in accordance with domestic legislation regarding the 'established right' of these communities over genetic resources.¹²³ Here, the term “‘established rights’ may refer to situations where a particular community can demonstrate that its right to genetic resources is already affirmed by domestic legislation, agreement or juridical decisions.”¹²⁴ Here, the parties to the protocol are under obligation to recognize “the rights for sharing the benefits under national legislation in accordance with the international human rights obligations, taking into account the customary law of ILCs as well as consonance with good faith with these communities.”¹²⁵ The other precondition is that such sharing should also be in a fair and equitable way based on the mutually agreed terms only.

Besides, the state parties are also required to take the appropriate legislative, administrative or policy measures to ensure that “benefits arising from the utilization of traditional knowledge associated with genetic resources are shared in a fair and equitable way with the indigenous and local communities holding such knowledge.”¹²⁶ This protocol creates binding obligations for member states to establish measures to reward communities for developing and preserving traditional knowledge associated with genetic resources. Here, the obligation is twofold: “it entails the development of

¹²¹ See n. 116.

¹²² *Ibid.* Nagoya Protocol, Article 5(2).

¹²³ *Ibid.*

¹²⁴ See n. 95 at p. 86.

¹²⁵ Savaresi A. (2013), “The International Human Rights Law Implications of the Nagoya Protocol” in Elisa Moregera et al. (eds.) *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implication Challenge*, Leiden: Martunis Nijhoff, p. 68.

¹²⁶ See n. 7, Nagoya Protocol, Article 5(5).

national measures to ensure that a benefit sharing obligation arises from the utilization of traditional knowledge at the inter-state level; on the other, it entails the development of a domestic mechanism for such benefit to be shared internally with relevant ILCs.¹²⁷ It simply obligates the parties to put in place conditions that enable ILCs to engage in ABS related activities concerning their traditional knowledge associated with genetic resources.¹²⁸ In other words, parties must establish domestic measures that provide how to engage with these communities to obtain either their PIC or their prior approval and involvement for access to their traditional knowledge and how to establish MATs.¹²⁹ For this purpose, “parties with such communities holding traditional knowledge must be mindful of their obligation to take into account community’s customary law, community’s effective participation, community’s decision making in ABS transactions.”¹³⁰ Now, it is up to parties of the communities to identify the rightful holders in that connection, especially where the traditional knowledge is actually held by one or more communities for real beneficiaries.

Further, benefits arising from the utilization of genetic resources as well as traditional knowledge include “monetary and non-monetary benefits that is not limited to those listed in the Annex of the protocol.”¹³¹ It provides guidance to parties developing domestic ABS framework and engaging in the establishment of MATs for the benefits to be shared. Here, the monetary benefits may include but not limited to: “access fees, up-front payments, milestone payments, royalties, license fees, joint ventures, joint ownership in relevant IPRs etc. On the other hand, the non-monetary benefits include sharing of results, collaboration and cooperation in research education and training programme, transfer of technology, capacity building, economic and social security benefits, institutional and professional relationships etc.”¹³² The monetary one provides the financial benefits for the provider country and relevant communities in lieu of the access to genetic resources and associated traditional knowledge, but non-monetary contributes in gradual capacity building, institutional building, economic

¹²⁷ See n.89 at p. 112.

¹²⁸Antons C. (2010), “The Role of Traditional Knowledge and Access to Genetic Resources in Biodiversity Conservation in South East Asia,” *Biodiversity Conservation*, 19: 1189-1204, p.1192.

¹²⁹*Ibid.*

¹³⁰Nijar G.S. (2013), “Traditional Knowledge System, International Law and National Challenges: Marginalization or Emancipation?” *The European Journal of International Law*, Vol. 24 (4): 1205-1221; p.1211.

¹³¹See n.7, Nagoya Protocol, Article 5(4).

¹³² See n.89 at p. 133.

and social security for the provider's countries and communities in utilization of their resources and knowledge.¹³³ However, it retains some flexibility providing the options to individual parties and parties to the protocol in the specific ABS transactions.

It also places an obligation on the parties to encourage individual users and providers to direct such benefits from the utilization of genetic resources towards conservation and sustainable use of genetic resources.¹³⁴ It has strengthened the link between access and benefit sharing with conservation and sustainable use of biodiversity by giving options in the annexure itself. The annexure of the protocol mentions potential benefit sharing options: "trust funds supporting conservation and sustainable use of biodiversity, capacity building for ILCs to conserve and sustainable use of their genetic resources, access to scientific information relevant to conservation and sustainable use of biological diversity."¹³⁵ However, the obligation under this provision is limited by the term 'encourage' in instead of 'ensure' to direct benefits towards conservation and sustainable use. It therefore provides great flexibility for the parties to implement these obligations. Still, it would function as a source of incentives for the achievement of the other two objectives of the CBD.

It further calls on parties to consider the need for and modalities of a global benefit sharing mechanism.¹³⁶ It does not create as such as global multilateral benefit sharing mechanism, but instructs parties to deliberate on whether such mechanism would be required in future. However, the purpose must be for the fair and equitable sharing of benefits derived from utilization of genetic resources and traditional knowledge associated with genetic resources. The possible creation of multilateral benefit sharing mechanism at the global level is required in two situations: "first, in trans-boundary situations or when it is not possible to grant or obtain PIC; second, to support the conservation of biological diversity and the sustainable use of its components globally."¹³⁷ Because, the large amount of the planet's genetic resources and traditional knowledge are shared by different countries and communities residing in

¹³³ *Ibid.* at p. 134.

¹³⁴ *See n.7*, Nagoya Protocol, Article 9.

¹³⁵ *See n.95* at p. 125.

¹³⁶ *See n.7*, Nagoya Protocol, Article 10.

¹³⁷ Tobin B.M. (2013), "Bridging the Nagoya Compliance Gap: The Functional Role of Customary Law in Protection of Indigenous Peoples Resources and Knowledge Rights" *Law, Environment and Law Journal*, 9/2: 142-162, p.152; available at: http://www.lead_journal.org/content/13142.pdf. Accessed on 22 Aug. 2016.

different countries. Hence, it has been stressed that “an innovative solution is required to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in trans-boundary situation of which it is not possible to grant or obtain prior informed consent.”¹³⁸ In other way, this has complimented benefit sharing obligation in specific circumstances that would not be adequately or effectively addressed by bilateral agreement.

In first instance, such mechanism is to be applied for the genetic resources and traditional knowledge associated with genetic resources that exist in trans-boundary situations. It may cover two situations: “an *in-situ* trans-boundary situation' in which genetic resources or traditional knowledge have developed their special characteristics and are still found across borders in natural circumstances and an *ex-situ* trans-boundary situations in which genetic resources or traditional knowledge are found outside the habitats where they developed their essential characteristics in more than one country.”¹³⁹ The second instance foreseen for potential multilateral benefits sharing mechanism is that the utilization of genetic resources and traditional knowledge associated with genetic resources for which it is not possible to grant or obtain PIC in a divergent natural, political and legal system.¹⁴⁰ The second part contributes to this end by making the objective of the global multilateral benefit sharing mechanism that of supporting the conservation of biodiversity and the sustainable use of its components globally.

(iv) Compliance Measures

The compliance measures for the access and benefits sharing over genetic resources are considered the third pillar of the Nagoya Protocol. A series of provisions provide the compliance obligations for each party on access and benefit sharing by way of appropriate, effective and proportionate measures under the domestic legislation and regulatory requirements. The purpose is to effectively curb bio-piracy and

¹³⁸ See n.89 at p. 197.

¹³⁹ *Ibid.* at p.200.

¹⁴⁰ Young T. R. (2013), “An International Cooperation Perspective on the Implementation of the Nagoya Protocol,” in Moregra et.al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenge*, Leiden: Martinus Nijhoff, p. 489.

misappropriation of the genetic resources and associated traditional knowledge.¹⁴¹ It has been proposed to control through disclosure requirements, checkpoints and certificate of compliance after the process of PIC and MAT in the country where the genetic resources being accessed.¹⁴² Such compliance measures have to be in consonance with domestic ABS legislation on genetic resources as well as the traditional knowledge to achieve the basic objective i.e. fair and equitable benefit sharing. In this regards, it specifically creates three obligations for state parties with respect to compliance for the genetic resources: “to adopt domestic measures to provide the provider’s countries national measures related to PIC and MAT; to enforce the user countries domestic measures providing for the respect of provider’s countries national ABS measures related to PIC and MAT; and to cooperate with other states in addressing the violation of provider countries national ABS measures.”¹⁴³

It further outlines series of obligation for the parties with respect to compliance for traditional knowledge: “to adopt users side domestic measures to provide that traditional knowledge associated with genetic resources utilized within their jurisdiction has been accessed in accordance with PIC or approval and involvement and establishment of MAT with ILCs located there; to enforce domestic user-side measures in relation to users non-compliance with domestic ABS requirements of other parties related to community PIC and MAT on access to traditional knowledge; and to cooperate in addressing the violation of domestic ABS measures on traditional knowledge.”¹⁴⁴

In support of the compliance mechanism, it provides obligation for each party to take domestic measures to monitor and enhance transparency regarding the utilization of genetic resources by two means: establishment of checkpoints and the issuance of internationally recognized certificate of compliance.¹⁴⁵ In addition, there is also obligation to address procedural challenges to be faced by the individual providers and users in situations of non-compliance with MATs or violations of contractual obligations. It

¹⁴¹ See n.95 at p. 168.

¹⁴² *Ibid.* See also, Nijar G.S. (2011), “The Nagoya Protocol on Access and Benefits Sharing of Genetic Resources: Analysis and Implementation of Options for Developing Countries” Research Paper 36, Malaysia: South Centre, available at: www.southcentre.org/index.php?option=com_docman&task=pdf Accessed on 15 July, 2016.

¹⁴³ See n.7, Nagoya Protocol, Article 15.

¹⁴⁴ *Ibid.* Nagoya Protocol, Article 16.

¹⁴⁵ *Ibid.* Nagoya Protocol, Article 17.

addresses two issues related to compliance with MATs: “firstly, it obligates the parties to 'encourage' the inclusion of provisions about dispute resolution including jurisdiction, applicable law and options for alternative dispute jurisdiction; secondly, it aims to support user's compliance with MATs by establishing an obligation for parties to 'ensure' an opportunity to seek recourse in disputes on MATs; and to take domestic measures on access to justice and the recognition of foreign judgments and arbitral awards.”¹⁴⁶ The combination of these obligations make the compliance mechanism quite significant for the implementation and effectiveness of the protocol.

In compliance for utilization of genetic resources, Nagoya Protocol obligates parties “to take measures for the users of the genetic resources in order to ensure that utilization of genetic resources within their jurisdiction is under compliance with the domestic ABS legislation of the other party to the extent that such legislation refers to the granting PIC and the establishment of MAT.”¹⁴⁷ This obligation is to fulfill through appropriate, effective and proportionate legislative, administrative or policy measures.¹⁴⁸ It provides considerable flexibility to the parties in relation to the nature of the measure to be taken. Here “each party individually needs to decide whether to adopt legal measures i.e. enacting legislation, or to take administrative measure i.e. passing regulation, or policy measures i.e. adopting strategy and action plan.”¹⁴⁹ Again, this stipulates three qualifiers 'appropriate, effective and proportionate' without setting out criteria for them in the protocol. However, this task would be undertaken by each party individually in its domestic legislation and regulation. Moreover, the measures for the requirements of the PIC and MAT are conditioned with 'as required by the domestic access and benefit sharing legislation or regulatory requirements of the other party'.¹⁵⁰ The reference 'as required by' necessarily implies here that PIC and MAT must have been incorporated in the legal system of the other party to apply this provision and 'of the other party' mean that party providing such resources that are country of origin of such resources or a party that has acquired the genetic resources in accordance with the convention.¹⁵¹

¹⁴⁶*Ibid.* Nagoya Protocol, Article 18.

¹⁴⁷*Ibid.* Nagoya Protocol, Article 15(1).

¹⁴⁸*Ibid.*

¹⁴⁹ See n.95 at p. 161.

¹⁵⁰ See n.89 at 257.

¹⁵¹*Ibid.*

In compliance to the utilization of traditional knowledge, it further proclaims that “the parties where traditional knowledge associated with genetic resources is being used shall take appropriate, effective and proportionate legislative, administrative or policy measures, as appropriate that it has been accessed in accordance with PIC or approval and involvement of ILCs and MATs have been established, as required by ABS legislation of the other party where such indigenous and local communities are located.”¹⁵² However, the wording of Articles 15(1) and 16(1) is almost identical, still at least three important differences were recognized: “Firstly, Art. 15(1) refers prior informed consent, whereas Art. 16(1) uses the term borrowed from Art. 7, adding 'approval and involvement' of ILCs. Secondly, an additional qualifier as 'appropriate' is inserted in Art. 16(1) following the main obligations creating more flexibility. Finally, unlike Art. 15(1) referenced only to the 'other party', Art. 16(1) specifies 'the other party where such ILCs are located'.”¹⁵³ Apart from this, Art. 16(2) similarly requires each party “to address situations where a user within its jurisdiction is found in non-compliance with the measures taken by the party itself in accordance Art. 16(1).”¹⁵⁴ For that, the party shall take appropriate, effective and proportionate measures against them. Again, Art. 16(3) states that “the parties shall cooperate in situation of alleged violation of domestic legislation or regulatory requirements of other party where ILCs are located.”¹⁵⁵ In this sense, parties have to cooperate only in these cases of non-compliance with international cooperation and coordination.

For the compliance with mutually agreed terms, each party has been also obliged to encourage the user and provider of genetic resources and/or traditional knowledge associated with genetic resources to include the provisions in MATs about the dispute resolution under their compliance mechanisms.¹⁵⁶ It uses the term 'to encourage' and includes the qualifier 'where appropriate' which indicates extensive flexibility of parties in the implementation of this obligation. This particular provision also contains a list of items relating to dispute resolution mechanism to be included in MAT: “the express jurisdiction clause for any dispute resolution processes, the applicable law;

¹⁵²*Ibid.* Nagoya Protocol, Article 16(1).

¹⁵³*See n.* 89 at p.265.

¹⁵⁴ *See n.* 7, Nagoya Protocol, Article 16(2).

¹⁵⁵*Ibid.* Nagoya Protocol, Article 16(3).

¹⁵⁶*See n.* 95 at p.185.

and/or the alternative dispute resolution, such as mediation and arbitration.”¹⁵⁷ Further, it also establishes an obligation for each party to ensure at the domestic level that if a dispute arises from MAT, recourse is available under its legal system.¹⁵⁸ However, such recourse has to be consistent with applicable jurisdictional requirement of the party concerned. Then, it requires to take effective measures by each party 'as appropriate' regarding “access to justice and the mutual recognition and enforcement of foreign judgments and arbitral awards with view to supporting providers that usually do not have easy access to courts in other countries.”¹⁵⁹

Nagoya Protocol also creates obligation for party to take domestic measure to monitor and enhance transparency regarding utilization of genetic resources to support other provisions related to compliance in the protocol.¹⁶⁰ It reinforces the compliance measures through designation of 'checkpoints' and by 'an internationally recognized certificate of compliance'. But it should be noted that “it refers to only to the utilization of genetic resources, but not to traditional knowledge associated with genetic resources.”¹⁶¹ The obligations have been prescribed with terms 'shall' which makes its mandatory, but with qualifier 'as appropriate' for certain degree of discretion to each party to decide the nature of measures. Though, it provides a non-exhaustive list of measures, even additional measure may also be taken. The designated one or more checkpoints must meet all the cumulative criteria concerning their characteristics and functions set out in Art. 17(1) (a).

The main function is to collect to receive the relevant information related to PIC, the source of the genetic resources the establishment of MAT, and utilization of genetic resources.¹⁶² Such information will be then provided by these checkpoints to relevant national authorities to the party providing PIC and to ABS Clearing House, 'as appropriate'. Additionally, protocol also introduces for the first time “an internationally recognized certificate of compliance which is a permit or its equivalent to be produced as evidence of the decision of granting PIC and the establishment of

¹⁵⁷ See n.7, Nagoya Protocol, Article 18(1).

¹⁵⁸ *Ibid.* Nagoya Protocol, Article 18(2).

¹⁵⁹ *Ibid.* Nagoya Protocol, Article 18(3).

¹⁶⁰ See n. 89 at p 267.

¹⁶¹ See n.95 at p.160.

¹⁶² See n.7, Nagoya Protocol, Article 17(1).

MAT.”¹⁶³ Though, Article 17(2) determines what it constitutes, but it has not defined separately in the use of terms in Article 2. However, Art. 17(4) lists minimum information that must contain in the certificate.¹⁶⁴ It is required to be available to ABS Clearing House for monitoring the utilization of genetic resources containing all the required information.¹⁶⁵

(v) Access to Technology

Access to relevant technology among state parties is essential element for the attainment of the objectives of this convention.¹⁶⁶ For this purpose, “each member state has to promote technical and scientific cooperation with other member states in particular developing countries.”¹⁶⁷ Accordingly, parties would endeavor to develop and carry out scientific research based on genetic resources provided by other state parties with the full participation of such state parties. In line with these obligations, Nagoya Protocol also provides the obligations for parties “to collaborate and cooperate in technical and scientific research as well as promote and encourage access to technology and transfer of technology to other parties for attainment of objectives of the convention and this protocol.”¹⁶⁸ However, it concludes with qualified obligation 'where possible and appropriate' for parties to engage in collaborative activities taking place in parties providing genetic resources based on pre-existing obligation under the CBD.

First of all, it states that “the parties shall collaborate and cooperate in technical and scientific research and development programmes, including biotechnological research activities, as a means to achieve the objective of this Protocol.”¹⁶⁹ Such obligations to cooperate is to be interpreted and applied in accordance with a series of CBD provisions. CBD specifically states “the parties shall promote technical and scientific cooperation with other contracting parties in particular developing countries in implementation of this convention.”¹⁷⁰ In this way, same provision remains applicable

¹⁶³ *Ibid.* Nagoya Protocol, Article 17(3).

¹⁶⁴ *Ibid.* Nagoya Protocol, Article 17(4).

¹⁶⁵ *Ibid.* Nagoya Protocol, Article 17(2).

¹⁶⁶ *See n.2*, CBD, Article 16.

¹⁶⁷ *Ibid.*, CBD, Article 18.

¹⁶⁸ *See n.7*, Nagoya Protocol, Article 23.

¹⁶⁹ *Ibid.*

¹⁷⁰ *See n.167.*

for the protocol also in this regard. However, the protocol provides for the technical cooperation in broad manner including all types of collaboration leading to the fair and equitable sharing of benefits which may include allocation of research funding, the sharing of research results, and contribution in scientific research and development programmes and participation in product development.¹⁷¹

It also includes a commitment using the term 'undertake' rather than an obligation for parties to promote and encourage access to and transfer of technology to developing countries or the least developed countries.¹⁷² It has to be aimed for sound and viable technological and scientific base for the state and non-state actors such as business entities for the attainment of the objectives of the CBD and Protocol.¹⁷³ It supports the obligation provided under the CBD which establishes that “each party shall provide and/or facilitate access for and transfer to the other parties of technologies that are relevant to the conservation and sustainable use of biological diversity and do not cause significant damage to the environment.”¹⁷⁴ This must be arranged under fair and most favored terms for developing countries. Above all, the commitment to technology transfer must be implemented in good faith to ensure fair and equitable benefit sharing as required to achieve the objective of the protocol.

(vi) Financial Mechanism

To operationalize the objective of the protocol, all parties are required to be in position to implement it at the national level. Article 25 provides for financial assistance to developing country parties and to parties with economics in transaction for the implementation of the protocol.¹⁷⁵ In view of this, Article 25 provides that “the parties will 'take into account' the provisions of Article 20 of the CBD in 'considering' financial resources for the implementation of the Nagoya Protocol.”¹⁷⁶ In consideration of financial resources, it designates the financial mechanism of the CBD for the financial mechanism of the Nagoya Protocol and addresses the issue of

¹⁷¹ See n.95 at p. 216.

¹⁷² See n. 166.

¹⁷³ Oliva M. (2013), “The Implications of the Nagoya Protocol for the Ethical Sourcing of Biodiversity” in Moregera E. and Tsioumani E. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenges*, Leiden: Martinus Nijhoff, p. 386.

¹⁷⁴ See n. 166.

¹⁷⁵ See n. 7, Nagoya Protocol, Article 25.

¹⁷⁶ *Ibid.*

financial assistance through financial mechanisms of the CBD.¹⁷⁷ Further, Article 20 of the CBD sets out wide range of obligations for financial support and incentives in accordance with the capabilities through national financing activities: “new and additional resources to developing countries, the provision of funds through bilateral or multilateral channels in consideration of the special dependence of developing countries on biological diversity, and by special consideration on the situation of developing countries.”¹⁷⁸The governmental organization, private entities and financial institutions are also encouraged to provide financial resources through new and innovative financial mechanisms for the implementation of the protocol.

Article 25 also designates “the financial mechanism of the CBD as the financial mechanism of the Nagoya Protocol for fulfilling the objective of the protocol.”¹⁷⁹ In accordance with the Article 39 of the CBD, the Global Environment Facility (GEF) has been designated as financial mechanism of the CBD.¹⁸⁰ Further, Article 25 makes the link to capacity building needs with financial mechanism providing the guidance to GEF, CBD COP and NP MOP.¹⁸¹ In this context, the protocol capacity needs include not only those of parties i.e. developing countries, least developed countries and parties with economics in transition, but also those of indigenous and local communities including women within communities.¹⁸²For this purpose, the protocol's governing body provides the guidance with respect to the financial mechanisms, but such guidance must be considered by the CBD COP. As one of its decision “invites the Global Environment Facility to provide financial support to parties to assist with the early ratification of the Nagoya Protocol and its implementation.”¹⁸³ Consequently, “Nagoya Protocol Implementation Fund” a multi-donor trust fund was established in May 2011, managed by GEF and operated by the CBD Secretariat to

¹⁷⁷ See n.2, CBD, Article 20.

¹⁷⁸ *Ibid.*

¹⁷⁹ See n.175.

¹⁸⁰ *Ibid.* Nagoya Protocol, Article 39.

¹⁸¹ Pisupati B. and Bavikatte K. (2014), “Access and Benefit Sharing as Financial Mechanism,” *Asian Biotechnology and Development Review*, Vol. 16 (2): 53-70, p.64.

¹⁸² *Ibid.*

¹⁸³ Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; See, CBD COP Decision X/25: Additional Guidance to the Financial Mechanism; See, Para 3, available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 20 Feb, 2016.

support the ratification and implementation of the protocol.¹⁸⁴In addition, the “‘Strategy for Resources Mobilization’ has been also adopted along with protocol to explore new and innovative financial mechanisms and enhance the global enforcement for resource mobilization.”¹⁸⁵ Even outside the treaty based financial arrangements, the developed countries have been assigned to help the developing countries for financial and other resources through bilateral, regional and multilateral sources such as regional and multilateral organizations and banks.

Relationship with other International Legal Instruments

After the entry into force of the CBD, the principles of access and benefits sharing have also influenced a wide range of other international instruments of different inter-governmental institutions for genetic resources and traditional knowledge associated with genetic resources. The inter-relationship would exist between the CBD and other instruments relating to all potential uses of genetic resources along with traditional knowledge. The Nagoya Protocol also provides the provisions for the interrelationship with existing and future legal instruments. Its Article 4 mirroring with Article 22(1) of the CBD provides that “the provisions of the protocol shall not affect the rights and obligations of any party deriving from any existing international agreement to which it may already be a party.”¹⁸⁶ It then obligates parties “to implement the protocol in a mutually supportive manner with other instrument relevant to it and has not been intended to create any hierarchy between this protocol and other international instruments.”¹⁸⁷

While implementing this protocol, “parties will also pay 'due regard' to useful and relevant ongoing work or practices under such international instruments or within relevant international organizations provided they are supportive of and do not run counter to the objectives of the convention and the protocol.”¹⁸⁸ Additionally, it also allows the parties to the protocol to develop and implement new specialized international agreements but clarified that these must be supportive of and

¹⁸⁴The Global Environment Facility established the ‘Nagoya Protocol Implementation Fund’ to facilitate the early entry into force and implementation of the Nagoya Protocol on 3 June, 2011 at Washington, USA; available at: https://www.thegef.org/sites/default/files/documents/NPIF_brochure_english.pdf. Accessed on 20 Oct., 2016.

¹⁸⁵*See n.84.*

¹⁸⁶*See n.7, Nagoya Protocol, Article 4 (1).*

¹⁸⁷*Ibid.*

¹⁸⁸*Ibid.* Nagoya Protocol, Article 4 (3).

cannot run counter to objectives of the CBD and this protocol as well.¹⁸⁹It further emphasizes that “this protocol is the instrument for the implementation of ABS provision of the CBD only and does not apply for the parties to the any specialized instrument with respect to the specific genetic resources covered by the specialized instrument and for its uses.”¹⁹⁰ In other words, if a party is not a party to the specialized instrument, this protocol will apply to all transactions of genetic resources. Above all, this Article 4 is quite significant to understand the inter relationship with the other existing agreements, future international agreements to be agreed and more specially existing or future specialized ABS instruments.

(i) Relationship with Existing Agreement

The Protocol attempts to clarify the relationship between the protocol and other international treaties existing at the time of its adoption. Accordingly, it states that “the provision is not intended to create a hierarchy between this protocol and other international instruments.”¹⁹¹ In one hand, “it express the intention to preclude an interpretation of the protocol that would lead to a modification of party's obligation relevant to ABS under any other existing international agreement. On other hand, it is also the duty of the party to promptly identify if any, the serious damage or threat to biodiversity that may materialize from other international instruments even though these are not environmental treaties.”¹⁹²

In addition, it mandates parties “to implement the protocol in a 'mutually supportive manner' with other 'relevant' international instruments.”¹⁹³ The parties in their implementation of the protocol will have to ensure mutual supportiveness between the protocol and the other international instruments or organizations such as UN Declaration on the Rights of Indigenous Peoples, UNESCO Convention on Intangible Cultural Heritage, the Law of the Sea, the Law of Trade and the other bilateral treaties.¹⁹⁴ For this purpose, “the protocol governing body has to monitor the existing

¹⁸⁹*Ibid.* Nagoya Protocol, Article 4 (4).

¹⁹⁰*Ibid.*

¹⁹¹*See n.* 186.

¹⁹²*See n.* 89 at p. 88.

¹⁹³ *See n.* 7, Nagoya Protocol, Article 4(2).

¹⁹⁴*See n.* 95 at p.76; *See also*, Glowka L. and Normand V.(2013), “The Nagoya Protocol on Access and Benefit Sharing: Innovations in International Environmental Law” in Moregera E. and Tsioumani E. (ed), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenges*, Leiden: Martinus Nijhoff, p. 43.

intergovernmental developments on the matter related to the ABS so long as they are supportive and do not run counter to the objectives of the CBD and its Nagoya Protocol.”¹⁹⁵ In other dimensions of mutual supportiveness related with future international agreements referred in this Article, it suggests “to ‘pay due regard’ to ‘useful’ and ‘relevant ongoing work or practices’ under any relevant international organization that are of supportive of and do not run counter to the objective of the convention and this protocol.”¹⁹⁶ During the negotiations and even after, relevant international instruments are being negotiated under the World Health Organization, World Intellectual Property Organization and FAO Commission on Genetic Resources of Food and Agriculture.¹⁹⁷ In this context, the protocol's governing body would provide relevant guidance on different occasions in due course of the time.

(ii) Relationship with Specialized ABS Instruments

It has been also expected that one or more specific international instrument would also be developed to deal with other activities in relation to genetic resources and associated traditional knowledge. If any specialized ABS instruments are adopted in this regard, “it would prevail over the protocol for those parties that are party to both instruments as well as in respect of the specific genetic resources covered by and for the purpose of the specialized instrument.”¹⁹⁸ If a specialized ABS agreement is found inconsistent with the objectives of the CBD and the protocol, the party would not implement it. “The existing specialized ABS agreements are ‘FAO Treaty on Plant Genetic Resources for Food and Agriculture’ and ‘WHO Pandemic Influenza Preparedness Framework’ which have same legal status of and is consistent with the CBD and its Nagoya Protocol.”¹⁹⁹ The possible specialized international instruments may evolve in future for specific regions and sectors; then, similar obligations would apply for mutual supportiveness with those instruments also.

¹⁹⁵*Ibid.*

¹⁹⁶*See n.188.*

¹⁹⁷*See n.95 at p.78.*

¹⁹⁸Medaglia J.C. (2010), "The Relationship between the Access and Benefit Sharing International Regime and Other International Instruments: The World Trade Organization and the International Union for the Protection of New Varieties of Plants", *Sustainable Development Law and Policy*, Vol.10, Issue 3, p. 24-52.p.28.

¹⁹⁹*See n.95 at p. 80.*

Critical Evaluation

Among the International legal instruments, the CBD is pioneer in introducing the concept of ABS for genetic resources in international environmental law. Though the concept has found its origin in late 1970s, but all such legal instruments were applicable to the conservation and management of specific resources and regions.²⁰⁰ For the access to genetic resources, there had been applied the concept of common heritage of mankind which resulted into free flow of the resources across the borders. Further, the economic significance of genetic resources stimulated by the biotechnological advancement has increased the appropriation and misappropriation of uncontrolled access devoid of benefit sharing.²⁰¹ It was only the developed countries that are basically instrumental in the “appropriation of genetic resources by way of bioprospecting and misappropriation by way of bio-piracy in developing countries devoid of equitable benefit sharing.”²⁰² The CBD marked a paradigm shift in principles from uncontrolled access and unequitable sharing to facilitated access and fair and equitable sharing recognizing the national sovereignty over genetic resources.²⁰³ Since then, fair and equitable benefit sharing was at the heart of the political and legal debate under the CBD regime as well as other multilateral forums.

In spite the adoption of the CBD, “the fair and equitable sharing of benefits has been largely overlooked as 'orphan child' in the legal and policy implementation for long time.”²⁰⁴ The objective on fair and equitable benefit sharing remained unimplemented due to range of contentions and complication among the member states. The CBD only calls upon parties “to legislate on ABS for requiring and granting prior informed consent (PIC) coupled with the requirement to establishment of mutually agreed terms (MAT) with a view to share the benefits arising out of the utilization of genetic resources.”²⁰⁵ In view of this, “most of the legislations and policies on ABS have considered only one side of the equation focusing in asserting the rights over genetic resources and establishing access procedures in providing countries. The CBD however gives very little guidance on how to address benefit sharing

²⁰⁰See n. 19 at p. 17.

²⁰¹Sampath G. (2005), *Regulating Bioprospecting: Institutions for Drug Research, Access and Benefit Sharing*, New York: UNU Press, p. 24.

²⁰²*Ibid.* at p.25.

²⁰³Prester F. (2002), "The CBD at Ten: The Long Road to Effectiveness", *Journal of International Wildlife Law and Policy*, 5: 269-285, p.272.

²⁰⁴Gunaeratne C. (2012), *Genetic Resources, Equity and International Law*, Cheltenham: Edward Elgar, p. 54.

²⁰⁵See n. 52 at p. 5.

process either at the time of access or at the point of utilization in new ABS situations.²⁰⁶The benefit sharing was conceived as an economic incentive under CBD for the developing countries to conserve biodiversity and to end the injustice.²⁰⁷Because,“the mounting profits emanating from the commercial exploitation of genetic resources have been gained through exclusive patent protection by suppressing the access source and avoiding the incentives and benefit sharing from developing countries.”²⁰⁸This has been grave injustice which created huge tension among the nations dividing the world bipolar as north-south divide.²⁰⁹

To address the new ABS situations, a non-legally binding Bonn Guidelines were subsequently adopted which provided some guidance regarding the types of benefits, distribution of benefits and mechanisms for benefit sharing. It also provided a list of monetary and non-monetary benefits, but acknowledged also that “the benefit sharing arrangements may vary depending upon the type of benefits, condition of the country, the stakeholders involved and capabilities of the parties on case by case basis.”²¹⁰ The member states continued to experience several problems in implementation of the benefit sharing provisions devoid of legal certainty and clarity. Because of this, “only a limited number of countries developed domestic ABS legislation after adoption of Bonn Guidelines. The guidelines are too soft and voluntary in nature hence, considered insufficient to meet the challenges facing the implementation of ABS provisions.”²¹¹ Representatives of the indigenous communities have also criticized the use of term 'stakeholders' for them as they consider themselves to be 'right holders' not just 'stakeholders'.²¹² As these guidelines do not contain any obligation for the

²⁰⁶Kate ten K. and Laird S. (1999), *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefits Sharing*, London: Earth Scan. p.34.

²⁰⁷Jeffery M. (2002), "Bioprospecting: Access to Genetic Resource and Benefit Sharing under the Convention on Biodiversity and the Bonn Guidelines,"*Singapore Journal of International & Comparative Law*, 6:747-788, p.752.

²⁰⁸*Ibid.* at p.762.

²⁰⁹Rosendal G.K. (2006), "Balancing Access and Benefit Sharing and Legal Protection of Innovations from Bioprospecting" *The Journal of Environment and Development*, 15(4), 428-447.p.431.

²¹⁰Bhattra A. M. (2010), *Protection of Himalayan Biodiversity: International Environment law and a Regional Legal Framework*, London: Rutledge, p. 40.

²¹¹*Ibid.*

²¹²Koutouki K. and Bieberstein K. (2012), “The Nagoya Protocol: Sustainable Access and Benefit Sharing for Indigenous and Local Communities,” *Vermont Journal of Environmental Law*, Vol.13: 512-535, p.523.

user countries, it is also argued that “they are too focus on the access side and have neglected the benefits sharing side.”²¹³

Consequently, serious concerns were felt by different states and stakeholders for an effective instrument to implement the ABS principles under the CBD regime with more legal certainty, clarity and transparency. After 18 years of negotiations, the Nagoya Protocol on Access and Benefit Sharing was adopted for the development and implementation of the ABS regime with more certainty, clarity and transparency.²¹⁴ But, this has not adequately achieved the purpose adopted in the preamble and objective given in the protocol. “It provides vague terms and definitions, weak obligations to user countries and uncertain benefits dependent upon the capabilities of parties to reach on mutually agreed terms.”²¹⁵ Not only this, it gives a broad range of implementing measures under the discretion of its parties using several qualifiers. “It does not provide the guidance on how to address the questions of fairness and equity for sharing of benefits in domestic framework.”²¹⁶

Apart from this, “the fair and equitable benefit sharing lies at the core of the CBD regime but, the terms 'fair', 'equitable', 'benefit', or 'sharing' were not defined in the CBD, the Bonn guidelines or the Nagoya Protocol.”²¹⁷ There are no clear criteria for determining what is fair and equitable in the provisions and it is totally dependent upon the non-state actors on their private contracts or terms.²¹⁸ Not only this, “subsequent application and commercialization’ has also not been defined in the protocol which would create difficulties in separating the research and development. The other term 'utilization of traditional knowledge' has also not been defined in the CBD or Nagoya Protocol.”²¹⁹ It does not even establish any procedural standards to

²¹³*Ibid.*

²¹⁴Joseph R.K.(2010),“International Regime on Access and Benefit Sharing: Where are We Now?” *Asian Biotechnology and Development Review* 12(8), 77-94. p.75.

²¹⁵Tvedt M.W. (2013), "Beyond Nagoya: Towards a Legally Functional System of Access and Benefit Sharing" in Oberthur S. and Rosendal R. (ed.) *Global Governance of Genetic Resources: Access and Benefit Sharing in the Nagoya Protocol*,Rutledge: London, p. 160.

²¹⁶*Ibid.*

²¹⁷ See n.89 at p.114.

²¹⁸ There has been evaluated this ABS governance architecture with regard to the effectiveness of the Nagoya Protocol. The critical factors has been taken for accessing the effectiveness an implementation of the ABS regime at national level. See,Richerzhagen C. (2014), “The Nagoya Protocol: Fragmentation or Consolidation?” *Resources*, Vol.3:135-151, p.143.

²¹⁹ See n.95 at p. 110.

the affect that the benefits collected or shared go back to the custodians of genetic resources and associated traditional knowledge.²²⁰

For ensuring the fair and equitable sharing, each party has to take legislative, administrative or policy measures, 'as appropriate'. "This qualifier 'as appropriate' provides enough discretion to adopt the measures in this regard to create such obligation for private users under their jurisdiction."²²¹ Now, the implementation of this provision could only be judged on good faith for realizing the fair and equitable sharing of benefits among and within states.²²²It has been noted that "the lack of definitions and the use of language which softens the obligations, give the parties considerable leeway in interpreting and implementing the ABS provisions."²²³ Hence, it is argued here that ABS system envisaged by the CBD and its protocol provides weak obligations on sharing of benefits in bilateral transactions.

As to the recipients of the benefits, it is also left to the discretion of the parties concerned to take legislative, administrative, policy measures 'as appropriate' to ensure that benefits are to be shared with individuals or the indigenous and local communities. It is only required in case of 'established rights' of such communities and excludes other rights based on customary use of genetic resources.²²⁴ In addition, "the sharing of benefits arising from the traditional knowledge of indigenous and local communities are not only subject to such rights being established, but also the right requirements is qualified by 'as appropriate'."²²⁵ Once again, such references indicate towards the weak obligations of the states with regard to benefit sharing on

²²⁰Ruiz M. and Vernooy R. (2012), "The Policy and Legal Context for Access and benefit sharing," in Ruiz M. and Vernooy R.(ed.)*The Custodians of Biodiversity: Sharing Access to and Benefits of Genetic Resources*, London: Routledge, p.12.

²²¹ See n.95 at p. 88.

²²² Broggiato A. et. al. (2015), "Access, Benefit Sharing and the Nagoya Protocol: The Confluence of Abiding Legal doctrines" in Coolsaet B. at. el. (ed.), *Implementing the Nagoya Protocol: Comparing Access and Benefit Sharing Regimes in Europe*, Leiden: Brill Publishers, p.20.

²²³Kamau E.C. at. el. (2010), "The Nagoya Protocol on Access to Genetic Resources and Benefit Sharing: What is New and What are the Implications for the Provider and User Countries and the Scientific Community?" *Law, Environment and Development Journal*, 6/3:246-262, p.262; available at: <http://www.lead-journal.org/content/10246.pdf>. Accessed on 22 Aug, 2016.

²²⁴ Buck M. and Hamilton C. (2011), "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" *Review of European Community & International Environmental Law*, 20(1): 47-61, p.54.

²²⁵Kontonki, K. (2011), "The Nagoya Protocol: Statutes of Indigenous and Local Communities" Legal Aspects of Sustainable Development, Legal Working Paper Series, Montreal: CISDL; available at: http://www.cisd.org/.../the_nagoyaprotocol20%_status20%_local20%_communities.pdf. Accessed on 12 Aug, 2016.

traditional knowledge for indigenous and local communities. It is also remained to be clarified whether and how the benefit sharing obligation applies to traditional knowledge that is publicly available and when no holders of such knowledge are recognized in certain situations.²²⁶The obligation to direct the benefits arising from the utilization of genetic resources towards two other objectives of CBD has wide margins of discretion to the parties. The relevant provision limits itself to require parties to 'encourage' but not necessarily to 'ensure' directing benefits to conservation and sustainable use or adopt specific measure in this regard.²²⁷ In addition, there is no reference to direct the sharing of benefit-arising from the use of traditional knowledge in this provision.²²⁸ In this way, there is also weak obligation to ensure such benefit sharing to contribute in conservation and sustainable use of the biological diversity.

Conclusion

International legal regime on access and benefit sharing basically covers Convention on Biological Diversity, Bonn Guidelines and Nagoya Protocol along with the multilateral system provided under the Plant Treaty. Though, these instruments regulate the access and benefit sharing over the genetic resources and associated traditional knowledge, but provide weak and flexible obligations regarding the ABS especially the benefit sharing and compliance obligations. The CBD and its Nagoya Protocol even does not provide the guidance for fair and equitable sharing of the benefit sharing which remain totally dependent upon the private contract or agreement. This would be detrimental to the position of the developing nations in view of their development priorities and bargaining capacities. Equal and fair position is required to enter benefit sharing agreement and to fix the responsibility on the violation of the domestic ABS legislation and bilateral agreement. To support this purpose, the appropriate and specific institutional framework would be instrumental for the parties to establish and implement the ABS system at national and international level.

²²⁶Nijar G.S. (2010), "Incorporating Traditional Knowledge in an International Legal Regime on Access to Genetic Resources and Benefit Sharing: Problems and Prospects," *The European Journal of International Law*, Vol. 21 (2): 457-475, p.466.

²²⁷ See n.95 at p.192.

²²⁸Chennells R. (2013), Traditional Knowledge and Benefit Sharing after the Nagoya Protocol: Three Cases from South Africa" *Law, Environment and Development Journal*, 9/2:163-184, p.183; available at: <http://www.Lead-journal.org/content/10246.pdf>. Accessed on 22 Aug, 2016.

CHAPTER IV

INSTITUTIONAL FRAMEWORK ON ABS REGIME

Introduction

Since 1970s, there has been rapid growth of international environmental law along with proliferation of international institutions addressing several environmental issues around the world. The sovereign states have continuously relied on the international institutions “to promote international cooperation to address global challenges through ‘global conferencing’ and ‘treaty law making’ processes.”¹ It has been also observed that “with advent and proliferation of the several multilateral environmental agreements, the sovereign states have sought to create institutions as facilitators and catalysts for treaty making process.”² Consequently, there has been found organic link between the development of laws and establishment of institutions. “The institution not only play important role in triggering the development of the law, but also in facilitating the implementation of those law.”³ These institutions could be set up at both national and international level by these sovereign states or non-state actors for different political, social, economic and environmental purposes.

The international institutions derive its mandate and operation through international agreements or instruments. However, national institutions established by the state derive their power and functions from the statute enacted by its legislative authority. At international level, “almost all multilateral environmental agreements (MEAs) have put in place institutions to give effectiveness to the provisions and its implementation.”⁴ There are certain variations of institutions among MEAs due to specific requirements and problems, but have common structures to facilitate the purposes or address the issues. Under multilateral environmental agreements,

¹The sovereign states as the subject of the international law have also established international institutions through international cooperation to serve their interests. They utilized the technique of global conferencing to provide the platform for treaty making process. Desai B.H. (2003), *Institutionalizing International Environmental Law*, New York: Translational Publishers, p. 17. See also, Desai B.H. (2000), “Revitalizing International Environmental Institutions: The UN Task Force Report and Beyond” *Indian Journal of International Law*, Vol. 40 (3):455-506, p.456.

²There has been indicated that five hundreds and more multilateral environmental treaties and other agreements have been adopted in which around three hundreds were arrived only after the Stockholm Conference, 1972. The sovereign states further incorporate institutional structures in those agreements that could address the sectoral and regional issues. Desai B.H. (2010), *Multilateral Environmental Agreements: Legal Status of the Secretariat*, New York: Cambridge University Press, p. 48.

³*Ibid.* at p. 49.

⁴*Ibid.* at p.60.

“institutional framework includes the decision-making mechanisms, executive organs, subsidiary bodies, scientific bodies, financial mechanism and secretariat.”⁵ Such institutional framework is established through treaties on both regional and global level with adequate structure and function to address the specific issues.

In this context, Convention on Biological Diversity (CBD) was also adopted with similar institutional framework to address the conservation, sustainable use, access and benefit sharing of biological resources.⁶ Like any other multilateral environmental agreements, it establishes highest governing body known as Conference of Parties (COP), subsidiary bodies, scientific and technical committee, financial mechanism and secretariat as executive organ under the head of executive secretary.⁷ The basic function is to steer, supervise and review the implementation and development of basic principles and objective of the convention. Apart from this, its Nagoya Protocol also designates conference of parties as Meeting of Parties (MOP), assigns the function of protocol to the subsidiary bodies of the CBD and to serve the function of secretariat in this regard.⁸ Additionally, it asks for the establishment of Global Multilateral Benefit Sharing Mechanism, Access and Benefit Sharing Clearing House, Competent National Authority, National Focal Point and other designated Check Points for the compliance to the ABS regime.⁹ Besides, there are certain other international institutions related to this convention and protocol due to functional and administrative relations. Some of the international institutions are doing useful and relevant work in support of the attainment of the objectives of the CBD and some of the international organizations provide functional assistance and guidance in this regard. These international institutions work and proposed to work in mutual supportive manner for implementation of the ABS regime.

⁵*Ibid.* at p.87.

⁶Convention on Biological Diversity (CBD) adopted on 5 June, 1992 at UN Conference on Environment and Development at Rio de Janeiro, Brazil. It came into force on 29 December, 1993 after adequate number of ratifications and now 193 countries are parties to it. Convention on Biological Diversity, 1992, *ILM*, Vol.31, 1992, *See*, Full Text, available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

⁷*Ibid.*

⁸ Nagoya Protocol has been adopted under the Convention on Biological Diversity on 29 October, 2010 which came into force on 12 October, 2014. Currently, it has been ratified by around 96 member countries. Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; *See*, COP X Decision X/1, Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization, (UNEP/CBD/COP/DEC/X/II) available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 12 April, 2016.

⁹*Ibid.*

ABS Related International Institutions

Most of the international and national institutions operate with the cooperation among national governments and intergovernmental institutions for any specific or regional issues including biodiversity conservation and management. “The affiliation and relation with other international institutions depend upon the specialized administrative functions, specific purposes, scientific cooperation and conflict resolution.”¹⁰ In this context, the United Nation Organization (UNO) is supreme institution at international arena which regulates the relations and affairs of the countries on global concerns including environment.¹¹ It consist of several organs and specialized agencies along with certain other auxiliary institutions working on several international affairs including environment protection and biodiversity conservation.

Its General Assembly contributes in the promotion and adoption of conventions, protocols and resolutions relating to environment protection and biodiversity conservation. In this regard, the United Nations Environment Programme (UNEP) is primer entity of the UNO to work for the environment protection and biodiversity conservation.¹² It has contributed in the adoption and development of the several conventions, protocols and agreements including CBD. CBD obligates the member states to regulate the access and benefit sharing on the utilization of the genetic resources with help of the UNEP. Due to various utilization of genetic resources, different institutions are also working on different aspects of genetic resources along with CBD.¹³ All those institutions are directly or indirectly depended on the access to genetic resources and their utilization for different purposes. Hence, it is necessary to explore the inter-relation and inter-face with other international institutions relevant for the ABS regime.

¹⁰See n. 2 at p. 88.

¹¹The United Nations is an international organization founded in 1945. It has currently 193 Member States. It has six organs and several specialized agencies which work on global concerns guided by the purposes and principles of its Charter in the field of peace and security, human rights, humanitarian and health emergencies, climate change, sustainable development and environment protection. More details available at: <http://www.un.org/en/sections/what-we-do/index.html>. Accessed on 2 Sept. 2016.

¹²The United Nations Environment Programme (UNEP) established vide UNGA Resolution No. 2997, 15 December, 1972 is the leading global environmental authority within the United Nations system which sets global environmental agenda and promote the development of international environmental law; available at: <http://www.unep.org/about/who-we-are/overview.html>. Accessed on 2 Sept. 2016.

¹³Rosendal K (2005), "Regulating the Use of Genetic Resources: Between International Authorities" *European Environment*, Vol.16, No. 5, pp. 265-277, p. 267.

(i) United Nations General Assembly

It is one of the major organ of UNO which play as catalyst role in promoting international cooperation on global concerns among the nations.¹⁴ It promotes, regulates and reviews the status of the international law and affair affecting the international community. It contributes in the promotion and adoption of conventions, protocols and resolutions on different issues of global concerns including environment protection and biodiversity conservation.¹⁵The UN General Assembly has also adopted several resolutions specifically supporting the Convention on Biological Diversity and ‘invited UNEP Executive Director to report on progress in the implementation of this convention.’¹⁶ It has also invited the secretariat of the CBD “to assist in the preparation of the ‘World Summit on Sustainable Development(WSSD),’ which subsequently called upon the states to have an effective international legal regime on Access and Benefit Sharing within the framework of the CBD.”¹⁷ In this way, it has played important role in initiating the negotiation and making consensus on the CBD and Nagoya Protocol on the issue of ABS regime at relevant time.

(ii) United Nations Environmental Programme (UNEP)

It was the UN General Assembly which established UNEP in December 15, 1972 and delegated “the authority to promote ‘international cooperation in the field of environment’ and to work for the ‘development and promotion of environmental law’.”¹⁸ Guided by this mandate, UNEP has continued to make contributions in the development of global and regional legal instruments in regard to environment protection and biodiversity conservation. “UNEP has also started a series of 10 years programme since 1982, called as 'Montevideo Programme' for the development and

¹⁴The General Assembly is representative organ of the United Nations which plays significant role in the process of standard-setting and the codification of international law.The Assembly considers current issues of critical importance and make recommendations to promote international political cooperation and the development of international law.United Nation General Assembly;Details available at: <http://www.un.org/en/ga/about/background.html>. Accessed 2 Sept. 2016.

¹⁵*Ibid.*

¹⁶The General Assembly provides a unique forum for multilateral discussion of the full spectrum of international issues and adopts resolutions and recommendations in this regard. It invites the designated officials of the secretariat for the coordination and implementation of such resolutions and decisions. Details available at: <https://www.un.org/en/ga/resolutions.html>. Accessed 2 Sept. 2016.

¹⁷*Ibid.*

¹⁸*See n. 12.* It is program and a subsidiary body of the United Nations General Assembly which has been established vide UNGA Resolution No. 2997, 15 December, 1972.

periodic review of environmental law.”¹⁹ Recently, “Montevideo Programme IV for the decade 2011-20 was adopted with 27 programs in four priority areas including ‘conservation, management and sustainable use of natural resources’.”²⁰ Besides, UNEP also assists in building the national capacities to develop laws and institutions in compliance to the multilateral environmental agreements. Accordingly, UNEP has supported the member states to ratify the CBD and its protocols including Nagoya Protocol. Apart from this, “UNEP has provided support to large number of countries to achieve the 'Global Aichi Biodiversity Targets' and to support the 'Strategic Plan of Biodiversity’.”²¹ The UNEP is also working on the effectiveness of and cooperation among biodiversity related conventions and exploring opportunities for further synergies among biodiversity related conventions.²²

Along with this, UNEP has also organic relationship with the international conventions adopted for institutions building processes and services. As soon as the convention is adopted, the first requirement is to establish an 'interim secretariat' to organize the first meeting of Conference of Parties.²³ Accordingly, interim arrangement for the CBD secretariat has been provided by the UNEP as decided in the first meeting of the Conference of Parties.²⁴ For this purpose, separate agreement on administrative arrangement between head of UNEP and the Secretariat of CBD was signed.²⁵ In the second meeting of the COP, Canada offered to host the Permanent

¹⁹UNEP has started ten-year Montevideo Programme for the Development and Periodic Review of Environmental Law. First Montevideo Programme was prepared in 1981 which was adopted by the Governing Council of the UNEP in 1982. Till now, there has been four Programmes adopted for the development and review of International Environmental Law. More details available at: <http://www.unep.org/divisions/delc/montevideo-programme/eng.html>. Accessed on 5 Sept, 2016.

²⁰The Governing Council of the UNEP recently adopted the Fourth Montevideo Programme in February 2009 for the decade 2011-20. It provides a framework for UNEP activities in development and implementation of Environmental Law for the decade beginning in 2010. More details available at: <http://www.unep.org/divisions/delc/montevideo-programme/2/eng.html>. Accessed on 5 Sept, 2016.

²¹ UNEP has prepared the annual report on cross-cutting environmental issues such as: sustainable finance, marine ecosystems, waste management, land degradation, the illegal trade in wildlife and protection of the environment during armed conflict etc. In year 2016, UNEP has support many member states to achieve the Aichi Targets and Strategy Plan on Biodiversity as well. *See*, The UN Environment Annual Report, 2016: Engaging People to Protect the Planet; available at: <http://www.unep.org/annual-report/2016.html>. Accessed on 20 July, 2016.

²²*Ibid.*

²³*See n.1* at p. 140.

²⁴*See n.6*, CBD, Article 40.

²⁵Administrative Agreement between UNEP and the Secretariat of the CBD, 1997. Now, the revised Administrative Agreement between UNEP and the Secretariat of the CBD, 26 Oct. 2010 was signed in the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity, 18 - 29 October 2010, Nagoya, Japan, CBD COP Decision X/45: Administration of the Convention and Budget for the Programme of work for the biennium 2011-2012; available at: <https://www.cbd.int/decision/cop/default=12311.html>. Accessed on 5 Sept, 2016.

Secretariat of CBD in Montreal which was accepted under the auspicious of UNEP.²⁶ In this context, UNEP provided the services to CBD secretariat which is located in Montreal, Canada based on separate headquarter agreement signed between CBD Secretariat and the Government of Canada.²⁷ In additions to this, UNEP also provides its services and assistance to the parties of the Nagoya Protocol to achieve the objectives of the CBD. In this regard, UNEP has also provided services to the session of COP/MOP and its subsidiaries bodies in full cooperation with the Executive Secretary of the CBD.

(iii) International Union for Conservation of Nature (IUCN)

It is world's largest environmental organization consist of public, private and non-governmental organizations to address the environmental challenges including biodiversity conservation, climate change and sustainable development.²⁸In this context, "IUCN has contributed in the development of several multilateral environmental agreements including Convention on Biological Diversity."²⁹ Further, IUCN encourages the CBD parties to ratify and implement the Nagoya Protocol to advance their national process and adhere to achieve the objective of the convention. It has important role to play in the formation of multilateral institutions for the compliance and implantation of the ABS regime. IUCN also provides necessary tools and techniques to develop the ABS law and practice to member states involving the experts and other stakeholders. Specifically, "IUCN seeks to influence, encourage and assist the international community to conserve the genetic diversity and to ensure that any use of such genetic diversity is equitable and sustainable on the Earth."³⁰

²⁶The Second Meeting of the Conference of the Parties of the Convention on Biological Diversity accepted the offer of Canada to host the secretariat of the CBD at Montreal by this headquarter agreement signed on 25 Oct, 1996. (UNEP/CBD/COP/2/Rev.1)Headquarters Agreement between General of Canada and the Secretariat to the CBD, 1997; available at:<http://treaty-accord.gc.ca/text-texte.aspx?id=101442.html>. Accessed on 5 Sept, 2016.

²⁷*Ibid.*

²⁸The International Union for Conservation of Nature (IUCN) is union of public, private and non-governmental organizations uniquely composed for conservation of nature and natural resources.It was founded in October 1948 in France with name International Union for the Protection of Nature which was subsequently changed to International Union for Conservation of Nature and Natural Resources in 1956. Its secretariat is based on Gland, Switzerland.International Union for Conservation of Nature, 1948, available at: <http://www.iucn.org/about/theme/enviornmentallaw.html>.Accessed on 5 Feb, 2017.

²⁹*Ibid.*

³⁰*Ibid.*

(iv) Global Environment Facility (GEF)

It is an independent financial institution under the auspicious of World Bank to address financial mechanism for the multilateral environmental agreements dealing with global environmental issues.³¹ It provides grants and concessional funding to developing countries and countries with economies in transition for projects relating to biodiversity conservation as well. Accordingly, “GEF was entrusted to become the financial mechanism for Convention on Biological Diversity during the period between the convention's opening for signature and its entry into force.”³²The memorandum of understanding between the COP CBD and the Council of the GEF provides legal basis for the relationship between the Convention and Facility including role and responsibilities of each to achieve the objectives.³³ Financial resources relating to the implementation of the convention and its protocol are administrated under Art. 20 and 21 of the CBD, Art. 28 of Cartagena Protocol on Biosafety and Art. 25 of the Nagoya Protocol under GEF. For that, the Conference of Parties of the CBD was given control over such financial mechanism established by the GEF. In this regard, “the Conference of Parties makes assessment of the amounts of funds that are necessary to assist developing countries in fulfilling their commitment under the convention.”³⁴ However, “the developing countries may also avail themselves of financial resources related to the implementation of the convention through bilateral, regional and other multilateral channels.”³⁵

For effective implementation of the Nagoya Protocol on ABS, it was deemed necessary to establish a new trust fund that could finance activities to the process of ratification and incentivize the parties to fully engage in the implementation of the

³¹The Global Environment Facility (GEF) established in 1992 works with partnership of 18 agencies to address environmental issues through strategic investments and provides financial mechanism for five major international environmental conventions including CBD. The GEF provides financial resources for developing countries and countries with economies in transition to implement the CBD and Nagoya Protocol. The GEF's current work is focused on helping countries implement the Strategic Plan for Biodiversity and achieve Aichi Biodiversity Targets. Global Environment Facility, 1992; Details available at: <https://www.thegef.org/topics/biodiversity.html>. Accessed on 16 Sept. 2016.

³²See n.6. CBD, Article 39.

³³Third Meeting of the Conference of the Parties to the Convention on Biological Diversity, Buenos Aires, Argentina, 4 - 15 November 1996. CBD COP 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, 1997; available at: <https://www.cbd.int/decision/cop/default=7104.html>. Accessed on 16 Sept. 2016.

³⁴See n.6. CBD, Article 23.

³⁵*Ibid.* CBD, Article 21.

Protocol. For this purpose, “GEF as the financial mechanism of the CBD and Nagoya Protocol decided to establish, manage and operate the ‘Nagoya Protocol Implementation Fund (NPIF)’.”³⁶ It provides the grants or funds for promoting access and benefit sharing, conservation and sustainable use of genetic resources, capacity building, public awareness and traditional knowledge management. The NPIF includes certain activities to fund are: “to support the parties to strengthen their existing national laws, policies and institutions to promote ABS; to implement national and regional projects to promote technology transfer and investments; to build the capacity to support ABS system among ILCs; to undertake activities to increase public awareness regarding the implementation of the Nagoya Protocol.”³⁷

The NPIF is governed by a “Nagoya Protocol Implementation Fund Council which will utilize the operational policies, procedures and governance structure of the GEF Council.”³⁸ The GEF Council being as the governing body of the NPIF, may modify its operational policies and procedure in tune with GEF policies and procedure. However, the GEF will keep separate and distinct program of activities financed by the GEF trust fund from those financed by the NPIF. The termination of NPIF would be decided by the Conference of Parties to the CBD. Here, “the World Bank serves as trustee of the NPIF in accordance with the Bank's policies and procedure and funds are given usually by developed countries as a voluntary contribution.”³⁹ In addition, the private companies and other entities are also encouraged to voluntarily contribute to the NPIF and other projects.

(v) Food and Agriculture Organization (FAO)

The FAO is an agency of the United Nations which works to promote food security around world. It has established the “Commission on Genetic Resources for Food and Agriculture (CGRFA)’ in 1983 under Article VI (1) of the FAO Constitution to deal

³⁶The Global Environment Facility established the ‘Nagoya Protocol Implementation Fund’ to facilitate the early entry into force and implementation of the Nagoya Protocol on 3 June, 2011 at Washington, USA; available at: https://www.thegef.org/sites/default/files/documents/NPIF_brochure_english.pdf. Accessed on 20 Oct., 2016.

³⁷*Ibid.* The fund is specifically designed to support countries looking to build enabling activities to ratify the protocol as well as finance projects at the national and regional levels. Resources will be used to heighten awareness for the Protocol, including through the use of new knowledge management tools.

³⁸*Ibid.*

³⁹CBD (2011), GEF establishes the Nagoya Protocol Implementation Fund, *Press Release*, 3 June, 2011; Washington, available at: <https://www.cbd.int/doc/press/2011/pr-2011-06-03-GEFImpFund-en.pdf> Accessed on 12 Sept, 2016.

with issues related to all genetic resources relevant to food and agriculture.”⁴⁰ In this regard, regular session of the CGRFA in its 12th Session in Oct. 2009 took the note on interface with new international regime on ABS under CBD i.e. Nagoya Protocol.⁴¹The CGFRA also invited the CBD Ad-hoc Open Ended Working Group on ABS during negotiations to take into account the special nature of agriculture biodiversity. Additionally, “CGFRA may also decide to develop a legally binding ABS instrument for specific components of biodiversity for food and agriculture in future such as animal genetic resources or others.”⁴² However, Nagoya Protocol allows the development of such specialized ABS Agreement in future as long as “they are supportive of and do not run counter to the objectives of the CBD and its Nagoya Protocol.”⁴³

Further, sectoral regime on ABS have been established by the FAO under ITPGRFA which for “the conservation, sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising from the utilization of these resource in harmony with the CBD.”⁴⁴ From ABS perspective, the ITPGRFA establishes a “multilateral system for access and benefit sharing facilitating the access to plant genetic resources that are listed in Annex I.”⁴⁵ It also ensures “the fair and equitable sharing of the benefits arising out of the utilization of these resources in accordance with mutually agreed terms and conditions.”⁴⁶This plant treaty constitutes a specialized international access and benefit sharing instrument “that would be mutually supportive to the objective of the CBD and should not affect

⁴⁰The Commission on Genetic Resources for Food and Agriculture was established in 1983 to deal with issues related to plant genetic resources. The Commission provides the only permanent forum for governments to discuss and negotiate matters specifically relevant to biological diversity for food and agriculture. It has 178 members which is open for all FAO members and its secretariat is based in Rome, Italy. FAO Commission on Genetic Resources for Food and Agriculture, 1983; Details available at: <http://www.fao.org/nr/cgrfa/cgrfa-about/cgrfa-history/en.html>. Accessed on 16 Sept. 2016.

⁴¹FAO Policies and Arrangement for Access and Benefit Sharing on Genetic Resources for Food and Agriculture,FAO Resolution 1/2009, 12th Session Regulation of CGRFA, 2009; Details available at: <http://www.fao.org/nr/cgfra/cgfra-globalplan/en.html>. Accessed on 5 Aug, 2016.

⁴²*Ibid.*

⁴³*See n.8.* Nagoya Protocol, Article 4(1).

⁴⁴It was adopted by the Thirty-First Session of the Conference of the Food and Agriculture Organization of the United Nations on 3 November 2001. It facilitates access to the genetic materials of the 64 crops in the Multilateral System for research, breeding and training for food and agriculture. FAO International Treaty on Plant Genetic Resources for Food and Agriculture, 2001; Report of the Conference of FAO Thirty-First Session Resolution, 3/2001. *See*, Full Text, available at: http://www.fao.org/plant_treaty/en.html. Accessed on 20 July, 2016.

⁴⁵*Ibid.*ITPGRFA, Article 3.

⁴⁶*Ibid.*ITPGRFA, Article 5.

the Nagoya Protocol.”⁴⁷ For complying the mutual supportiveness, the efforts are made for collaboration between the Secretariat of the Plant Treaty and CBD to promote harmonious and mutual supportive implementation of the ABS regime.

(vi) World Trade Organization (WTO)

It is an international organization dealing with rules of trade amongst its member states through implementation of several multilateral agreements for global trade and commerce.⁴⁸ Through its agreements, WTO members operate a non-discriminating trading system that spells out the rights and obligations for trade and commerce. Here, most relevant areas in the context of ABS regime is the issue of intellectual property rights on biotechnological inventions and innovation debated under TRIPS Council. There has been also deliberation on the role of intellectual property rights in encouraging access to genetic resources and the sharing of benefits from the use of those resources as well as in contributing the protection of traditional knowledge.⁴⁹ In Doha Ministerial Conference, 2001, the TRIPS Council was also instructed “to examine the review of Article 27.3(b), review of the Implementation of the TRIPS Agreement, relationship between the TRIPS Agreement and CBD and protection of traditional knowledge and folklore.”⁵⁰

Recently, Developing Countries have tabled a draft decision calling for the amendment of the TRIPS Agreement at the Trade Negotiations Committee.⁵¹ Here, Developing Countries has argued that “disclosure requirements would help to support

⁴⁷See n. 8. Nagoya Protocol, Article 4 (3).

⁴⁸The World Trade Organization (WTO) is the global international organization dealing with the rules of trade between nations. It was established on 1 January 1995 with 128 members which has now increased to 164 members. WTO also provides a legal and institutional framework for the implementation and monitoring of sixteen different multilateral agreements as well as for settling disputes arising from their interpretation and application. More details available at: https://www.wto.org/english/thewto_e/whatis_e/whatis_e.html. Accessed on 16 Sept. 2016.

⁴⁹Cullet P. (2005), *Intellectual Property Protection and Sustainable Development*, New Delhi: Lexis Nexis, p.51.

⁵⁰The WTO Ministerial Conference is the highest-level decision-making body. It brings together all members of the WTO to take decisions on all matters under any of the multilateral trade agreements including TRIPS. The separate Declaration on the TRIPS agreement and public health was adopted on 14 November 2001 in Fourth WTO Ministerial Conference was held in Doha, Qatar from 9 to 14 November 2001. (WT/MIN (01)/DOC/1); available at: https://www.wto.org/english/minist_e/min01_e/mindecl_trips_e.html. Accessed on 18 Sept. 2016.

⁵¹Draft Decision to Enhance Mutual Supportiveness between the TRIPS Agreement and the Convention on Biological Diversity, WTO Trade Negotiation Committee Meeting held on 19 April, 2011. (WTO document TN/C/W/59); available at: <http://www.commerce.nic.in/trade/wtopdf/tn-59.pdf>. Accessed on 18 Sept. 2016.

compliance with CBD provision on access to genetic resources and benefit sharing.”⁵² Adversely, it has been argued that “such modification is not necessary to implement CBD requirements as they should be implemented through corresponding contracts at the national level and the TRIPS is not the appropriate instrument to regulate ABS.”⁵³ No progress has yet been made by the Trade Negotiations Committee members in this regard. Additionally, there is ongoing discussion at the TRIPS Council on possible amendment of the TRIPS Agreement. CBD Secretariat cooperates and participates on a regular basis by informing the decision of the Conference of Parties on the relevant ABS and other related issues. CBD Secretariat also emphasized on different occasion on the need to ensure mutual supportiveness to the objective of the CBD and its protocols and strengthening the institutional coordination at international, regional and national level.⁵⁴

(vii) World Intellectual Property Organization (WIPO)

It was established through WIPO Convention for the promotion and protection of intellectual property administrating different multilateral intellectual property (IP) treaties.⁵⁵ It also provides secretariat services for many of the substantive IP treaties and establishes different committees to address the cross-cutting issues relating to intellectual property. In the ABS context, WIPO through General Assembly established the “‘Inter-governmental Committee (IGC) on Intellectual Property, Genetic Resources, Traditional Knowledge and Folklore’ with mandate to conduct negotiations for an international legal instrument which will ensure the effective protection of traditional knowledge, traditional cultural expression and folklore as

⁵²Medaglia J.C. (2010), "The Relationship between the Access and Benefit Sharing International Regime and Other International Instruments: The World Trade Organization and the International Union for the Protection of New Varieties of Plants", *Sustainable Development Law and Policy*, Vol.10, Issue 3, p. 24-52.p.28.

⁵³*Ibid.* at p.27.

⁵⁴ UNCTAD (2012), "The Convention on Biological Diversity and the Nagoya Protocol: Intellectual Property Implications", A Handbook on Global Access and Benefit Sharing Rules and Intellectual Property; Technical Study, available at: http://www.unctad.org/documents/technical_study/en.pdf Accessed on 5 Aug, 2016.

⁵⁵The World Intellectual Property Organization is an intergovernmental organization established in 14 July 1967 at Geneva, Switzerland to promote the protection of intellectual property throughout the world. The constituent instrument is WIPO Convention which was signed at Stockholm on July 14, 1967 and entered into force in 1970. Details available at: http://www.wipo.int/treaties/en/history/summary_wipo.html. Accessed on 20 Sept. 2016.

well as genetic resources.”⁵⁶ Subsequently, IGC has come out with draft texts on this issues but the consensus has not been arrived yet. The draft text covers the issues on defensive database, proposed mandatory disclosure requirements and intellectual property clauses calling for mutually agreed terms for access and benefit of sharing.⁵⁷ The IGC has also drafted a set of principles and guidelines on the intellectual property incorporating the concerns on access to genetic resources and equitable sharing of benefits from the use of accessed resources. Under the access and benefit sharing agreements, the specific arrangement made for the intellectual property management can be crucial in ensuring that they operate to create benefits from access to genetic resources; benefits are shared equitably; and the concerns of resources countries are fully respected. In this regard, CBD COP has also encouraged WIPO to “make rapid progress in the development of model IP clauses which may be considered for inclusion in the contractual agreement when mutually agreed terms are negotiated.”⁵⁸

Along with it, members of the IGC have also emphasized that “draft guidelines under the development in the committee should be without prejudice to the work done by the CBD and FAO and should be applied in a manner that is coherent and mutually supportive of the work of the CBD and FAO.”⁵⁹ However, negotiation is going for single treaty or separate treaties for each one on traditional knowledge, traditional cultural expression and genetic resources. Recently, thirty second session of the WIPO IGC took place in year 2016 which decided to make second revision of the draft and to place it in the Forty Seventh Session of the WIPO General Assembly.⁶⁰ Additionally, the Nagoya Protocol has included “the WIPO IGC negotiations among 'ongoing work' and expected to be kept under review under Article 4(3) relevant to be ABS special legal instruments for integrating ABS and

⁵⁶The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore is undertaking text-based negotiations with the objective of reaching agreement on a text of an international legal instrument for the effective protection of traditional knowledge, traditional expression and genetic resources. WIPO IGC on Genetic Resources Traditional Knowledge, Traditional Expression and Folklore (2009); available at: <http://www.wipo.org/IGC/decisions/en.html>. Accessed on 20 Sept. 2016.

⁵⁷ WIPO Draft Text Relating to Intellectual Property and Genetic Resources presented in WIPO General Assembly Fourteenth Session held on 26 Sept- 5 Oct. 2011. (WIPO GA/40/7, 12 Aug. 2011); available at: http://www.wipo.int/edocs/mdocs/gov/en/wo_ga_40_7.doc. Accessed on 20 Sept. 2016.

⁵⁸*Ibid.*

⁵⁹*Ibid.*

⁶⁰*See n.56.*

IPRs.”⁶¹ However, the negotiations on this issues is currently under progress in the WIPO on different time and occasions.

(viii) International Union for the Protection of New Varieties of Plants (UPOV)

This union has been established through UPOV Convention to provide and promote “an effective system of plant variety protection with the aim of encouraging the development of new varieties of plants for the benefit of society.”⁶² It provides “protection to the breeders in the form of a 'breeder rights' under intellectual property protection to the process of plant breeding and development of new varieties of plants.”⁶³ Here, access to genetic resources is the key requirement for sustainable and substantial progress in plant breeding. In this context, UPOV considers the system of breeder's rights and exceptions as a specialized form of ABS system. This has been reflected by UPOV Council that “the worldwide community of breeders need access to all forms of breeding material to sustain the greatest progress in plant breeding and to maximize the use of genetic resources for the benefit of the society.”⁶⁴

However, UPOV has stated that “the Convention on Biological Diversity and the UPOV Convention should be mutually supportive and the international regime on Access and benefit sharing should be designed so that the mutual supportiveness of both will not be affected.”⁶⁵ Such position of the UPOV Council on access to genetic resources and benefit sharing related to plant breeder's rights was submitted to the ABS working group of the CBD in October, 2003.⁶⁶ Subsequently, UPOV Council also requested CBD COP in 2008 “to instruct the Ad-hoc Open Ended Working Group on ABS that any provisions which it

⁶¹See n.48.

⁶²The International Union for the Protection of New Varieties of Plants (UPOV) is an intergovernmental organization having 74 members based in Geneva, Switzerland. UPOV was established in 1961 by the International Convention for the Protection of New Varieties of Plants. The UPOV Convention provides an effective system of plant variety protection to encourage plant breeding by providing intellectual property right or the breeder's right; details available at: <http://www.upov.int/overview/en/upov.html> Accessed on 20 Sept. 2016.

⁶³ It is multilateral treaty to provide and promote an effective protection of new plant varieties for the benefit of society. It was adopted initially in 2 December, 1961 and recently revised in March, 1991. International Convention on Protection of New Varieties of Plants, 1991, See, Full Text, available at: <http://www.upov.int/about/en/pdf/pub437.pdf>. Accessed on 20 Sept. 2016.

⁶⁴*Ibid.* Article 1.

⁶⁵International Union of Protection of New Varieties of Plants: Access to genetic Resources and Benefit Sharing, 2003; Reply of UPOV to the Notification of June 26, 2003, from the Executive Secretary of the Convention on Biological Diversity adopted by the Council of UPOV at its thirty-seventh ordinary session on October 23, 2003; available at: <http://www.upov.int/en/news/2003/pdf/cbd.response.pdf>. Accessed on 20 Sept. 2016

⁶⁶*Ibid.*

develop for an international regime on ABS should ensure mutual supportiveness with UPOV Convention.”⁶⁷On the relationship with existing international agreements, CBD in its provision states that “the provision of this convention shall not affect the rights and obligations of any contracting parties during any existing international agreement except that in detrimental or threat to biological diversity.”⁶⁸ Further, Nagoya Protocol adds that “the provision is not intended to create a hierarchy between the protocol and other international instruments”⁶⁹which would include UPOV convention as well. It mandates the parties to implement the protocol in a mutually supportive manner with other relevant international instruments that may not necessarily focus on ABS, but directly or indirectly related to it.

(ix) World Health Organization (WHO)

The WHO is an UN specialized agency providing leadership on global health matters“setting norms and standards, providing technical support to countries and monitoring and assessing health trends.”⁷⁰ The interface between WHO and CBD regime is on the issues of access to pathogens and benefit sharing to ensure the compatibility.⁷¹ The pathogens are viruses, bacteria and infectious organisms which could be used as genetic resources to develop vaccines and medicines stimulating the commercial aspects. However, WHO has adopted “‘International Health Regulation (2005)’ to facilitate the prevention and response to public health risks that have the potential to become global problems.”⁷² This regulation requires state parties to share biological samples like virus

⁶⁷ CBD Decision of Third Meeting of the Ad-hoc Open-Ended Working Group on Access and Benefit Sharing, UN DOC/UNEP/CBD/WG-ABS/4/INF/3 (15 Dec. 2008);*See*, Full Text, available at: <http://www.cbd.int/doc/meeting/abs/abs/abstract-09.pdf>. Accessed on 22 Sept, 2016.

⁶⁸*See n.6*, CBD, Article 22.

⁶⁹*See n.8*, Nagoya Protocol, Article 4.

⁷⁰WHO was established on 7 April 1948 to support the countries for integrated people-centered health services at an affordable price; facilitate access to affordable, safe and effective health technologies; and to strengthen health information systems and policy making. There are 194 members to this organization any member of the United Nations may become members of WHO. Details available at: <http://www.who.int/about/history/en.html>. Accessed on 20 Sept. 2016.

⁷¹Wilke M. (2013), "A Health Look at Nagoya Protocol-Implications for Global Health Governance" in Maregera E. et al. (eds.) *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implication Challenge*, Leiden: Martinis Nijhoff, Pp. 123-148.

⁷²This was adopted in 2005 but came in to force on 15 June, 2007 consisting of 196 member countries. The basic purpose is to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade. International Health Regulation, 2005; available at: <http://www.who.int/ihr/about/en.html>. Accessed on 20 Sept. 2016.

sample as part of the obligation with the WHO for public health emergency of international concerns without any preconditions and benefit sharing.⁷³

In pursuance to this, “World Health Assembly decided to develop a new global mechanism for virus sharing in case of pandemic influenza viruses on the denial of sending samples of H5N3 Virus to WHO by Indonesia on this account.”⁷⁴ As a result, “Pandemic Preparedness Framework for Sharing of Influenza Viruses and Access to Vaccines and other Benefits (2011)’ was adopted by the World Health Assembly.”⁷⁵ It provides multilateral benefit sharing mechanism for more equitable access to affordable vaccines and genetics and the flow of virus samples in WHO system for the public health risks⁷⁶. The PIP framework’s objective is to establish a fair, transparent, equitable, efficient and affective system for the sharing of viruses and other benefits, which have to be strengthened through the provisions of framework and standard material transfer agreements.⁷⁷

Under the CBD regime, Nagoya Protocol has reminded the parties in its preamble about “the importance of the International Health Regulations and importance of ensuring access to human pathogens for public health preparedness and response purposes.”⁷⁸ It also acknowledged “the ongoing work in other international forums relating to access and benefit sharing and obligated the parties to ‘pay due regard in cases of present or imminent emergencies that is dangerous to human, animal or plant health, as determined nationally or internationally.”⁷⁹ This has been complied with during PIP framework negotiations and were informed about the development on the ABS regime. Thus, the PIP framework has

⁷³*Ibid.*

⁷⁴ World Health Organization, World Health Resolution 60.28: Pandemic Influenza Preparedness: Sharing of Viruses and Access to Vaccines and other Benefits; Sixteenth World Health Assembly, 14-23 May, 2007; available at: http://apps.who.int/gb/ebwha/pdf_files/WHASSA_WHA60-Rec1/E/reso-60-en.pdf Accessed on 20 Sept. 2016.

⁷⁵ World Health Organization adopted the Pandemic Influenza Preparedness Framework for Sharing of Viruses and Access to Vaccines and other Benefits by the World Health Resolution 64.5: Pandemic Influenza Preparedness: Sharing of Viruses and Access to Vaccines and other Benefits in Sixty Fourth World Health Assembly, 16-24 May, 2011; available at: http://apps.who.int/gb/ebwha/pdf_filesr/WHA64-REC1/A64_REC1-en.pdf. Accessed on 20 Sept. 2016.

⁷⁶*Ibid.* PIP Framework, Article 1.

⁷⁷*Ibid.* PIP Framework, Article 2.

⁷⁸ See n.8, Nagoya Protocol, Preamble.

⁷⁹*Ibid.* Nagoya Protocol, Article 8(b).

been made consistent with or supportive of and does not run counter to the objectives of the convention and the Nagoya Protocol.⁸⁰

In sum, these institutions are directly and indirectly related with the concept of ABS for genetic resources and associated traditional knowledge. Apart from this, there has been several existing conventions and its institutions which address various aspects of overall regime of biological diversity conservation and management.⁸¹ All such institutions and convention in its different approaches and functions are meant to be in harmony with one another and mutually supportive in nature. However, any of the convention, agreement and institution would cause serious damage or threat to biological diversity, the CBD and its international instrument i.e. protocol will trump the other in this regard.⁸² There are range of structural, administrative and political factors that are challenging the mutually supportive implementation of ABS mechanism which are under consideration in different forums even today.

CBD Regime Institutions

Most of the multilateral environmental agreements give birth to specific institutions to implement the objectives, obligations and priorities addressing the environmental problems and concerns. It has been stated that “the institutional mechanism laid down under the MEAs is designed to realize objectives of the convention apart from keeping pace with the changing requirements for the sectoral environmental regime.”⁸³ The parties to the MEAs seek to incorporate structures that could suit requirements of a specific sectoral issues and objectives. “Such institutions may include decision making mechanism, executive organs, the subsidiary bodies, secretariat and funding mechanisms.”⁸⁴ In this way, institutional structure provides the backbone to the MEAs and ensures its implementation through state parties at the national, regional and international level.

⁸⁰*Ibid.* Nagoya Protocol, Article 4(2).

⁸¹Klemm C. (1994), “Biological Diversity Conservation and The Law: Legal Mechanism for Conserving Spices and Ecosystems” Environmental Law and Policy Paper No. 29, IUCN: Gland, p. 109; available at: <http://www.iucn.org/dbth-wpd/EPLP-29.pdf>. Assessed on 2 July, 2016.

⁸²Morgera E. et al. (2014), *Unravelling The Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity*, London: Brills Publishers, p.85.

⁸³ Desai B.H. (2002), “Mapping the Future of International Environmental Governance,” *Yearbook of International Environmental Law*, Vol.13:43-61, p.62.

⁸⁴*Ibid.* at p.64.

In the same context, the CBD also provides regime specific institutions on the basis of specific environmental issues i.e. conservation, sustainable use, access and benefit sharing of biological resources. Its institutional structures include: conference of parties as supreme decision making organ, subsidiaries body for scientific, technical and technological advice, secretariat for executive functions or services and financial mechanism for funding. Though, it is kind of framework convention which sets the normative process and institutional structure to achieve purpose and objective. It is supplemented by protocol with separate obligations as well as institutions for effective implementation of the convention. There might also be some variations and additions in institutional structures under the protocol dictated by the specific requirements. The CBD regime specific institutions have been analyzed as such:

(i) Conference of Parties (COP)

The COP is constituted under the respective convention as governing body and final authority assembling all the parties, observers and other non-governmental organizations. It has sole responsibility for the overall implementation, administration and development of the respective convention. It has been outlined as such:

“The Conference of Parties (COP) is the supreme decision-making organ of the convention. It provides an overarching umbrella for the institutions of the convention. As a plenary forum for the states parties to the convention, it has final authority in legal and institutional matters.”⁸⁵

In other words, the COP is regime specific institution representing all the member states for the overall implementation and enforcement. The COP not only represents political decision making “but also give effect to the law-making process either in interpretation of existing convention or formulation of separate protocol to the convention.”⁸⁶ It does not remain in session always but meets every year or even at the interval as determined by it. “Such meetings are called upon for doing regular improvement, stocktaking, guidance, budget allocation and distribution and approving the reports and process for the overall realization and implementation of the

⁸⁵Desai B.H. (2006), *Creeping Institutionalization: Multilateral Environmental Agreements and Human Security*, Bonn: UNU-EHS Publications, p. 38.

⁸⁶See n.2 at p. 50

convention.”⁸⁷It approves the programme of work, budget, revision of annexes and amendments keeping the pace with changing requirements under the regime.⁸⁸

Similarly, CBD also establishes the conference of parties as main governing body assembling representatives of all parties to the convention and observers as well.⁸⁹It outlines broad responsibilities for COP to take specific actions with regard to its objectives: “liability and redress including restoration and compensation for damage to biological diversity;”⁹⁰ “to establish a clearing house mechanisms to promote and facilitate technical and scientific cooperation;”⁹¹ “to consider on the modalities of a protocol for appropriate procedure for the safe transfer, handling and use of any living modified organism resulting from biotechnology, which would adversely affect the biodiversity;”⁹² “to make a list of develop country parties and other parties which voluntarily assume the obligations for financial assistance and contributions.”⁹³ Besides, the financial mechanism established under the convention functions under the authority and guidance of the COP. Not only this, COP determines “the policy, strategy, programme, priorities,”⁹⁴ and “eligibility criteria relating to the access to and utilization of financial resources.”⁹⁵

The COP has also power to establish subsidiary bodies necessary for the implementation of this convention. It has been assigned “to designate the secretariat from amongst those existing competent international organizations which have signified their willingness to carry out the secretariat functions under this convention.”⁹⁶ It also adopts rules of procedure for itself and for any subsidiary body as well as financial rules governing the funding of the Secretariat.⁹⁷ It also provides the observer status to UN agencies and any other state not party to this convention to

⁸⁷*Ibid.*

⁸⁸Glowka L. (1994), “A Guide to The Convention on Biological Diversity”, Environmental Policy and Law Paper 30, p.112 Gland: IUCN Publication, available at: <http://www.iucn.org/dbth-wpd/EPLP-30.pdf>. Accessed on 2 Feb, 2016.

⁸⁹*See n.6*, CBD, Article 23.

⁹⁰*Ibid.* CBD, Article 14 (2).

⁹¹*Ibid.* CBD, Article 18 (3).

⁹²*Ibid.* CBD, Article 19(3).

⁹³*Ibid.* CBD, Article 20(2).

⁹⁴*Ibid.* CBD, Article 21(1).

⁹⁵*Ibid.* CBD, Article 21(2).

⁹⁶*Ibid.* CBD, Article 24 (2).

⁹⁷*Ibid.* CBD, Article 23(2).

attend and participate in the meeting of the COP subject to the rules of procedure adopted.⁹⁸ Apart from this, “COP has role in deciding the location of the secretariat and entering the headquarters agreement with the host country.”⁹⁹

Above all, the COP acts through the Executive Secretary to supervise and coordinate the work translating the political will of the contracting states as expressed in the decisions of the COP. The role of the COP in the entire ABS process is vital to achieve the goal of the convention. It has been rightly said that “the COP representing the political process seeks to keep the convention in tune with the changing requirements to realize the objectives of the convention.”¹⁰⁰ Following this, CBD COP has been intended to achieve its purpose and functions on the ABS regime through implementation and development of the Convention.

(ii) Subsidiary Bodies

Multilateral environmental agreements also create the subsidiary bodies which cater to the specific requirements such as scientific, technical and financial assistance in the implementation of the convention.¹⁰¹ The subsidiary bodies are created by Conference of Parties of the Convention. The parties to the convention may participate in the subsidiary bodies where membership is provided to all parties to the convention. However, COP elaborates and prescribes the functions, term of reference, and operations of such subsidiary bodies under the convention.¹⁰² They report and work under the authority of the COP and their deliberation and decision are further endorsed by the COP.

Under CBD regime, the subsidiary body was established for scientific, technical and technological advice which is open for participation to all parties.¹⁰³ It is separate multidisciplinary subsidiary body which provides its scientific and technical advice to conference of parties and its other subsidiary bodies relating to the implementation of the convention.¹⁰⁴ Not only this, it submits its reports regularly on all aspects of its

⁹⁸*Ibid.* CBD, Article 23(5).

⁹⁹*See n.1* at p. 212.

¹⁰⁰*See n.1* at p. 42

¹⁰¹*See n.2* at p. 92.

¹⁰²*See n.6*, CBD, Article 25(3).

¹⁰³*Ibid.* CBD, Article 25(1).

¹⁰⁴*Ibid.*

work to the conference of parties. It is the conference of parties which provides the guidance and resolve the questions needed in operation of the subsidiary body. This subsidiary body acts under the authority of the COP and comply the guidelines adopted by it. It can only provide advice to the COP upon its request. There are range of subject matters on which the COP may request for such as: “to make scientific and technical assessment of the status of biological diversity; prepare the report on its effects to take measures in accordance with the provision of this convention; identify innovative, efficient and state of the art technologies and know how relating to conservation and sustainable use of biological diversity and advice on the ways and means of promoting development and/or transferring such technologies; provide advice on scientific programmes and international cooperation in research and development; respond to scientific, technical, technological and methodological questions that the conference of the parties and its subsidiary bodies put to it.”¹⁰⁵ The subsidiary body may be requested to assess an area and to take measures for conservation and sustainable use of biological diversity under the CBD regime.

(iii) Secretariat

Among the institutional structures, secretariat is most visible organ of any multilateral environment agreement (MEAs). Its primary function is to provide services to the convention; but subject to the control and supervision of the conference of the parties.¹⁰⁶ Most of the MEAs explicitly assigned UNEP to carry out secretariat functions as interim basis until decided by the first meeting of the conference of parties.¹⁰⁷ Subsequently, secretariat works on the permanent arrangement made by host country through headquarter agreement. Such secretariat is located as per this headquarter agreement signed by the hosting state and conference of parties.¹⁰⁸ Secretariat usually performs the functions as servicing arms for arranging the meetings of the COP and other subsidiary bodies, implementing its decision into

¹⁰⁵*Ibid.* CBD, Article 25(2).

¹⁰⁶*See n.2* at p. 93.

¹⁰⁷*Ibid.*

¹⁰⁸*See n.26.*

action, collecting reports from contracting parties and coordinating with other relevant international organization.¹⁰⁹

Under CBD regime, Article 24 establishes the secretariat of the convention and list its function in non-exhaustive manner. Similar to the above, secretariat of the CBD has also responsibility “to arrange for and service to meeting of the conference of parties and prepare reports on the execution of its function and present them to the conference of parties.”¹¹⁰ It performs the functions assigned to it by any protocol and any other functions as may be determined by the conference of parties.¹¹¹ It has been assigned “to coordinate with other relevant international bodies and in particular to enter into such administrative and contractual arrangement as may be required for the effective discharge of its functions for the convention.”¹¹² The executive secretary remains the head of the secretariat with adequate staffs at the house of the secretariat. The CBD secretariat is in Montreal, Canada because of the headquarter agreement between the CBD Secretariat and the Government of Canada.¹¹³

Nagoya Protocol Institutions

Most of the multilateral environmental agreements provide the normative framework and institutional structure to be supplemented by the subsequent legal instrument generally known as 'protocol'. The framework convention is further required “to be fleshed out through additional commitments, filling the gaps, minimizing the ambiguities, spelling out the details of institutional and financial mechanism through protocol.”¹¹⁴ For these reasons, subsequent negotiations continue to take place under such regime or convention on different components and objectives in due course of time. The relationship between the framework convention and subsequent instrument or protocol is built on the objectives, memberships and institutions.¹¹⁵ However, “the protocol may use the same institutions of the framework convention or establish separate institutions. The separate institutions created under the protocol services and

¹⁰⁹See n.1 at p. 40

¹¹⁰See n.6, CBD, Article 24.

¹¹¹*Ibid.*

¹¹²*Ibid.*

¹¹³See n.26.

¹¹⁴See n.1 at p. 67

¹¹⁵*Ibid.*

facilitates the implementation and development of overall regime.”¹¹⁶ There might also be some variations and additions in institutional structures under the protocol dictated by the specific requirements.

Under CBD regime, Cartagena Protocol and Nagoya Protocol have been adopted to supplement the parent convention to achieve the objectives of the overall CBD regime. Specifically, Nagoya Protocol designates the Conference of Parties as Meeting of Parties (MOP) as main governing body of the protocol; assigns the function of the protocol to subsidiary bodies as existed in CBD and designates the secretariat of the convention for protocol as well. Besides, it also calls for the establishment Global Multilateral Benefit Sharing Mechanism and Access and Benefit Sharing Clearing House for the ABS process under the CBD regime. For the effective implementation and compliance of the ABS regime, protocol asks the member states to establish Competent National Authority, National Focal Points and one or more Checkpoints in their domestic jurisdiction. These are constituted for implementation and development of the ABS process and procedure under the CBD regime.

(i) Meeting of Parties (MOP)

Nagoya Protocol establishes its governing body known as Meeting of Parties designating the Conference of Parties to supervise the entire process of implementation the protocol.¹¹⁷ The body consist of representatives of all states that are party to the convention.¹¹⁸ However, “parties to the convention that are not parties to this protocol may participate as observers in the proceedings of the MOP.”¹¹⁹ In addition, the protocol provides that:

“When the Conference of the Parties serves as the Meeting of the Parties to this protocol, any member of the Bureau of the Conference of the Parties representing party to the convention but not a party to this protocol at that time, shall be substituted by a member to be elected by and from among the Parties to this Protocol.”¹²⁰

¹¹⁶*Ibid.*

¹¹⁷Griber T. et al. (2012) “An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing,” IUCN Environmental Policy and Law Paper 83, Gland: IUCN Publication, p. 228; available at: http://www.iucn.org/policy/genetic_resources=4763.pdf Accessed on 04 July, 2016.

¹¹⁸*See n.8*, Nagoya Protocol, Article 26(1).

¹¹⁹*Ibid.* Nagoya Protocol, Article 26(2).

¹²⁰*Ibid.* Nagoya Protocol, Article 26(3).

But, the decision under this protocol shall be taken only by those that are parties to the protocol. Besides, the function and membership is not entirely the same of the COP/MOP to the protocol from those of the COP of the Convention. However, the COP serving as MOP is considered a distinct and independent body for all practical purpose under the regime. The designation of MOP to the COP of the convention was made to achieve greater coherence and efficiency to avoid multiplicity of the transactions and to minimize the operational costs.

As to the functions of the COP/MOP of the protocol, Art. 26(4) lists specific functions which looks interestingly similar to the CBD provisions on the COP. However, it specifies certain functions needed for the implementation of the protocol to be carried out by the COP/MOP, even if not specifically listed. It has been assigned: “to make regular review necessary for implementation of this protocol; to establish such subsidiary bodies and consider report submitted by it; to seek and utilize the services and information; to consider and adopt amendments to this protocol and its annex; to exercise such other functions as may be required for the implementation of this protocol.”¹²¹ Additionally, COP/MOP also sets the rules of procedure and financial rules as applied to the convention or otherwise decided by the member of the COP/MOP of the protocol. The ordinary and extraordinary meetings are also decided by the COP/MOP whenever occasions arise or on the request of any party with one third support.¹²² Not only this, the COP/MOP may also grant observer status to UNO and its specialized agencies as well as any state member and NGOs subject to the rules of procedure prescribed or made under this provision.¹²³

Apart from this, there are certain other specific functions have been assigned to COP/MOP under different provisions of the protocol such as: “to consider and decide the modalities, operations, activities and reports of the ABS CH and keep under review thereafter;”¹²⁴ “to review the effectiveness of the provision on compliance with mutually agreed terms;”¹²⁵ “to take periodically stock of the use of sectoral and cross-sectoral model contractual clauses used by the parties;”¹²⁶ “to take note

¹²¹*Ibid.*Nagoya Protocol, Article 26(4).

¹²²*Ibid.*Nagoya Protocol, Article 26 (6).

¹²³*Ibid.*Nagoya Protocol, Article 26(8).

¹²⁴*Ibid.*Nagoya Protocol, Article 14(4).

¹²⁵*Ibid.*Nagoya Protocol, Article 18 (4).

¹²⁶*Ibid.*Nagoya Protocol, Article 19(2).

periodically of the use of voluntarily code of conduct, guidelines and best practices;”¹²⁷ “to provide guidance to the financial mechanism, financial resources and capacity building;”¹²⁸ “to decide on the necessary budgetary arrangement for secretariat and other services;”¹²⁹ “to undertake the evolution of the effectiveness of at regular intervals.”¹³⁰ These functions as given above are critical and significant to the parties for proper implementation of the protocol. However, several other functions provided under the CBD would be the directly relevant for the effective implementation of the Nagoya Protocol.

(ii) Subsidiary Bodies

The Nagoya Protocol also provides that CBD subsidiary bodies would serve the function of this protocol as well.¹³¹ However, any such decision providing the task to be undertaken would be decided by the COP/MOP. When a subsidiary body of the convention services such function, then decision in this regard would be taken only by parties to this protocol.¹³² The parties to the convention that are not parties to this protocol could only participate as observers in the proceeding of any meeting of any such subsidiary bodies and in exercising any functions in relation to the protocol. When the CBD subsidiary body carries out function under the protocol, “any member of the bureau who does not represent a party to the protocol must be replaced by a representative of a party to the protocol.”¹³³ The CBD also mandates the Conference of Parties to establish some other subsidiary bodies to deal with specific issue whenever required. Thus, the other subsidiary bodies such as 'Working Group on Review of Implementation' and 'Working Group on Article 8(j) on Traditional Knowledge' were established to address specific issue related to the implementation of the protocol.¹³⁴ However, these are established for limited mandate and period to assist the Conference of Parties.

(iii) Secretariat

¹²⁷*Ibid.* Nagoya Protocol, Article 20(2).

¹²⁸*Ibid.* Nagoya Protocol, Article 23(3).

¹²⁹*Ibid.* Nagoya Protocol, Article 28(3).

¹³⁰*Ibid.* Nagoya Protocol, Article 31.

¹³¹*Ibid.* Nagoya Protocol, Article 27(1).

¹³²*Ibid.* Nagoya Protocol, Article 27(2).

¹³³*Ibid.* Nagoya Protocol, Article 27(3).

¹³⁴*See n. 54* at p. 40.

Nagoya Protocol also provides that “the secretariat to the convention shall serve the secretariat of the protocol.”¹³⁵ Accordingly, the establishment and function of the secretariat as per the Article 24 of the CBD would also apply for the protocol as well. The rule of procedure of the CBD COP which lay down practical arrangement and office would also apply to the secretariat to the Nagoya Protocol. It provides that “the functions of the secretariat to the Nagoya Protocol shall also be the same those of the CBD Secretariat.”¹³⁶ However, such functions may be modified in under to meet specific needs and obligations of the Nagoya Protocol. For example, it has to perform important role in establishment and operation of ABS Clearing House as part of the CBD Clearing House Mechanism. In this context, the secretariat is the service arms for organizing and servicing the ordinary and extraordinary meetings and prepares documents for meetings of the governing and subsidiary bodies of the protocol.¹³⁷ It also prepares the reports on the execution of its functions under the protocol for consideration by the COP/MOP and make coordination with other relevant international bodies in this regard.¹³⁸ The secretariat itself decides about the cost of the secretariat services which is approved by the COP/MOP and met by the parties to the protocol only.¹³⁹ There would be presented separate and distinct budget plans to both the CBD COP and COP/MOP of the protocol by the same secretariat.¹⁴⁰ Besides, the secretariat could also enter into any administrative and contractual arrangement as required for the effective implementation of the ABS regime as well.

(iv) ABS Clearing House (ABS CH)

Nagoya Protocol calls upon “to establish Access and Benefit Sharing Clearing House as part of the clearing house mechanism of the CBD.”¹⁴¹ It is an international clearing house to share the information on access and benefit sharing which is linked to the pre-existing CBD clearing house mechanism. It consists of information center, the network of national clearing house mechanism and various partner’s institutes.¹⁴² It

¹³⁵See n.8, Nagoya Protocol, Article 28(1).

¹³⁶*Ibid.* Nagoya Protocol, Article 28(2).

¹³⁷See n.82, p. 239.

¹³⁸*Ibid.*

¹³⁹See n.8, Nagoya Protocol, Article 28(3).

¹⁴⁰*Ibid.*

¹⁴¹*Ibid.* Nagoya Protocol, Article 14(1).

¹⁴² Convention on Biological Diversity: Issues for Consideration in the Establishment of the Access and Benefit Sharing Clearing House; UN/DOC/UNEP/CBD/ABS/EM-CH/312 (22 March, 2011); available at: [http:// www.cbd.int/doc/meeting/abs/ABS-CH.html](http://www.cbd.int/doc/meeting/abs/ABS-CH.html) Accessed on 5 Aug, 2016.

has been modelled on the biosafety clearing house established under the Cartagena Protocol as part of the clearing house mechanism of the CBD. It is important institution to facilitate access and exchange of the information related to ABS for the implementation of the protocol. “The basic idea behind the ABS CH is to ensure that relevant information on ABS is made available and accessible to potential user and provider of genetic resources and traditional knowledge associated with genetic resources.”¹⁴³ However, the establishment of such ABS CH is under process under CBD regime for the implementation of the ABS process.

The basic function of the ABS Clearing House would be sharing of information related to ABS and providing access to information to each party relevant to the implementation of this protocol. In other words, it is intended to serve as an 'information hub' for both providers and users which would further assist in ascertaining their rights and obligations before entering into an ABS transaction.¹⁴⁴ The information which have to be provided to ABS CH include: “information relating to domestic legislative, administrative and policy measures on ABS, about the national focal point and competent national authority or authorities, and permits or its equivalent issued at the time of access as evidence of the decision to grant PIC and the establishment of MATs.”¹⁴⁵ In addition, there are certain types of information that may be provided on a voluntary basis which include: “methods and tools developed to monitor genetic resources, model contractual clauses, and codes of conduct and best practices.”¹⁴⁶ It would also include information on relevant competent authorities, indigenous and local communities and information on genetic resources held by them. The types of information prescribed are considered important for overall implementation of the protocol.¹⁴⁷

Besides, the ABS Clearing House may also contribute to capacity building and awareness raising in national jurisdiction. It may also provide opportunities to national authorities to make network with one another such as provider, users, experts

¹⁴³See n.82 p. 150.

¹⁴⁴*Ibid.* at p.140.

¹⁴⁵See n.8, Nagoya Protocol, Article 14(2).

¹⁴⁶*Ibid.* Nagoya Protocol, Article 14(3).

¹⁴⁷ Young T. R.(2013), “An International Cooperation Perspective on the Implementation of Nagoya Protocol”, in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: MartinusNijhoff, p.469.

and ILCs in other jurisdictions.¹⁴⁸ It would be a means to facilitate the communication between one country's ABS national focal point or authorities and other international environmental institutions as well. The intergovernmental negotiations are going for modalities of operation of the ABS CH based on preliminary experiences in the implementation of the pilot phase. The informal advisory committee to pilot phase of the ABS CH has already considered the outstanding issues in this regard.¹⁴⁹

(v) National Focal Point (NFP)

Nagoya Protocol also outlines the necessary institutional arrangements to be made at domestic level to implement the ABS regime. That would facilitate as link between the party and the secretariat of the protocol. It would be contact point for the users inquiring about the access procedures in domestic jurisdiction and for granting access or issuing written evidence about the PIC as per domestic legislation.¹⁵⁰ However, it would be under the discretion to parties as to the specific institutional arrangements to be put in place in national and sub-national levels. But, each party to the protocol has to notify the secretariat about the contact information along with its all relevant responsibilities relating to access and benefit sharing.¹⁵¹ Accordingly, “each party has been called upon to designate a national focal point on access and benefit sharing.”¹⁵² It is now up to each party to decide which national institution will serve in that capacity depending upon the legal and institutional framework.

The basic purpose for establishment of national focal point is twofold: “first, it would ensure direct communication and liaison with secretariat of the protocol; and second, it would give information to the prospective users about the procedures for obtaining PIC and establishing MATs in compliance with the ABS obligations.”¹⁵³ In other words, “it could be used as a 'helpdesk' or 'information hub' to make information available to potential users to avoid unintended breaches of domestic ABS regulations and to acquaint about the provider country's domestic ABS framework.”¹⁵⁴ Hence, state parties are also responsible for communicating the designation of NFP and any

¹⁴⁸See n.82, p. 241

¹⁴⁹*Ibid.* at p. 239,

¹⁵⁰See n. 117 at p. 144.

¹⁵¹*Ibid.* at p. 147

¹⁵²See n.8, Nagoya Protocol, Article 13(1).

¹⁵³See n.82, p. 231.

¹⁵⁴*Ibid.*

changes to these designations to the secretariat of the protocol so that the relevant and potential users or stakeholders could easily find out NFP and its offices for the national implementation of the protocol.¹⁵⁵

The basic functions of NFP prescribed for the compliance mechanism in domestic jurisdiction are: “to inform the potential users about the procedure, criteria, process and office designated under domestic ABS legislation and regulatory requirements for access to genetic resources and associated traditional knowledge.”¹⁵⁶ It would give the information on procedure for “obtaining prior informed consent and establishment of mutually agreed terms along with mechanism for benefit sharing on the utilization of genetic resources.”¹⁵⁷ Similar to this, it would also give information to potential users about “the procedures for obtaining prior informed consent or approval and involvement of the indigenous and local communities and establishment of mutually agreed terms including benefits sharing while accessing traditional knowledge associated with genetic resources.”¹⁵⁸ The information about the relevant indigenous and local communities and ABS stakeholders would also be provided for decision making or approval process in permitting the access to genetic resources.”¹⁵⁹

Further, it has been assigned to give information about the designated competent national authorities of the provider countries where the potential users may apply for access to genetic resource.¹⁶⁰ The information in this regard would include: contact information of CNAs, the process adopted for the applications, duration and fees taken in processing the applications for accessing the genetic resources. Above all, the NFP as national institutions would facilitate the communication and maintain records of stakeholders as primary contact point between the potential users and member party in one hand and member party and secretariat of the protocol on the other.

(vi) Competent National Authority (CNA)

¹⁵⁵*Ibid* at p.232.

¹⁵⁶*See n.8*, Nagoya Protocol, Article 13(1)(a).

¹⁵⁷*Ibid*.

¹⁵⁸*Ibid*. Nagoya Protocol, Article 13(1)(b).

¹⁵⁹*Ibid*. Nagoya Protocol, Article 13(1)(c).

¹⁶⁰*Ibid*. Nagoya Protocol, Article 13(2).

Under the Nagoya Protocol, each party is furthermore required “to designate one or more competent national authorities on access and benefit sharing.”¹⁶¹ The designation of more than one CNA(s) might be dependent upon institutional structures and country specific considerations based on the type of genetic resources and its geographic location as well as domestic regulatory requirements. However, “any party may designate a single entity to fulfill the functions of both national focal point and competent national authority.”¹⁶² Having a single entity might be prompted by the need to cut down the structural and transaction costs or to centralize the functions within national jurisdiction. The basic purpose of such CNA(s) are also twofold: “*first*, granting access or issuing another evidence that access requirements have been met; *secondly*, advising on applicable procedures and requirements for obtaining prior informed consent and entering mutually agreed terms.”¹⁶³ But, the CNA(s) are charged with such responsibilities must be carried out in accordance with national legislative, administrative or policy measures of the country. In view of this, the competent national authorities have been held responsible for advising the potential users on: “the negotiating process; the requirements for obtaining PIC and establishing MAT; monitoring and evolution of ABS agreements; enforcement of ABS agreements, conservation and sustainable use of genetic resources accessed; mechanisms for the effective participation of different stakeholders in particular indigenous and local communities and mechanisms for the effective participation of communities while promoting the objective of having decision and processes available in a language understandable to relevant communities.”¹⁶⁴

In addition, each party has to notify the secretariat of the protocol of the contact information of its competent national authority or authorities. “When a party designates more than one CNA(s), it shall convey to the secretariat the relevant information about the respective responsibilities of these authorities.”¹⁶⁵ Besides, the party shall notify any changes in the designation of CNA(s), the contact information and responsibilities of its competent national authority or authorities to the

¹⁶¹*Ibid.*

¹⁶²*Ibid.* Nagoya Protocol, Article 13(3).

¹⁶³*See n.82* at p.232

¹⁶⁴Boon Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits arising out of their Utilization (2002), Para 14, *See*, Full Text, available at: http://www.cbd.int/doc/publication/cbd-bonn-gdls_en.pdf. Accessed on 20 July, 2016.

¹⁶⁵*See n.8*, Nagoya Protocol, Article 13(4).

secretariat.¹⁶⁶ The information in this regard should also be provided through ABS Clearing House to the secretariat of the protocol. It would be quite helpful in enhancing the legal certainty and accuracy of the information for proper implementation of the protocol.

(vii) Designated Checkpoint

Under the Nagoya Protocol, each party is under obligations “to designate one or more checkpoints to monitor and enhance the transparency about the utilization of genetic resources.”¹⁶⁷ It asks for the designation of checkpoints as lowest level institutions to detect possible instances of user’s violation of domestic measures through proper monitoring. However, CBD is silent on specific measures for monitoring the utilization of genetic resources. But, the Nagoya Protocol provides the measures on compliance with specific obligations on monitoring with the mandatory establishment of 'checkpoints' to support the compliance. In this context, the protocol requires parties to designate at least one checkpoints, but give them flexibility in deciding which national entity will play this role in this regard. “The parties may decide to designate other existing or new entities as checkpoints such as patent office, custom office, biodiversity authorities and wildlife warden. Because, nothing in the protocol prevents parties from designating them as checkpoints but such designated checkpoint must be effective and capable to realize the objective of the protocol.”¹⁶⁸

Such checkpoints would be assigned with functions relevant to the implementation of monitoring and transparency to support the compliance by collecting or receiving “relevant information related to prior informed consent, the source of the genetic resources, the establishment of mutually agreed terms, and/or to the utilization of genetic resources, as appropriate.”¹⁶⁹ It would also provide “relevant information to the national authorities, to the party providing prior informed consent and to the ABS Clearing House.”¹⁷⁰ However, it would be provided without prejudice to the protection of confidential information. In addition to this, “it would collect relevant

¹⁶⁶*Ibid.*

¹⁶⁷*Ibid.* Nagoya Protocol, Article 17(1) (a).

¹⁶⁸*See n.82* at p. 276

¹⁶⁹*See n.8*, Nagoya Protocol, Article 17(1) (a) (i).

¹⁷⁰*Ibid.* Nagoya Protocol, Article 17 (1) (a) (iii).

information about the research, development, innovation and commercialization.”¹⁷¹ However, it is under discretion of the parties in designing whether designated checkpoints will monitor each stage or just some of its stages.¹⁷² But, it should be effective in achieving the objective of the monitoring provisions as well the objective of the protocol.

To support the compliance mechanisms under ABS regime, checkpoints established in the domestic ABS framework would play important role in the implementation and development of the objective of the protocol. However, the protocol only requires the designation of checkpoints without any formal establishment, but suggested to be effective one for accomplishing the functions. The main function of such designated checkpoints is to only collect or receive as appropriate relevant information about the utilization of genetic resources. Such relevant information is required to be given by the users of genetic resources at the designated checkpoint. It would be instrumental to control and detect the possible instances of non-compliance and violation of the domestic ABS regulatory requirements.

Critical Evaluation

Consequent to the global challenges to the human environment, there has been persistent need of legal instruments as well as institutional frameworks by the way of international cooperation and commitment. “The institutional forms of international cooperation have largely taken place after the formation of United Nation Organization on global issues including environmental protection and conservation of the natural resources.”¹⁷³ In this context, the UN General Assembly has taken initiatives in the field of international environment cooperation through global conferencing as primary source in international environmental institutions building.¹⁷⁴ Subsequently, “UNEP as 'UN Environmental Conscience' has precipitated the momentum of global treaty making and institutional building through multilateral environmental agreements.”¹⁷⁵ The proliferation of MEAs under the regime of UNEP

¹⁷¹*Ibid.* Nagoya Protocol, Article 17(1) (a) (ii).

¹⁷²*See n.82* at p. 277.

¹⁷³ Desai B.H. (2014), *International Environmental Governance: Towards UNEPO*, Leiden: Brill Publishers, p.12.

¹⁷⁴*See n. 1* at p.17.

¹⁷⁵*See n. 2* at 49.

has further contributed to a set of institutional structures such as conference of parties, subsidiary bodies, financial mechanism and secretariat. Accordingly, “UNEP became the parent institution of the CBD which provided not only the legal competence and membership but also interim institutional and financial arrangements as well.”¹⁷⁶ It supported the CBD regime in achieving the mandate and objectives and cooperated in the implementation at international and national level.

However, the UN General Assembly and other specialized agencies have played limited roles within their respective area for the preservation and management of genetic resources. Within the UN system, “the General Assembly has not well addressed the issue of ABS system as compared to other sectoral issues due to political rivalry between the developing and developed countries.”¹⁷⁷ This might have resulted due to lack of political consensus among the members on certain aspect of ABS mechanism. Though, specialized environmental institutions i.e. UNEP and Convention based institutions have played certain role in this regard, but have been “affected and constrained by its organizational defects and unpredictable funding resulting into dilution of their authority on environment.”¹⁷⁸ In this sense, the role played by the UN General Assembly and UNEP is arguably limited on the issue of ABS on genetic resources and associated traditional knowledge.

Besides, there are certain other international instruments and institutions related to this convention and protocol establishing functional and administrative relations in support of the implementation of the ABS regime. However, “there has been found conflict of norms and overlapping functions among different institutions which required mutual supportiveness among them. Therefore, international cooperation is instrumental to resolve the issues and clarify the process ensuring supportiveness with the established and ongoing institutional framework.”¹⁷⁹ In this regard, CBD does not provide much clarity on the relationship with other international instruments and institutions interfacing with its mandate and objectives on ABS regime.

¹⁷⁶ Nanda V.P. (1995), *International Environmental Law and Policy*, New York: Translational Publisher, p. 125.

¹⁷⁷ *Ibid.*

¹⁷⁸ See n.1 at p. 58

¹⁷⁹ Pavoni R. (2010), “Mutual Supportiveness as a Principle of International Law Making: A Watershed for the WTO and Competing Regimes”, *European Journal of International Law*, 2: 649-680, p.52.

However, the Nagoya Protocol has given detail provision, but complex in nature on the relationship of the protocol with existing and future international agreements dealt by different institutions on ABS regime.¹⁸⁰ Though, “it asks the parties to be constantly alert to and promptly identify any serious damage or threat to biodiversity that may materialize from other international regimes, however, no specific guidance as to how to resolve any conflict that may arise between them has been provided.”¹⁸¹ It calls upon the parties to implement the protocol in mutually supportive manner with other relevant international instruments adopted or to be adopted by other relevant institutions. “This concept of mutual supportiveness is totally depended on the conduct of the individual member states that would be detrimental to the effectiveness of the ABS regime.”¹⁸² Hence, it would be quite difficult in establishing relationship with other international instruments and institutions whether existing or future specialized in ABS. Besides, “it does not create obligation to implement the protocol in mutually supportive manner, but only asks to ‘pay due regard’ to the detrimental effect of such ‘work and practices’ to the convention and protocol pursued in other international institutions.”¹⁸³ Not all kinds of work and practices however would deserve due regard, just those that are ‘useful’ and ‘relevant’ only to the ABS regime.

The emergence of several international institutions and specialized agencies under the UN system and beyond have produced a set of hard law and soft law contributing to the development of ABS principles, standard and guidelines. Besides, negotiations are also under way to make the coherent and comprehensive legal regime interacting or interfacing the ABS process on the utilization of genetic resources.¹⁸⁴ The appropriation and misappropriation of genetic resources has led the countries bipolar due to contrasting or contradictory views specially on sharing the burdens and benefits for conservation and sustainable use of the genetic resources on different forums or institutions.¹⁸⁵ “The issues of ethics and equity have been also matter of

¹⁸⁰Kamau E. et al. (2010), "The Nagoya Protocol on Access to Genetic Resource and Benefit Sharing: What is New and What are the Implications for Providers and User Countries and the Scientific Community?" *Law, Environment and Development Journal*, 6/3:246-262, p.246; available at: <http://www.lead-journal.org/content/10246.pdf>. Accessed on 18 July, 2016.

¹⁸¹See n.82 at p. 80.

¹⁸²*Ibid.*

¹⁸³See n.52 at p.48.

¹⁸⁴*Ibid.*

¹⁸⁵Sampath G.L. (2005), *Regulating Bioprospecting: Institutions for Drug Research, Access and Benefit Sharing*, New York: UNU Press, p. 54.

contention in different institutions between the industrialized countries and southern developing but biodiversity rich countries on account of access to genetic resources and sharing of benefits arising out of it.”¹⁸⁶

Against this background, the CBD regime specific institutions have been established to cater the specific requirement of the convention and its implementation. But in actual, “it works on the political will of the sovereign states that are parties to this specific regime.”¹⁸⁷ All the functions of its institutions like COP, subsidiary bodies and secretariat are dependent upon the international cooperation from the member states and other international organizations. It is also affected by the financial assistance and resources voluntarily given by the member states which impact largely the function of such specific institution under the CBD regime.¹⁸⁸The Nagoya Protocol also provides administrative and governing body like MOP; Subsidiary bodies and Secretariat designating the status to the convention specific institutions. “Since the protocol is a separate legal instrument, the functions of the COP/MOP would be different to some extent from those of the CBD COP, and the membership of the two bodies is not usually be the same.”¹⁸⁹ Accordingly, “their function, operation and scope or mandate would be distinct for all practical purposes, consequently give rise to the intriguing and overlapping questions in certain cases.”¹⁹⁰ Even the tasks related to the protocol would significantly add to the work load or cost of these bodies which would be detrimental to the overall objective of the CBD. Besides, protocol also addresses the separation of the costs incurred by the secretariat for its services for the protocol rather than for the CBD. Here, “the member states of the CBD have to bear separate financial burden in the same CBD regime to ratify its protocol as well as costs of secretariat services.”¹⁹¹

Nagoya Protocol calls for the establishment of compliance related institution such as ABS CH, CNA, NFP and designated checkpoints in domestic jurisdiction. Parties

¹⁸⁶Guneratne C. (2012), *Genetic Resources, Equity and International Law*, Cheltenham: Edward Elgar Publishers, at.34.

¹⁸⁷Prester F. (2002), "The CBD at Ten: The Long Road to Effectiveness", *Journal of International Wildlife Law and Policy*, 5: 269-285, p.270.

¹⁸⁸Nijar G.S. (2011), “The Nagoya Protocol on Access and Benefit Sharing of Genetic Resources: An Analysis” CEBLAW Brief, Kuala Lumpur: University of Malaya, p.17; available at: http://biogov.uclouvain.be/multistakeholder/presentations/Gurdial-Nijar-NagoyaProtocol-CEBLAW_Brief.pdf. Accessed on 12 Sept. 2016.

¹⁸⁹See n.82 at p. 338.

¹⁹⁰*Ibid.* at p. 337.

¹⁹¹*Ibid.* at p. 341.

have been given wide discretion to establish them in accordance with their national legislative, administrative or policy measures. Though, “the establishment of ABS CH is under negotiations, its function has been well indicated to receive or provide the information to potential users on ABS process. However, this has been curtailed by the term used 'if available and as appropriate'.”¹⁹² Apart from this, “the protocol also does not give explanation as to what kind of information could be regarded as confidential or how such information should be protected.”¹⁹³ It simply gives discretion to parties to decide which information is confidential to escape from the obligation provided under the protocol.¹⁹⁴ Besides, such information may be provided subject to its availability and as appropriate which indicates that parties have also discretion to decide when and which of these types of information to make available on any case or not.¹⁹⁵

The NFP is required to provide information on procedure for obtaining PIC, establishing MAT and benefit sharing arrangement to applicants interested in accessing the genetic resources and traditional knowledge associated with genetic resources. But for the traditional knowledge associated with genetic resources, the NFP is required to provide the respective information only 'where it is possible', and 'as appropriate', which also reflects the discretion of the parties to give it.¹⁹⁶ Similarly, the CNA would also act on the discretion and direction of the parties during the implementation of the protocol.¹⁹⁷ It gives the parties discretion with regard to checkpoints to take both on active and passive role to give information on the utilization of genetic resources.¹⁹⁸ The qualification 'as appropriate' points to different task depending on the different types of checkpoints that will be designated. Another qualifier 'as appropriate' further provides more flexibility to user member or parties to

¹⁹²See n.117 at p. 153.

¹⁹³Mafuratidize R. (2011), “Critical Review of the Nagoya Protocol on Access and Benefit Sharing: Analysis of Its Provision against African Model Law and Possibilities for its Implementation at National Level” CISDL: South Africa; available at: http://www.cisdL.zu/critical/doc/african_model/eng.pdf Access on 12 Sept. 2016.

¹⁹⁴See n.117 at p.154.

¹⁹⁵*Ibid.*

¹⁹⁶See n.82 at 232.

¹⁹⁷*Ibid.* at p.233.

¹⁹⁸*Ibid.* at p.275.

give the relevant information.¹⁹⁹To address the ABS situations and transactions, all these institutions indicated above contribute to facilitate and operate in coherent and supportive manner, but in limited way on certain accounts due to the diversified use of utilization and involvement of cross-sectoral stakeholders.²⁰⁰ As these institutions are limited with their mandate and purpose, sometimes overlap with each other in their function and operation such as preservation, utilization, commercialization, trade and intellectual property rights on same genetic resources.²⁰¹In this context, it is to be noted that institutional arrangements provided in the CBD regime and beyond are insufficient and ineffective for the ABS process for genetic resources.

Conclusion

The international and national institutions play important role in facilitation, operation and implementation of the multilateral environmental agreements. The CBD provides its own regime specific institutions and further supplements the protocol also for the administrative and executive guidance. Additionally, the Nagoya Protocol asks for the establishment of compliance related institution to the member states in their domestic jurisdiction to implement and development the ABS regime. But, all such institutions and their functions are dependent upon the national implementation, international cooperation and voluntary financial assistance under the discretion of the nations. All such institutions is necessary for translating the function and mandate into action for the implementation and development of ABS regime. These institutions require stronger power and function under well-defined mandate for achieving the basic purpose of proper access and equitable sharing of benefits on the utilization of genetic resources in CBD regime and beyond. The proper and broader mandate and authority would make the CBD regime more effective, clear and certain legal regime on ABS. International cooperation and coordination within and outside the CBD regime would

¹⁹⁹Buck M. and Hamilton C. (2011), "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" *Review of European Community & International Environmental Law*, 20(1): 47-61, p.58.

²⁰⁰ R. Anderson et al. (2010), "International Agreement Affecting an International Regime on Access and Benefit Sharing under the CBD: Implications for its Scope and Possibilities of a Sectoral Approach" FNI Report 3/2010; available at: <http://www.fni.org/repoet/2010/en.pdf>. Assessed on 24 Feb. 2017.

²⁰¹ Halewood et.al.(2013): "Implementing 'Mutually Supportive' Access and Benefit Sharing Mechanism under The Plant Treaty, Convention on Biological Diversity and Nagoya Protocol" *Law, Environment and Development Journal*, 9/2: 70-95; p. 94; available at: <http://www.lead-journal.org/content/10213.pdf>. Accessed on 18 July, 2016.

facilitate the global governance of genetic resources and associated traditional knowledge.

CHAPTER V

IMPLEMENTATION FRAMEWORK ON ABS REGIME

Introduction

After the adoption and ratification of CBD and its legal instruments, implementation measures are required to be adopted in the domestic jurisdiction by translating the international commitments into national program of actions. The mode of national implementation could be legislative, administrative or policy measures for achieving the intended results or objectives of the international legal instruments agreed upon. Here, the term “‘implementation’ basically denotes the exercise followed on the initial phase of the post agreement activity to establish the principles, rules and procedures fulfilling the objectives of the international regime.”¹ Such implementation mechanism may be complied with at international and national level to achieve the stated purposes.

At the international level, this is based on the consensus among nations providing the nature to be adopted and manner to be handled under the framework convention. Subsequently, the additional agreements or protocols are agreed upon to spell out specific targets or obligations in support of the framework conventions. “At the national level, the national governments in turns are expected to put in place by promulgating new legislations and regulations. The national implementation totally depends upon willingness and capacity of the signatory states owing to their political and economic status in current scenario.”² It may be different among countries depending upon the legal, political and social system to adopt their own approach in the implementation of the international legal instruments.³ But, the actual obligations and objectives of the international legal instruments are fully taken account and complied with.

¹Tvedt W. and Young T. (2007), “Beyond Access: Exploring Implementation for the Fair and Equitable Sharing Commitment in the CBD,” Environmental Policy and Law Paper No. 67/2, p.42; Gland: IUCN; available at: http://www.iucn.org/dbtn_wpd/EPLP-2.pdf. Accessed on 12 May, 2016.

²Desai B.H et al. (2011) “Implementation of the Convention on Biological Diversity: A Retrospective Analysis in the Hindukush Himalayan Countries.” Kathmandu: ICIMOD; p.27; available at: <http://www.icimod.org/publications/record/8923.pdf>. Accessed on 5 November, 2016.

³Broggiato A. et. al. (2015), “Access, Benefit Sharing and the Nagoya Protocol: The Confluence of Abiding Legal Doctrines” in Coolsaet B. at. el. (ed.), *Implementing the Nagoya Protocol: Comparing Access and Benefit Sharing Regimes in Europe*, Leiden: Brill Publishers, p.6.

The actual success of the ABS regime as embodied in the CBD and its international instruments also depends on its implementation and development at national level. The binding nature of its obligations need to be implemented through national legal framework to establish the functional system of ABS regime on the utilization of genetic resources. As it has been indicated that:

“In the context of policy related to access and benefit sharing (ABS), the phrase ‘to implement’ immediately suggests incorporating international rules in to the national legal requirements and procedures...An ‘implement’ is a tool, which emphasizes the need and importance of international and domestic legal provisions becoming instruments that promote and facilitate the operationalization of access and benefit sharing.”⁴

Accordingly, the CBD provides the sovereign rights to states over their own biological resources, and hence the states are primarily responsible for regulating the access and use their biological resources.”⁵In view of this, “the authority to determine access to genetic resources rests with the national governments and subject to national legislation”⁶ and then, “each party has to take legislative, administrative or policy measures, as appropriate.”⁷ In view of this, there is sovereign right of national government to regulate the ABS regime resulting into individually tailored ABS legislation or regulation. Such ABS legislation or regulation would facilitate the process for the access to genetic resources and require the authorization from competent national authorities or institutions. To respond such legislative, administrative and policy measures, there is required institution, infrastructure, capacity building, training and tools to effectively implement the ABS regime. However, there has been felt lack of guidance and certainty at the national and regional level for the implementation and development of the ABS regime.

In this regard, the Bonn Guidelines adopted by Conference of Parties of the CBD specifically guided “the member states or other entities in establishing legislative,

⁴ Oliva M. (2013), “The Implications of the Nagoya Protocol for the Ethical Sourcing of Biodiversity” in Moregera E. and Tsioumani E. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implications for International Law and Implementation Challenges*, Leiden: Martinus Nijhoff, p. 371.

⁵ Convention on Biological Diversity, 1992 was adopted on 5 June, 1992 at UN Conference on Environment and Development at Rio de Janeiro, Brazil. It came into force on 29 December, 1993 after adequate number of ratifications and signatures. Around 193 countries are currently parties making it universal in application and implementation. Convention on Biological Diversity, 1992; *See*, Full Text, available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

⁶ *Ibid.* CBD, Article 15(1).

⁷ *Ibid.* CBD, Article 15 (7).

administrative or policy measures on access and benefit sharing and/or in negotiating agreements for access and benefit sharing over genetic resources.”⁸ Although, the guidelines are not legally binding, but adopted by most of the member states making it important for the implementation of the ABS regime. Above all, “these guidelines are intended to assist parties in developing an overall access and benefit sharing strategy which may be part of their national biodiversity strategy and action plan and in identifying the steps involved in the process of attaining access to genetic resources and sharing benefits.”⁹ There are certain steps required in the process of obtaining access to genetic resources and sharing of benefits may include activities prior to access, research and development as well as their commercialization.¹⁰ The parties have been also provided the options “to take appropriate, effective and proportionate measures in the form of legislative, administration or policy measures implementing the access and benefit sharing provisions of the CBD.”¹¹ Still, there were legal and practical challenges to develop and implement domestic ABS legislation. “The Implementation of the ABS principles focused mostly on the safeguarding the interest of the user parties rather than on over all access and benefit sharing process.”¹² There were lack of clarity in the process, lack of standardized procedure and lack of capacity to implement in ABS regime.¹³ Consequently, this constituted the background to negotiate the international regime on ABS with more clarity, certainty and transparency. Then, Nagoya Protocol was adopted to effectively implement and develop the ABS regime for genetic resource and associated traditional knowledge.¹⁴

⁸Boon Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits arising out of Their Utilization, 2002.CBD COP VI Decision VI/24: Access and Benefit Sharing as Related to Genetic Resources, which adopted Bonn Guidelines on Access to Genetic Resources and Sharing of Benefits Arising out of Their Utilization, 2002; (UNEP/CBD/COP /DEC/VI/24A) See, Full Text, available at: http://www.cbd.int/doc/publication/cbd-bonn-gdls_en.pdf. Accessed on 12 July, 2016.

⁹*Ibid.* Part IV, para 12.

¹⁰ *Ibid.* Part IV, para 23.

¹¹*Ibid.* Part IV, para 61.

¹²Laird S. and Wynberg R. (2008), “Access and Benefits Sharing in Practice: Trends in Partnership across Sectors” CBT Technical Series No 38, Montreal: Secretariat of CBD; available at: www.cbd.int/doc/publications/cbd-to-38-en.pdf. Accessed on 15 July, 2016.

¹³Joseph R.K.(2010):“International Regime on Access and Benefit Sharing: Where are we now?” *Asian Biotechnology and Development Review* 12(8): 77-94, p.78.

¹⁴Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization to the Convention on Biological Diversity, 2010. Tenth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 18-29 October, 2010, Nagoya, Japan; See, CBD COP Decision X/II: Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization;(UNEP/CBD/COP/DEC/X/II) available at: <http://www.cbd.int/decisions/cop/m=COP-10/english.pdf>. Accessed on 12 July, 2016.

Nagoya Protocol provides number of binding obligations for both user and provider countries for the implementation of ABS regime. It requires all user parties at one hand, “to establish appropriate, effective and proportionate measures to ensure that genetic resources and associated traditional knowledge utilized within their jurisdiction have been accessed with prior informed consent and in accordance with mutually agreed terms.”¹⁵ On the other hand, “the provider countries have to establish the access measures through legislative, administrative or policy at national level including the norms for: legal certainty, clarity and transparency; fair and non-arbitrary rules and procedures; clear rules and procedure for prior informed consent and mutually agreed terms.”¹⁶ Apart from this, there are obligations for sharing the benefit in fair and equitable way based on the mutually agreed terms on the utilization of genetic resources, utilization of such resources held by the indigenous and local communities (ILCs) and utilization of associated traditional knowledge.¹⁷

To implement these obligations, each party has to take legislative, administrative and policy measures in domestic jurisdiction. Additionally, Nagoya Protocol also provides for domestic compliance measures, enforcement mechanisms and other tools as: model contractual clauses, code of conduct and best practices; customary law and community protocols. To support the enforcement mechanism, it provides for international monitoring, reporting, assessment and review mechanism in compliance with protocol and its convention. The public participation, empowerment and education would also play important role in the enforcement and development of the ABS regime at local level.

Domestic Measures for ABS Implementation

The CBD and its protocol are binding to the member states signing it which subsequently obligates them to adopt appropriate measures to implement its obligation in domestic jurisdiction. In this context, “the ABS obligations of the CBD and Nagoya Protocol are significant for not only state party but also to non-state parties through private contracts or MATs.”¹⁸ It is the domestic implementation

¹⁵*Ibid*, Nagoya Protocol, Article 6.

¹⁶*Ibid*.

¹⁷*Ibid*. Nagoya Protocol, Article 5.

¹⁸Chiarolla C. (2013), “The Role of Private International Law under the Nagoya Protocol”, in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: MartinesNijhoff, p. 423.

through legislative, administrative and policy measures which specifies the actual responsibility and accountability in this regard. “Each party individually needs to decide whether to adopt legislative measures enacting legislation; or to take administrative measures formulating regulation; or policy measure through strategy or plan.”¹⁹ For the development of the access and benefit sharing legislation or regulatory requirements, each party has to take measures either in three ways:-

(i) Legislative Measures

In compliance to the utilization of genetic resources, “parties are required to make ‘domestic access and benefit sharing legislation’ to take the prior informed consent and establishment of the mutually agreed terms.”²⁰ Each party individually needs to decide the adoption of legal measures through enactment of legislation by federal or state legislature. “The constitution and legal system allow the federal and provincial state to legislate in respect of implementation of a treaty or international obligations or to harmonize laws between federal or provisional states and one or more states.”²¹ In the national region, the land and biological resources are usually found within state's exclusive jurisdiction. “The state accordingly promulgate the legislation determining conditions for access to genetic resources, granting prior informed consent and establishment of MATs.”²² For example, Indian Constitution permits the federal government to legislate on the matters of environment in account of international commitment and obligation agreed under multilateral environmental agreements.²³ Consequently, “Indian Biological Diversity Act, 2002, was enacted to address the access and benefit sharing issues in domestic jurisdiction for resident and non-resident persons or corporations in this regard.”²⁴ However, the legislative measures may vary according to the political and legal system of any country by passing the acts, degree or resolutions etc.

¹⁹Greiber T, et al (2012), “An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing,” Environmental Policy and Law Paper No. 83; p.161, Gland: IUCN Publication; available at: http://www.iucn.org/policy/genetic_resources=4763.pdf Accessed on 04 July, 2016.

²⁰*Ibid.* at p.26.

²¹Glowka L. (1994), “A Guide to The Convention on Biological Diversity,” Environmental Policy and Law Paper 30, Gland: IUCN, p.80; available at: <http://www.iucn.org/dbth-wpd/EPLP-30.pdf>. Accessed on 2 Feb, 2016.

²²*Ibid.* at p.83.

²³ Constitution of India 1950, Article 252.

²⁴Indian Biological Diversity Act, 2002, with effect from 5 February, 2003; available at: <http://www.nba.in/abs/documents/acts /2002/en.pdf>. Accessed on 2 July, 2016.

(ii) Administrative Measures

Most of the countries authorize the administrative bodies such as government departments, agencies and other specific authorities to undertake some administrative decisions or measures in response to such international obligation to be complied with.²⁵ Subsequently, such administrative bodies notify certain rules and regulations to implement the ABS principle and procedure. These administrative measures are issued specifically allowing the access to genetic resources through permit or license and facilitating the benefit sharing arrangements. “Such administrative measures also outline the rights and responsibilities of the user and providers of the genetic resources in compliance with ABS principles.”²⁶ This could also provide basis for implementation of other ABS related commitments such as technology transfer, capacity building, biotechnological development and biosafety implementation. Such administrative measures are basically taken to implement the effective ABS regime at the national, provincial and local jurisdiction.²⁷ For instance, Indian National Biodiversity Authority has issued new “‘Guidelines on Access to Biological Resources and associated Knowledge and Benefit Sharing Regulations, 2014’ in pursuance of the access and benefit sharing mechanisms as set out in the Nagoya Protocol.”²⁸ Besides, “there has been already notified 'Biological Diversity Rules, 2004' to address the access and benefit sharing process and procedure for the management of the biological resources.”²⁹

(iii) Policy Measures

The policy measures on access and benefits sharing are formulated to facilitate the process and procedure in national jurisdiction. “The government usually adopts the policies after incorporating the basic plans, programmes and strategies to implement

²⁵ Young T. (2009), “Administrative and Judicial Remedies available in User Countries under their jurisdiction and International Agreements” in Young T, et.al. (ed.) *Covering ABS: Addressing the Need for Sectoral, Geographical, Legal and Integration in the ABS Regime*, Environmental Policy and Law Paper No. 67/5, Paper and Studies of the ABS Project; p.143, Gland: IUCN Publications; available at: <http://www.iucn.org/dbth-wpd/EPLP-67.pdf>. Accessed on 2 July, 2016.

²⁶ *Ibid.* at p.140.

²⁷ *Ibid.* at p.175.

²⁸ Indian Guidelines on Access to Biological Resources and Associated Traditional Knowledge and Benefit Sharing Regulations, 2014, available at: <http://www.nba.in/abs/documents/guidelines/2014.pdf>. Accessed on 2 July, 2016.

²⁹ Indian Biological Diversity Rules, 2004, available at: <http://www.nba.in/abs/documents/rules/2004.pdf>. Accessed on 2 July, 2016.

principles and procedures.”³⁰ Such policy could either formulated separately or added with existing policies such as national biodiversity strategy or policy. “The policy may include the details of resources, the vision and purpose to be addressed, necessary steps and targets prioritized, along with sectoral and cross sectoral strategy or plan.”³¹ Several countries are adopting the policy measures for effectively implement the ABS regime in the light of CBD and its Nagoya Protocol. The policy measures may also provide better basis for deigning ABS law to these countries which have not yet set the specialized legislation as well.

Actually, the CBD does not create ABS regime, but calls for its creation through domestic implementation and development through legislative, administrative and policy measures.³² Similarly, Its Nagoya Protocol reaffirmed the same measures for the development and implementation of the access and benefit sharing provisions. When the party develops domestic measures, it has discretion in choosing the measures as suggested ‘as appropriate’ in both the legal instruments. Hence, each party should determine what types or which measures are necessary to regulate the ABS process domestically.

Essential Elements for ABS Domestic Measures

Nagoya Protocol provides the obligations to take domestic measures which are supplemented with three qualifiers: ‘appropriate, effective and proportionate ways’ for the development and implementation of the ABS regime.³³ The purpose to use these qualifiers was to preserve the sovereignty of the member states to adopt the measures as they deemed appropriate in their political and legal system. The Nagoya Protocol in this regard provides adequate approach to the development and implementation of functional ABS legal system through three essential elements to be incorporated in domestic measures: -

³⁰Glwoka, L. (1998), “A Guide to Designing Legal Framework to Determine Access to Genetic Resources,”IUCN Environmental Law and Policy Paper. 34, Gland: IUCN Publications, p.8; available at: <http://www.iucn.org/dbth-wpd/EPLP-34.pdf>. Accessed on 12 July, 2016. *See also*, Wynberg R. (2009), “Biodiversity Access and Benefit Sharing in Arid Countries and those with Low Diversity and High Endemism” in Young T, et.al. (ed.) Covering ABS: Addressing the Need for Sect oral, Geographical, Legal and Integration in the ABS Regime, Environmental Policy and Law Paper No. 67/5, Paper and Studies of the ABS Project; p.47, Gland: IUCN Publications; available at: <http://www.iucn.org/dbth-wpd/EPLP-67.pdf>. Accessed on 2 July, 2016.

³¹*Ibid.* at p.10.

³² *See n.4*, CBD, Article 15 (7).

³³ *See n.14*, Nagoya Protocol, Article 15.

(i) Legal Certainty, Clarity and Transparency in Domestic Measures

For the ABS process, “the parties asking for prior informed consent have to take the necessary legislative, administrative or policy measures as appropriate to provide for legal certainty, clarity and transparency in their domestic access and benefit sharing legislation or regulatory requirements.”³⁴ Here, legal certainty, clarity and transparency are vital for the ABS process to facilitate access to and use of genetic resources. Hence, the access provisions are conditioned with legal certainty, clarity and transparency in domestic requirements in respect of PIC and MATs. In view of this, “‘Legal certainty’ refer to the role of law in providing those subject to it to determine whether their action are legal and thereby protecting them for arbitrary use of state power.”³⁵ Afterwards, “‘Clarity’ refer to precise content and informed coherence that allow for a reasonable degree of the consequence of a given action.”³⁶ Then, “‘Transparency’ refer to the provision of relevant information in a manner that is accessible and easily understandable to those affected, including information on national authority’s decision making, implementation and enforcement of ABS decision and applicable rules and procedure.”³⁷ All these features have to be incorporated in the domestic ABS legislation and regulatory requirements. Besides, the legal certainty, clarity and transparency would also promote the rule of law and good governance on the ABS regime. However, the degree to which these concepts are incorporated into domestic law depends upon the national jurisprudence and judicial system.

(ii) Fair and Non-Arbitrary Access Rules and Procedures

The party should also provide the access rules and procedures which must be 'fair' and 'non-arbitrary' towards the parties that request the access to genetic resources.³⁸ It covers both substantive and procedural measures for the access to genetic resources regulated under domestic jurisdiction. “This guarantees rights against unjustified or unreasonable exercise of discretion in the decision-making process. It may also extend

³⁴*Ibid.* Nagoya Protocol, Article 6(3) (a).

³⁵Moregera E. et al. (2014), *Unraveling Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity*, Brill: Leiden, p. 160.

³⁶*Ibid.*

³⁷*Ibid.* at p.161.

³⁸ *See n.14*, Nagoya Protocol, Article 6(3) (b).

to guarantee against the corruption or excessive delay in domestic decision making on ABS regime.”³⁹ Here, “‘fairness’ means that equal treatment in applications for access to genetic resources is accorded to similar domestic and foreign applicants and ‘Non-arbitrariness’ is the non-dependence on arbitrary discretion or restrained exercise of power.”⁴⁰ However, a party may choose to develop rules that aim at advancing local non-commercial research and education in biodiversity ecosystem. In this context, “local users may be permitted to collect genetic resources in a territory that is of strategic importance to the country, but deny the permit to the foreign users in such territory. On the other, the party may grant access to genetic resources of a depleted species for research aimed at restoring the species but deny access to the same for commercial purposes.”⁴¹ However, such discriminations are acceptable as long as they support the effective functioning and implementation of the ABS regime. Above all, the provider countries, if they decide to establish the domestic measures at the national, have to incorporate the clear rules and procedures for PIC and MAT.⁴²

(iii) Clear Rules and Procedure for PIC and MAT

The Nagoya Protocol also provides for minimum procedural rules and procedures for prior informed consent to be included in domestic access framework of parties.⁴³ The minimum rules and procedures would provide obligation to submit information about the procedures for obtaining PIC and establishing MATs. “It also calls for providing a clear and transparent written decision on PIC by the competent national authority in a cost effective manner and within a reasonable period of time.”⁴⁴ Apart from this, “parties are also required to develop criteria and/or process for obtaining prior informed consent or approval and involvement of indigenous and local communities for the access to genetic resources.”⁴⁵ However, it only applies to a party within the jurisdiction of which ILCs have the established rights to grant access to genetic

³⁹ See n. 35 at p. 162.

⁴⁰ See n. 19 at p. 103.

⁴¹ *Ibid.* at p.104.

⁴² Medaglia J.C. (2013), “The Implementation of the Nagoya Protocol in Latin America and the Caribbean : Challenges and Opportunities,” in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: Martinus Nijhoff, p.357.

⁴³ See n.14, Nagoya Protocol, Article 6(3) (c).

⁴⁴ *Ibid.* Nagoya Protocol, Article 6 (3) (d).

⁴⁵ *Ibid.* Nagoya Protocol, Article 6 (3) (f).

resources.⁴⁶ Additionally, Nagoya Protocol also sets out minimum requirements for establishing MAT to be included in domestic access measures. It requires parties to specify at least some clear rules and procedure for requiring and establishing MAT. The protocol limits itself in suggesting the minimum content of MAT to be specified in domestic access measures: “dispute settlement clause, terms on benefit sharing including IPRs, terms of subsequent third party use, and terms on change of intent which may be relevant when access is sought to conduct non-commercial research.”⁴⁷ In other words, the protocol promotes the best practices including all such elements in drafting the bilateral agreement with aim of developing ABS transactions. However, these are only indicative elements which may be expanded according to the need and requirements of the ABS transactions.

Similarly, Nagoya Protocol also entails the development of national measures to ensure that the benefit sharing obligations arises from the utilization of traditional knowledge with the parties as well as with relevant indigenous and local communities. “The parties with such ILCs in their territories are also required to establish domestic ABS measures to facilitate and articulate their PIC or their approval and involvement for access to their traditional knowledge and establishment of MAT.”⁴⁸ In this regard, “parties while taking the domestic measures must also be mindful of their communities’ customary law, their effective participation, their capacity needs and priorities in the ABS transactions.”⁴⁹ The ABS transaction are fully based on mutually agreed terms or private contract. It is an effective and easily enforceable bilateral agreements to implement access and benefit sharing process. The concrete and clear terms for the implementation of the ABS regime are set out in mutually agreed terms as per applicable national measures. Though, it is kind of private contract, state parties providing genetic resources have to develop substantive rules on the content of MAT in their domestic ABS framework. The uniform and clear rules on formulating of the content of MAT would help in the ABS transactions.

⁴⁶ Nijir G.S. (2013), “An Asian Developing Country’s View on the Implementation Challenges of the Nagoya Protocol”, in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: MartinusNijhoff, p.256.

⁴⁷ See n. 14. Nagoya Protocol, Article 6(3) (g).

⁴⁸ *Ibid.* Nagoya Protocol, Article 6(3) (f).

⁴⁹ *Ibid.* Nagoya Protocol, Article 22.

Other Tools and Techniques Relevant to ABS implementation

For proper and effective implementation of the ABS regime, some other legal tools and techniques – model contractual clauses, code of conducts and best practices, community protocols – could also be useful in not only within but also beyond domestic jurisdiction. In this regard, “parties have to individually and collectively explore model contractual clauses, voluntary instruments, codes of conduct, guidelines and best practices for the content of MAT to be domestically applied.”⁵⁰ The national legislations and regulatory requirements do not always suffice in addressing the complex the ABS regime at different levels of governance in domestic jurisdiction.⁵¹ These additional tools for the implementation of the ABS regime are required to be examined as such:

(i) Model Contractual Clauses

The Nagoya Protocol creates the best endeavor obligation for all parties to use the model contractual clauses for MAT.⁵² It places the obligations to encourage actors involved in the ABS process to develop model clauses and use such clauses in future. “The significance of such model contractual clauses lies in their potential contribution to the predictability and consistency of ABS process, thereby reducing burdens and costs in specific sectors as well as cross-sectors businesses for ABS transaction.”⁵³ The parties are under obligation to use it as ‘default’ or ‘standard’ MAT for specific categories of genetic resources under their jurisdiction. It could also be used collectively in the context of bilateral, regional and multilateral level in ABS transactions. In addition to this, “the parties are also required to make endeavor to support the indigenous and local communities for developing model contractual clauses for benefit sharing arising from the utilization of traditional knowledge associated with genetic resources.”⁵⁴ Because of its significance, the model contractual clauses are included among the important information which to be

⁵⁰ See n. 19 at p. 208.

⁵¹ Young T. R. (2013), “An International Cooperation Perspective on the Implementation of the Nagoya Protocol”, in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: MartinusNijhoff, p.490.

⁵² See n.14, Nagoya Protocol, Article 19.

⁵³ See n.35 at p. 293.

⁵⁴ See n.14, Nagoya Protocol, Article 22 (5).

voluntarily submitted by parties to the ABS Clearing House.⁵⁵ The availability of the relevant model contractual clauses could support implementation of the ABS regime.

(ii) Code of Conducts, Guidelines and Best Practices

Nagoya Protocol also draws attention to the role of voluntarily instruments such as code of conduct, guidelines and best practices adopted by research entities, industries and other business associations in the implementation of ABS regime. These voluntarily instruments are significant for all stakeholders interested in implementation of ABS regime and formulation of national ABS legislation and procedure. The protocol hence requires all parties “to encourage the development, update and use of voluntary codes of conduct, guidelines and best practices and/or standard in relation to access and benefit sharing.”⁵⁶In other words, “it is kind of 'voluntary norms' which are not established or required by government, but they represent expected patterns of behaviors agreed upon by state actors such as companies, scientific associations, non-governmental organizations as well as indigenous and local communities.”⁵⁷ However, the approach and scope of these voluntary norms differs, yet all could contribute in putting into practice the ABS regime. In many sectors, there has been practice of such voluntary codes and guidelines for the acquisition and use of genetic resources for biodiversity related scientific research.⁵⁸ The voluntary instruments could also be useful for the implementation of the ABS process and procedure for access and use of genetic resources and associated knowledge.

(iii) Customary law, Community Protocol and Procedure

The Nagoya Protocol requires the parties “to take into consideration customary laws, community protocols and procedures of indigenous and local communities in their implementation of the protocol with respect to traditional knowledge 'as applicable' and in 'accordance with domestic law'.”⁵⁹ However, it is discretion of the parties to

⁵⁵*Ibid.* Nagoya Protocol, Article 14 (3).

⁵⁶*Ibid.* Nagoya Protocol, Article 20.

⁵⁷ *See n.35* at p. 257.

⁵⁸ Dedeurwaerdere T. et.al. (2013), “Governing Scientific Research Commons under the Nagoya Protocol” in Morgera E. et al. (ed.), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implementation Challenges*, London: MartinusNijhoff, p.419.

⁵⁹ *See n.14*,Nagoya Protocol, Article 12(1).

determine what extent they wish to take into account such variety of local and community norms with regard to traditional knowledge. Besides, Nagoya Protocol obligates parties “to consider them in the development and application of domestic ABS measures and specify the national authorities to identify and understand relevant community’s customary laws, protocol and procedures with full involvement and consultation of ILCs.”⁶⁰ Here, the customary laws and community protocols are quite different normative systems adopted by different ILCs.⁶¹ Further, it has been defined as “customary laws are non-codified norm that have evolved over centuries in traditional societies;” on the other hand, “Community Protocols can be described as written document adopted by community holding traditional knowledge where the community internally codifies the terms of ABS process and procedure.”⁶²

There is also best endeavor obligation to support to ILCs and awareness raising of community protocols and procedures of ILCs. “Such support to ILCs would be provided in the development of a series of tools: community protocols, minimum requirement for MATs and model contractual clause, aimed at ensuring fair and equitable ABS transactions concerning traditional knowledge.”⁶³ Along with this, “it is responsibility of national authorities as reference has been made ‘in accordance the domestic law’ which would determine the existence of customary laws and protocols on traditional knowledge. If it is found, then could be used in the implementation of the ABS regime. If these are not found, then could be encouraged for the development of such community law and procedure in this regard.”⁶⁴ These are not only helpful in transparent and equitable governance within communities in relation to ABS but also their capacity to negotiate with users or others.⁶⁵

⁶⁰*Ibid.* Nagoya Protocol, Article 12(3).

⁶¹ Vermeylen S. (2013), “The Nagoya Protocol and Customary Law: The Paradox of Narratives in the Law,” *Law, Environment and Development Journal*, 9/2: 185-201, p.190; available at: <http://www.lead-journal.org/content/13185.pdf> Accessed on 20 July, 2016.

⁶² *See n.19* at p. 196.

⁶³ *See n.35* at p. 219.

⁶⁴*Ibid.*

⁶⁵ Pant R. (2012), “Heritage on the Edge: Protecting Traditional Knowledge and Genetic Resources in Eastern Himalayan, India” Research Paper, London: International Institute for Environment and Development; p.17; available at: http://www.iied.org/doc/pub/heritage_edge/eng.pdf Accessed on 22 September. 2016 *See also*; Li J. and Song Y. (2010), “Use it or Lose it: Protecting the Traditional Knowledge, Genetic Resources and Customary Laws of Marginal Farmers in Southwest China” Research Paper, London: International Institute for Environment and Development; p.13; available at: http://www.iied.org/doc/pub/use_lose/eng.pdf Accessed on 22 September. 2016.

In sum, CBD and its Nagoya Protocol creates number of obligation for both user and provider countries to take legislative, administrative and policy measures to ensure the utilization of genetic resources on obtaining PIC and establishing MATs. They have to establish ABS measures at national level with legal certainty, clarity and transparency, fair and non-arbitrary rules and procedure for access to genetic resources and clear rules and procedure for PIC and MATs in compliance to the implementation of the ABS regime. Additionally, they may also take into consideration of model contractual clauses, code of conducts, guidelines and best practices, and customary law, community protocol and procedure in the development and implementation of the ABS regime.

Enforcement Measures

For the effective implementation of the ABS regime in the domestic jurisdiction, there is required adequate enforcement mechanism to put it in operation. For this purpose, it has been explained:

“The enforcement measures covers the range of procedures and actions used by state and its competent authorities or agencies to ensure that organizations or persons potentially failing to comply with environmental law or implementing multilateral environmental agreements, can be brought or returned into compliance and/or punished through civil, administrative or criminal action.”⁶⁶

Accordingly, the existing measures for compliance and enforcement, whether international or national, public law or private law, court procedures or ADR, should be utilized as first to the utmost extent of their functions.⁶⁷User countries are further encouraged to take legal measures as accepting the result of the law and enforcement mechanism of the provider countries.⁶⁸Hence, CBD and the Nagoya Protocol also provide for the compliance and enforcement mechanisms for the implementation of the ABS regime as required by the domestic ABS legislation. The compliance measures and enforcement mechanisms could be analyzed as such:

⁶⁶Isozaki H. (2009), “Enforcement of ABS Agreements in User States” in Kamau E.C. and Winter G. (ed.) *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing*, London: Earth Scan, p. 440.

⁶⁷*Ibid.* at p.450.

⁶⁸Godt C. (2009), “Enforcement of Benefit Sharing Duties in User Countries” in Kamau E.C. and Winter G. (ed.) *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing*, London: Earth Scan, p. 420.

(i) Bilateral Compliance Mechanism

Nagoya Protocol addresses the compliance measures for domestic ABS framework on genetic resource and traditional knowledge separately but in similar way.⁶⁹ These has been aimed to ensure fair and equitable benefit sharing on the utilization of genetic resources and traditional knowledge in compliance with PIC and MATs established in the provider country. Primarily, there is three set of obligations provided under the protocol are: “to adopt domestic user-side measures that will relate to breach of domestic measures on PIC and MATs; to enforce the user countries domestic measures providing for the respect of provider countries and national measures related to PIC and MATs;and to cooperate with other states in addressing the violation of providers' countries national ABS measures.”⁷⁰

Additionally, the Nagoya Protocol provides three sets of obligations to party in compliance with mutually agreed terms: “to encourage the providers and users of genetic resources to include provisions in MATs to cover dispute resolution mechanisms including the terms on jurisdiction, applicable law and/or options for mediation and arbitrations; to support user's compliance with MATs by establishing on obligation for parties to ensure an opportunity to seek recourse under their legal system on disputes on MAT; and to take domestic measures of access to justice and on the recognition of foreign judgments and arbitral awards.”⁷¹In other words, it refers the compliance mechanism not only for the international obligations of the member states, but also with domestic ABS requirements and private law and standards in the contractual arrangements.⁷² In other words, “the protocol focuses on a specific case of lack of compliance with domestic ABS system and MATs; in the violation of the requirements for obtaining PIC at the time of access and establishing contractual arrangement in accordance with domestic ABS system.”⁷³ Besides, such obligations related to user's compliance with domestic ABS framework may also be triggered by monitoring activities as well.

⁶⁹ See n.14, Nagoya Protocol, Article 15 and Article 16.

⁷⁰ See n.35 at p. 251.

⁷¹ See n.14.Nagoya Protocol, Article 18.

⁷² Oliva J.M. (2015), “Private Standards and the Implementation of the Nagoya Protocol: Defining and Putting in Practice Due Diligence in the EU Regulations on ABS” in Coolsaet B. at. el. (ed.), *Implementing the Nagoya Protocol: Comparing Access and Benefit Sharing Regimes in Europe*, Leiden: Brill Publishers, p. 282.

⁷³ See Note.35, p.284.

(ii) Multilateral Compliance Mechanism

Nagoya Protocol provides the enabling provisions which mandate the establishment of multilateral procedures and mechanisms for compliance and cooperation in instances of non-compliance with the protocol.⁷⁴ Such procedures and mechanisms to promote compliance are to be considered and approved by the COP/MOP in the first meetings. The compliance procedure and mechanism identify the instances where parties have not complied with their obligations under the protocol. The compliance mechanisms may deal with: “first, bilateral compliance obligations arising for the specific relation between a provider and user country; second, compliance with international obligations of state parties and indigenous and local communities; third, compliance involving relations between states and private entities.”⁷⁵

However, this protocol does not establish a compliance mechanism but it provides a framework for future establishment of such mechanism by COP/MOP.⁷⁶ “The COP/MOP has to consider and approve mechanism and procedure to promote compliance and address cases of non-compliance with definite mandate and time frame to take the steps in this regard.”⁷⁷ It also requires that the procedure and mechanism would include provisions on advice and assistance being facilitative in nature instead of punitive or restrictive.⁷⁸ They could also be separate from and without prejudice to the dispute settlement procedure and mechanisms provided under the CBD. Unlike a dispute settlement procedure, “this compliance mechanisms is basically a multilateral and non- confidential means to deal with potential solution of non-compliance.”⁷⁹ On the other, “dispute settlement procedure constitutes a legal and institutional framework for solving conflicts or disagreements between two or more parties in relation with the interpretation of a treaty.”⁸⁰ Further, “the nature of measures to address non-compliance would be defined in subsequent negotiations and eventually be dependent on the Protocol’s governing body COP/MOP.”⁸¹

⁷⁴ See n. 14. Nagoya Protocol, Article 30.

⁷⁵ See n.35 at p. 252.

⁷⁶ *Ibid.* at p. 253.

⁷⁷ See n.19 at p. 243.

⁷⁸ *Ibid.* at p.248.

⁷⁹ *Ibid.*

⁸⁰ See n.35 at p. 361.

⁸¹ *Ibid.* at p. 360.

(iii) Dispute Settlement Mechanism

As per the CBD, “the parties are required to address any dispute among them first of all by seeking solution by negotiation and if failing that, the jointly seeking the good offices; or if requires mediation by a third party.”⁸² Furthermore, “any state may declare in writing after failure to resolve it through these mechanisms, to submit it before arbitration procedure and/or international court of justice.”⁸³ If the parties to the dispute have not accepted the same or any procedure, ‘the dispute would be dealt with conciliation proceedings unless the parties agree otherwise.’⁸⁴ This provision of the CBD shall also apply with respect to the Nagoya Protocol as well.⁸⁵ However, the protocol's compliance procedures and mechanisms might be used as an alternative to or concurrent with the dispute settlement procedure.

(iv) Reporting Mechanism

For the implementation of the convention and its effectiveness, the CBD provides for reporting mechanism. “Each party is obliged to report regularly at interval as specified by COP, on measures taken to the implementation of the convention.”⁸⁶ The reports would normally be presented through the secretariat to the COP for its consideration. Similarly, Nagoya Protocol also provides for the parties to monitor and report on their implementation of the ABS regime.⁸⁷ It imposes two mutually supporting obligations on parties: “to monitor the implementation of the protocol and to report on its implementation measures to the COP.”⁸⁸ In other words, monitoring and reporting undertaken would support the review of the effectiveness and collective implementation of the Nagoya Protocol. However, the obligations of monitoring and reporting are separate measures as they reinforce one another under enforcement mechanism. Monitoring usually provide information needed for the reporting, at the same time the requirement to submit reports triggers monitoring activities.⁸⁹ The basic purpose of such obligation is to collect information on domestic measures taken to

⁸² See n.4, CBD, Article 27 (1).

⁸³ *Ibid.* CBD, Article 27 (3).

⁸⁴ *Ibid.* CBD, Article 27 (4).

⁸⁵ *Ibid.* CBD, Article 27 (5).

⁸⁶ *Ibid.* CBD, Article 26.

⁸⁷ See n. 14, Nagoya Protocol, Article 29.

⁸⁸ See n.35 at p. 343.

⁸⁹ *Ibid.* at p. 344.

implement the protocol and to share such information to the COP/MOP. The reports are usually submitted to the COP/MOP of protocol.

(v) Assessment and Review

The COP/MOP has been assigned to undertake periodic assessments of the effectiveness of the protocol. It has been provided that “the assessment and review of the effectiveness of the protocol will be undertaken on a collective basis through the COP/MOP.”⁹⁰ It basically provides an opportunity to identify the need for international guidance that may be required in specific areas in which the effectiveness of the protocol can be improved. The specific mechanisms and modalities for the assessment are to be decided by the COP/MOP. Because, “the COP/MOP is required to review the implementation of the Nagoya Protocol after four years or on intervals and to make decision necessary to promote its effective implementation.”⁹¹ During review process, the COP/MOP focuses on the adequacy of the obligations under the Nagoya Protocol. The assessment and review provide an opportunity to evolve as ABS regime in the light of its implementation and subsequent international developments.

Other Enforcement Measures

Under the CBD and its protocol, there are number of tools and techniques to facilitate the implementation and enforcement of the objectives including access and benefit sharing regime. It supports certain mechanism, processes and measures to implement the ABS regime through capacity building of the parties, education and awareness raising at national and sub-national levels, participation and involvement of the stakeholders. If such tools and techniques are used in appropriate and balanced way, it would provide positive results in implementation and enforcement of the ABS regime.

(i) Capacity Building and Development

The Nagoya Protocol addresses the capacity building, capacity development and strengthening of human resources especially in developing countries, countries with economics in transition and small islands developing states to effectively implement the ABS regime.⁹² The capacity building for access and benefit sharing is broadly

⁹⁰ See n.14, Nagoya Protocol, Article 31.

⁹¹ *Ibid.*

⁹² See n. 35 at p.307.

required to enhance the ability of individuals, institutions and societies to perform the functions to achieve the desired results.⁹³ Hence, “the protocol calls upon the parties to cooperate in the capacity building of countries, communities, national institutions and non-governmental organizations as well.”⁹⁴ It has been further linked to implementation and compliance development, enforcement of domestic frameworks, negotiations of mutually agreed terms and development of indigenous research capabilities. However, “the need of the countries for financial resources has to be considered for capacity building and development to implement the ABS regime in accordance with relevant provisions of the CBD and Nagoya Protocol.”⁹⁵ It should be also demand driven and based on “the needs and priorities identified through national capacity self-assessment.”⁹⁶ Furthermore, the protocol also proceeds with an indicative lists of capacity building areas and activities such as: “the enhancement of the contribution of ABS activities in the conservation of biodiversity, development and use of valuation of methods, bioprospecting and taxonomic studies, technology transfer and technical capacity to make such technology sustainable.”⁹⁷ Some of the key areas and activities have to do with national law making and implementation of the protocol through legal and institutional development, need to ensure equity and fairness in MATs through training, monitoring and other capacities to be able to fully and effectively apply and ensure compliance with the domestic ABS framework.⁹⁸

Specifically, the protocol recommends the parties “to facilitate the involvement of the indigenous and local communities in cooperation on capacity building and support in self-identification of capacity needs and priorities of these communities in the context of national capacity self-assessments.”⁹⁹ It also makes special reference to the “capacity needs and priorities of women to increase their capabilities in relation access and benefits sharing procedure for genetic resources and/or traditional

⁹³Munyi P. et. al. (2009), “Capacity Development in a Changing World- Three Years of the ABS Capacity Development Initiative for Africa: Achievements and Perspectives” in Kamau E.C. and Winter G. (ed.) *Genetic Resources, Traditional knowledge and the Law: Solution for Access and Benefit Sharing*, London: Earth Scan, p. 382.

⁹⁴*Ibid.* Nagoya Protocol, Article 22(1).

⁹⁵*Ibid.* Nagoya Protocol, Article 22(2).

⁹⁶*Ibid.* Nagoya Protocol, Article 22(3).

⁹⁷*Ibid.* Nagoya Protocol, Article 22(4).

⁹⁸*Ibid.* Nagoya Protocol, Article 22(5) (a-e).

⁹⁹*Ibid.* Nagoya Protocol, Article 25(j).

knowledge associated with genetic resources.”¹⁰⁰ Besides, such capacity building measures would be also applicable “to increase the capacity of relevant stakeholders such as private sector, research institutions and local communities in relation to ABS process.”¹⁰¹ The information on such capacity building and development initiative of each levels undertaken by the parties should also be provided “to ABS Clearing House with view to promote synergy and coordination on capacity building for access and benefit sharing.”¹⁰² At the end, the effective realization of the capacity building cooperation would be crucial for the implementation of the protocol especially in developing countries.

(ii) Public Participation and Involvement

The public participation and involvement provides great degree of certainty in the implementation of the protocol at the national and regional level. It becomes significant in light of different legal system regulating the relations and behaviors of governments, communities and private activities within national jurisdiction.¹⁰³ There has been several references in the CBD and its Nagoya Protocol on the public participation and involvement in facilitating the ABS process for genetic resources and traditional knowledge. “Public participation and involvement are required in the development and implementation of domestic ABS legislation, its decision-making bodies and in special circumstances i.e. transboundary situation or existence of the genetic resources and shared traditional knowledge.”¹⁰⁴ Specially, the indigenous and local communities have been required to participate, facilitate, and cooperate in development and implementation of the ABS regime. The parties to the protocol are under obligation “to implement the ABS regime with effective participation and involvement of the ILCs concerned taking into consideration their customary law, protocol and procedure.”¹⁰⁵ The participation and involvement would also help in promotion of voluntary instruments and guidelines by consultation and coordination from relevant stakeholders.¹⁰⁶ It would also assist in promoting domestic, regional and

¹⁰⁰*Ibid.*

¹⁰¹*Ibid.*Nagoya Protocol, Article 25(i).

¹⁰²*Ibid.*Nagoya Protocol, Article 25(6).

¹⁰³*See n.34* at p.224.

¹⁰⁴ *See n.14*, Nagoya Protocol, Article 12(2).

¹⁰⁵*Ibid.*Nagoya Protocol, Article 12(3).

¹⁰⁶ *See n.34* at p. 226.

international exchanges of awareness raising experiences, delivering education and training and raising capacity building as well.

(iii) Public Awareness and Education

Public awareness of ABS issues is important exercise for the proper development and implementation of the ABS regime. This may support the appropriate implementation of the ABS system such as: “permitting the access, granting PIC, establishing MATs and asking for fair and equitable sharing of benefits arising from the utilization of genetic resources.”¹⁰⁷ Under CBD, the parties are under obligation “to promote and encourage the understanding of the importance of and the measures required through media and education about the conservation of biological diversity.”¹⁰⁸ They have to also cooperate with other states and organizations in developing educational and public awareness programme in this regard, which could also be applicable for the ABS regime as well. In pursuance of this, the CBD has a programme of work on communication, education and public awareness to achieve the objectives including ABS objectives.¹⁰⁹

Additionally, there has been recognized in its preamble about “the public awareness of the economic value of biodiversity and the fair and equitable sharing of this economic value with the custodian of biodiversity.”¹¹⁰ The Nagoya Protocol also provides the conditional obligations for parties “to raise awareness about the ABS issues providing an indicative lists of activities that can be undertaken to fulfill the obligations for implementation of the protocol.”¹¹¹ Consequently, there has been provided obligation for parties to take measures to raise awareness of the importance of genetic resources, traditional knowledge and related ABS issues.¹¹² It provides an indicative list of such measures relating to promotion, communication, education,

¹⁰⁷See n. 19 at p.200.

¹⁰⁸ See n.4, CBD, Article 13.

¹⁰⁹As the Article 13 of the CBD directs the Parties to promote and encourage understanding and develop education and public awareness programs. This Article has been interpreted and developed to encompass communication, education and public awareness or CEPA. See, CBD (2007), “Programme of Work on Communication, Education and Public Awareness: A Toolkit for National Focal Points and NBSAP Coordinators” available at: <http://www.cbd.int/epa/toolkit/2008/doc/CBD-toolkit-complete.pdf>; Accessed on 301 July, 2016.

¹¹⁰ See n.14, Nagoya Protocol, Preamble.

¹¹¹*Ibid.* Nagoya Protocol, Article 21.

¹¹²See n. 19 at p.201.

participation and involvement of ILCs through organizing meetings of their organization for awareness raising about ABS regime.¹¹³

Critical Evaluation

The implementation of the ABS regime is continuous and evolutionary work for the parties to the CBD and Nagoya Protocol. After the adoption of Nagoya Protocol, it has become necessary to take measures – legislative, administrative or policy – in domestic jurisdiction for development and implementation of the ABS regime. In this regard, the CBD, Bonn Guidelines and the Nagoya Protocol provide the principle, procedure and guidance for implementation and enforcement of the ABS regime. Specifically, the Nagoya Protocol in its different provisions obligates the parties to take measures as provider or users countries for access, benefit sharing, compliance, technology transfer, capacity building and awareness raising at international, national and subnational level. However, the implementation and enforcement is sole discretion and responsibility of the member states.¹¹⁴ As result of this, “the actual implementation and enforcement could vary among member states depending upon their legal, political and social system.”¹¹⁵ Besides, “there has been also mix experiences in application and implementation of the ABS system on different occasions and cases in different countries.”¹¹⁶ The implementation and enforcement are evolutionary process which depend upon the legal certainty, clarity and transparency of the domestic measures adopted in due course of the time. “It depends upon the domestic ABS legislation and regulatory requirement of the country providing fair, clear and non-arbitrary rules and procedures for access to generic resources, sharing of benefits arising out of its utilization and compliance requirements as well.”¹¹⁷

The other tools and techniques would also assist the proper implementation and development of the ABS regime through capacity building, awareness raising, public

¹¹³See n. 34 at p.303.

¹¹⁴Kamau E. et al. (2010), "The Nagoya Protocol on Access to Genetic Resource and Benefit Sharing: What is New and What are the Implications for Providers and User Countries and the Scientific Community?" *Law, Environment and Development Journal*, 6/3:246-262, p.246; available at: <http://www.lead-journal.org/content/10246.pdf>. Accessed on 18 July, 2016.

¹¹⁵See n. 1 at p.18.

¹¹⁶Medagalia JC, et al. (2012), "Overview of National and Regional Measure on Access to Genetic Resources and Benefit Sharing: Challenges and Opportunities in Implementing the Nagoya Protocol". Montreal: CISDL Publications, available at: <http://www.cisd.org/biodiversity-biosafety-overivew-of-ABS-measure-2011.pdf>. Accessed on 18 July 2016.

¹¹⁷Coolsaet B. (2015), “Conclusion: Comparing Access and Benefit Sharing in Europe” in Coolsaet B. at el. *Implementing the Nagoya Protocol: Comparing Access and Benefit Sharing Regimes in Europe*, Leiden: Brill Publishers, p.373.

education and participation. The overall implementation and enforcement of the ABS regime could also be supported by way of bilateral and multilateral compliance procedure, dispute settlement mechanism, reporting, monitoring and subsequent assessment and review of the overall implementation of the ABS regime. In this regard, “the CBD and its legal instruments obligate not only the member states or parties but also the non-state actors, organizations, indigenous and local communities and individual user or provider of the genetic resources for implementation of the ABS regime.”¹¹⁸ However, all such obligations and measures are enforceable only after the ratification and implementation of the CBD and its Nagoya Protocol by the member states on their sovereign will and whims.

Since the adoption of CBD in 1993, “there are many examples of implemented domestic ABS legislation in different countries and certain other are under progress for enactment in several member states in compliance with obligations.”¹¹⁹ It has been indicated that “ABS legal and institutional framework have been ineffective in achieving the goal set by the CBD.”¹²⁰ Consequently, “states and other stakeholders faced several problems in implementation of their ABS frameworks. These problems relate to the complex ABS procedure, weak national authorities, exceeding demand and markets for genetic resources detrimental to the domestic implementation and enforcement.”¹²¹ Besides, “the development of national ABS measures has proven difficult for many countries due to number of questions including lack of technical expertise, budgetary constraints, weak political will and support, local and social conflicts on genetic resources. At the same time, many countries have yet to identify the ABS measures and even existing ABS measures are often sectoral and patchy.”¹²² In this way, there has been major concerns associated with implementation and

¹¹⁸Prester P.L. (2002), “The CBD at Ten: The Long Road to Effectiveness”, *Journal of International Wildlife Law and Policy*, 5: 269-285, p.272.

¹¹⁹Smagodi A. (2009), “National Measures on Access to Genetic Resources and Benefit Sharing: The Case of the Philippines”, *Law, Environment and Development Journal*, 1/2: 50-70, p. 58, available at: <http://www.lead-journal.org/content/002.pdf>. Accessed on 18 July, 2016.

¹²⁰Winter G. (2009), “Towards Regional Common Pool of Genetic Resources: Improving the Effectiveness and Justice of ABS,” in Kamau E. And Winter G. (ed.) *Genetic Resource, Traditional Knowledge and the Law*, London: Earth Scan, p.37.

¹²¹Kate ten K. and Laird S. (1999), *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefits Sharing*, London: Earth Scan. p.40.

¹²²Carrizosa S. et al. (2004), "Accessing to Genetic Resources and Sharing the Benefits: Lesson from Implementing the Convention on Biological Diversity," IUCN Environmental Policy and Law Paper No. 54, Gland: IUCN Publications, available at: <http://www.iucn.org/dbth-wpd/EPLP-54.pdf> Accessed on 2 July, 2016.

enforcement around the world. Even, “the Nagoya Protocol has not been considered satisfactory by the countries, communities and industries on some accounts. The ABS regime provided depends upon the domestic implementation and enforcement, but such obligation is rather more flexible and full of discretion of the countries concerned especially to user countries.”¹²³ Overall, the major concerns and critical issues relating to ABS remains ambiguous and flexible to make the member states susceptible in ABS implementation.

The CBD and Nagoya Protocol provide the obligation to take appropriate, effective and proportionate legislative, administrative or policy measures for its implementation within domestic jurisdictions. “It provides the obligations to enact domestic measures; the obligation to enforce these measures, and the situations in which international cooperation required on violation of national ABS measures.”¹²⁴ However, “such obligations have been stipulated by three qualifiers – ‘appropriate, effective and proportionate’ without setting out criteria for them.”¹²⁵ Since the qualifiers are not defined in the text of the Nagoya Protocol, this task is to be undertaken by each party individually. Parties are given wide flexibility to decide on the measures that are most appropriate to their own legal system and related social, cultural and economic circumstances. But, “lack of such facilities, capabilities and certainties especially in developing countries and least developing countries have been biggest constraints in the development and implementation of the principles and objectives of the CBD.”¹²⁶

Nagoya Protocol also requires parties to address situations where a user within its jurisdiction is found to be in non-compliance with such domestic measures – legislative, administrative or policy – regarding PIC and MAT. But, “when the user does not observe such measures, the party shall take measures that are qualified again with ‘appropriate, effective and proportionate’.”¹²⁷ “Instead of demanding to ‘ensure’

¹²³ See n.111 at p.262.

¹²⁴ Mafuraidize R. (2011), “Critical Review of the Nagoya Protocol on Access and Benefit Sharing: Analysis of Its Provision against African Model Law and Possibilities for its Implementation at National Level,” CISDL: South Africa; Available at: http://www.cisd.l.zu/critical/doc/african_model/eng.pdf Access on 12 Sept. 2016.

¹²⁵ See n. 35 at p 115.

¹²⁶ Muller R. (2010), “Thinking outside Box: Innovative Options for an Operational Regime on Access and Benefit Sharing”, Issue Paper No. 1, Geneva: ICTSD; available at: <http://www.ictsd.org/downloads/2011/12/thinking-outside-the-box-innovative-options-operational-regime-on-access-and-benefit-sharing.pdf>. Accessed on 28 January, 2017.

¹²⁷ See n. 35 at p.252.

user's compliance with provider countries measure, the obligation to 'provide' can be interpreted as only procedural duty to confirm that user have complied with PIC at the time of access and MAT established in accordance with provider's countries ABS framework."¹²⁸ It does not create an obligation for each party to recognize and apply in its jurisdiction the ABS law of another party where genetic resources had been acquired. It does not sanction the breaches of domestic legislation of other parties by user in its jurisdiction. The parties has to make simply due diligence in order to confirm that the users under their jurisdiction respected the applicable domestic framework of the provider country on PIC and MAT.¹²⁹

Each party requiring prior informed consent for access to genetic resources has to take legislative, administrative or policy measures, 'as appropriate' to create a certain level of ease and predictability in the access process for users of the resources. However, the term 'as appropriate' indicates that a party is free to take any of the three measures depending on their voluntariness in the implementation of the ABS obligations.¹³⁰ Apart from this, each party has also the prerogative to decide which criteria and/or process would define the legal certainty, clarity and transparency in this context.¹³¹ Defining the measures and written terms boost the certainty, clarity and transparency to resolve the claims of the either party. However, "it neither sets out the criteria nor the mechanism by which this may be objectively determined."¹³² It would be one of the reason for restrictive ABS measures in many countries. The provider countries have the sovereignty and authority for granting access, "but have not addressed appropriately on the obligation of benefit sharing in lieu of the grant of access to genetic resources."¹³³ This would cause reluctance to access and use of genetic

¹²⁸ See n.35 at p.254.

¹²⁹ *Ibid.* at p.255.

¹³⁰ Winter G.(2013), "An Introduction to the International ABS Regime and A Comment on its Transposition by the EU," *Law, Environment and Law Journal*, 9/2: 106-126, p.120; available at: http://www.lead_journal.org/content/13106.pdf. Accessed on 22 Aug. 2016.

¹³¹ Nijar G.S. (2011), "The Nagoya Protocol on Access and Benefit Sharing of Genetic Resources: An Analysis," CEBLAW Brief, Kuala Lumpur: University of Malaya, p.17; available at: http://biogov.uclouvain.be/multistakeholder/presentations/Gurdial-Nijar-NagoyaProtocol-CEBLAW_Brief.pdf. Accessed on 12 Sept. 2016.

¹³² Guneratne C. (2012), *Genetic Resources, Equity and International Law*, Cheltenham: Edwards Elgar Publishers, p.223.

¹³³ Ruiz M. (2010), "Logic should prevail: New Theoretical and Operational Framework for the International Regime on access to genetic resources and Fair and Equitable sharing of benefits," Initiative for the Prevention of Biopiracy Research Document, Year V: 13; available at: <http://www.Planttreaty.org/es/content/logic.pdf>. Accessed on 25 July, 2016.

resources which would consequently be lack of implementation and development of the ABS regime.

Apart from the domestic ABS legislation and measures, there has been called upon to consider the development of some voluntary instruments which could be enforceable and operational across the jurisdiction. The development and use of model contractual clauses, code of conducts and best practices, and customary law and protocol would certainly contribute the implementation of the ABS regime and predictability and consistency of ABS transactions.¹³⁴ But in all its provisions in this regard, “there has been used deliberative qualifiers 'as appropriate' and weak obligations by simply 'encourage' to develop, update and use of such model contractual clause for MAT, voluntary code of conducts and guidelines, and customary law and protocol in relation to access and benefit sharing.”¹³⁵

To support the enforcement of ABS measures, there has been provided compliance mechanism and procedure, dispute settlement mechanism, reporting mechanism, assessment and review mechanism under the CBD and the Nagoya Protocol. “There has been asked to 'consider and approve' cooperative procedure and institutional mechanisms to promote compliance and to address cases of non-compliance at international level, but such procedure and mechanism have provided the mandate to only 'offer, advice and assistance', 'where appropriate' in the cases of non-compliance.”¹³⁶ In addition to this, “it would be a multilateral and non-confidential mechanism unlike the dispute settlement mechanisms to deal with potential situations of non-compliance by the countries. In such, case, it would not be punitive, but only facilitative in nature.”¹³⁷ Though, “the dispute settlement mechanism are separately provided under the CBD regime, but in practice they have rarely been used due to range of complications and high costs involved in the process and procedures.”¹³⁸ Furthermore, the reporting, assessment and review process are solely based on the

¹³⁴Tobin B.M. (2013), “Bridging the Nagoya Compliance Gap: The Functional Role of Customary Law in Protection of Indigenous Peoples Resources and Knowledge Rights,” *Law, Environment and Law Journal*, 9/2: 142-162, p.150; available at: http://www.lead_journal.org/content/13142.pdf. Accessed on 22 Aug. 2016.

¹³⁵*Ibid.* at p.151.

¹³⁶Tavdt M. (2014), “Beyond Nagoya: Towards a Legally Functional System of Access and Benefit Sharing,” in Sebastian O. and Rosendal G. (ed.), *Global Governance of Genetic Resources: Access and Benefit Sharing after Nagoya Protocol*, London: Routledge, p.174.

¹³⁷ See n.35 at p.348.

¹³⁸ See n.21 at p. 118.

information provided by the parties in their national reports on the implementation of the ABS regime. “Such national reports have been sometimes found devoid of certainty, quality and consistency, thereby causing misreporting.”¹³⁹ Besides, the COP has limit itself to only assess and review individual national reports provided by the national authorities and arrive on the conclusion on the given reports, which could be detrimental to overall effectiveness of the ABS regime.

The CBD and the Nagoya Protocol being legally binding in nature, suffers from several drawbacks which would be detrimental to the implementation and development of ABS regime. “There has been used deliberative qualifiers – 'as appropriate', 'where applicable', 'as far as possible' and 'if available', weak language – 'endeavor', 'encourage', 'consider' and 'promote' in many provision, and flexible obligation to take measures 'appropriate', 'proportionate' to ensure the implementation of ABS law and procedures’.”¹⁴⁰ Besides, the CBD and its protocol have left several key issues or areas of controversy to resolve for future negotiations and action.¹⁴¹

Conclusion

The CBD and its legal instruments provide the measures and guidance for the proper implementations and enforcement of the ABS regime. However, this is the sole discretion and responsibility of the member states to implement the ABS regime domestically. The obligation to implement the ABS regime is full of discretion and flexibility of the nations which remains the matter of concerns in the coming days. The implementation measures provided under the CBD regime and Nagoya Protocol suffer from several drawbacks which could be detrimental to the achievement of the objective of the convention. The implementation, compliance and enforcement would play significant role in the development of the ABS regime. Now, further multilateral and bilateral negotiations will further offer some guidance to operationalize and implement the ABS regime at national, regional and international level.

¹³⁹*Ibid.* at p. 117.

¹⁴⁰*See n.* 114 at p.262.

¹⁴¹Nijar G.S. (2011), "The Nagoya Protocol on Access and Benefit Sharing of Genetic Resources Analysis and Implementation Options for Developing Countries," Research Paper, 2011, South Center, available at: <http://www.southcentre.com/publication.pdf>. Accessed on 25 July, 2016.

CHAPTER VI

CONCLUSIONS

The concept of access and benefit sharing (ABS) has been one of the novel and innovative legal ideas in international law. It provides basic principles and procedures for access to and benefits sharing of genetic resources and associated traditional knowledge. At the international level, the Convention on Biological Diversity (1992), the Bonn Guidelines (2002) and the Nagoya Protocol (2010) along with FAO International Treaty on Plant Genetic Resources for Food and Agriculture (2001) comprise basic international legal instruments concerning the access to and sharing of benefits from genetic resources. However, FAO plant treaty provides the multilateral ABS system specifically for plant genetic resources distinctive to the bilateral ABS system for overall genetic resources. The bilateral ABS system has been provided by the Convention on Biological Diversity (CBD), the Bonn Guidelines and the Nagoya Protocol. The bilateral ABS system has wider scope and applicability for the access to and benefit sharing of genetic resources and associated traditional knowledge among the states and other stakeholders for commercial utilization and development.

The genetic resources are primary resources or raw materials of biological diversity in the form of genes, chemical, gums, resins, enzymes and proteins found in human, animal, plant and marine substance. The potential value involved with genetic resources has benefited the primitive and modern societies for a long time. In due course of the time, the rapid growth in science and technology has further added commercial value that has stimulated trade and commerce across nations. The biotechnological industry with help of biology, chemistry, genomics and information technology has utilized the genetic resources to develop new and improved crops varieties, medicines, cosmetics and other commodities. Further, the economic significance of genetic resources has increased the appropriation by way of bio-prospecting and misappropriation by way of bio-piracy for both commercial and non-commercial purposes. This has necessitated efforts to regulate the access and utilization of genetic resources along with traditional knowledge associated with genetic resources at national and international level.

In fact efforts in this direction were made to develop comprehensive and cohesive international legal instrument on access and benefit sharing of genetic resources by the international institutions in 1990s. The first legal framework was the 1992 CBD which dealt with conservation, sustainable use, access and benefit sharing of the genetic resources. It provided the sovereign right over genetic resources and a nationally implemented ABS regime for regulating access to and benefit sharing of genetic resources. CBD has outlined the basic principles and obligations to member states for implementation and development of the ABS system in their domestic jurisdiction. These principles and obligations, however, remained unattended for a long time due to differences and difficulties among the member states. Such concerns of the member states and other stakeholders led to negotiations for an effective legal instrument under the CBD regime for implementation and development of ABS principles at regional and national level.

In view of this, the Conference of Parties (COP) of the CBD set up a regionally balanced expert panel which formally initiated work on an international instrument for the ABS system. It came out with “Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits arising out of their Utilization (2002).” It was specially designed to assist states while establishing legislative, administrative or policy measures on ABS in the domestic jurisdiction and other stakeholders while negotiating ABS agreements. The guidelines were relatively controversial among the states and other stakeholders due to their non-binding and voluntary nature. As a result, the COP of the CBD had to take recourse under Article 28 to initiate the work for binding protocol for effective implementation and development of the ABS regime. After several years of difficult negotiations, member states reaffirmed their faith and commitment under the CBD regime with collective decision to adopt “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 (2010).”

The ABS system provided under the CBD and its Nagoya Protocol are dependent on three basic pillars such as access standards, benefit sharing requirements and compliance measures for the access to genetic resource and associated traditional knowledge as well as the benefits arising from their utilization. The CBD did include it as the third objective: “the fair and equitable sharing of the benefits arising out of

the utilization of genetic resources, including by appropriate access to genetic resources.” It came to be adopted specifically in the Nagoya Protocol as: “the fair and equitable sharing of the benefits arising from the utilization of genetic resources including appropriate access to genetic resources, appropriate transfer of relevant technologies and appropriate funding.” However, it also aims to contribute to the conservation of biodiversity and the sustainable use of its components. Thus it connects ABS with the other two objectives of the CBD. The scope of the protocol seeks to address genetic resources along with traditional knowledge associated with genetic resources and the benefits arising from the utilization of such resources and knowledge. The Nagoya Protocol has reaffirmed sovereign rights of the member states over genetic resources within their domestic jurisdiction. As such, it asks member states to facilitate and regulate the ABS process and procedure in their domestic jurisdiction.

Under the domestic ABS system, access to genetic resources is to be provided after taking prior informed consent (PIC) subject to the domestic legislation and regulatory requirements. Such PIC is required from the providing party which is either the country of origin of such resources or a party that acquired the genetic resources earlier in accordance with Convention. In addition, prior informed consent or approval and involvement of indigenous and local communities (ILCs) is also required where the established rights of the ILCs exist to grant access to genetic resources. Similarly, it also regulates access to traditional knowledge associated with genetic resources held by ILCs based on either with their PIC or with their approval and involvement. The member states have an obligation to cooperate with each other and with involvement of ILCs on the access of such resources and knowledge which exist in the trans-boundary situations. In addition to this, the member states would also give special consideration in granting access to genetic resources in three situations: (i) for the non-commercial research; (ii) eminent emergencies threatening to human, animal or plant health; and (iii) for the purpose of food and agriculture.

Another notable aspect of the ABS regime is fair and equitable sharing of the benefits arising from the utilization of genetic resources. The Nagoya Protocol specifically provides that benefits have to be shared in fair and equitable way arising from the utilization of genetic resources as well as its subsequent application and commercialization. These benefits have to be shared with the party providing such

resources or a party that has acquired the genetic resources in accordance with the Convention. In fact benefits arising from utilization of the traditional knowledge associated with genetic resources would be shared in the same way with the ILCs concerned. Such benefits may be monetary and non-monetary as referred in its Annexure. The benefit sharing arrangement must be established on a contractual basis through mutually agreed terms (MATs). In this regard, each party has an obligation to take legislative, administrative or policy measure to implement these principles in their domestic jurisdiction. There are also obligations giving direction to the parties to utilize shared benefits towards conservation and sustainable use of the biodiversity. Therefore, it calls upon the member states to consider the modalities of a global benefit sharing mechanism for taking PIC in trans-boundary situations and utilizing the benefits for conservation of biodiversity.

The compliance measures provided under the Nagoya Protocol are the third aspect of the ABS regime. In this context the member states are obliged to take legislative, administrative and policy measures to ensure that genetic resources utilized within their jurisdiction have been accessed in accordance with the PIC and MAT as required by ABS legislation and regulatory requirement. In addition, they are obliged to take measures to address situations of non-compliance of these obligations as well as cooperate in cases of alleged violation of the domestic legislation or regulatory requirements. Similarly, member states are also obliged to take such measures for traditional knowledge associated with genetic resources. Interestingly, the obligations provided for both are similar and mirror each other with minor changes in relation to genetic resources and associated traditional knowledge. Apart from this, there are also obligations to promote the compliance and enforcement of MATs between individual user and provider of the genetic resources and/or associated traditional knowledge. The parties have to include provisions under the mutually agreed terms in bilateral agreements for appropriate dispute resolution mechanism, recourse to the legal and judicial system and recognition of the foreign judgments and awards. In other words, parties have to comply not only domestic ABS legislation or regulatory requirements but also the compliance with mutually agreed terms agreed under the private contracts.

The CBD and its Nagoya Protocol establish specific institutional arrangements to support the development and implementation of the ABS regime at international and

national level. There are certain other international institutions related with ABS regime in support of the implementation of the objectives of the Convention and Protocol. Some of the international institutions are to provide complementary assistance and guidance and others are related with administrative and financial support for the implementation of the ABS regime. All such international institutions are meant to be in harmony with one another and mutually supportive in nature as well. In addition to this, the member states have to pay due regard to useful and relevant ongoing work or practices under respective international institutions in support of the objectives of the Convention and the Protocol.

The CBD and its Nagoya Protocol establish governing and subsidiary organs known as Conference of Parties (COP)/Meeting of Parties (MOP), Subsidiary Bodies, Financial Mechanism and the Secretariat. The CBD, however, also has its own governing bodies and secretariat which supplement the Protocol for the administrative and executive purposes. The basic functions are to make supervision, operation and review for the implementation and development of basic principles and objectives of the Convention and Protocol at international, regional and national level. The Protocol also calls for the establishment of compliance related institutions in the domestic jurisdiction to implement and develop the ABS regime. It includes the Global Multilateral Benefit Sharing Mechanism and ABS Clearing House to facilitate the ABS process at international level along with Competent National Authority, National Focal Point and other designated Check Points for compliance with the ABS regime at national level. All such domestic and international institutions are necessary for translating the functions and mandates into action in attainment of the objectives of the Convention and Protocol.

After the adoption and ratification of the CBD and the Nagoya Protocol, implementation measures were to be adopted in the domestic jurisdiction. The mode of national implementation has been suggested to take legislative, administrative or policy measures for achieving the objectives of the Convention and Protocol. The mode and means may be different among countries depending upon the legal, political and social system in the implementation of the ABS regime. In this regard, each party individually needs to decide whether to adopt legal measures for enacting a legislation; or to take administrative measures formulating regulation; or a policy measure through strategy or an action plan. Such measures would, generally, include

basic norms for: (i) legal certainty, clarity and transparency; (ii) fair and non-arbitrary access rules and procedures; and (iii) clear rules and procedures for taking the PIC and establishing the MATs. Some other legal tools and techniques such as model contractual clauses, code of conducts and best practices, community laws and protocols could also be useful in not only within but also beyond domestic jurisdiction for effective implementation of the ABS regime.

In order to support the enforcement measures, the CBD and the Nagoya Protocol advocate for bilateral compliance measures, multilateral compliance procedure, dispute settlement mechanism, monitoring, reporting, assessment and review. Thus it could be adequately implemented and enforced at national, regional and international level. It seems the compliance mechanism has been provided not only for international obligations of the member states, but also with reference to the domestic ABS legislation and the bilateral contractual arrangements. It lays down obligations so as to adopt domestic user-side measures in respect of (i) breach of domestic measures on PIC and MATs; (ii) to enforce the user countries domestic measures provided for the provider countries; and (iii) to cooperate with other states in addressing the violation of providers' countries national ABS measures.

As a sequel to this, member states are expected to encourage the inclusion of dispute resolution mechanism in the MATs; to provide opportunities to seek recourse within the jurisdiction for providers alleging violations by users of domestic ABS measures; and to promote recognition and enforcement of foreign judgments and arbitral awards. Furthermore, the application of the dispute settlement mechanism and procedure has been provided under the CBD which would also apply to the Nagoya Protocol as well. At the international level, monitoring and reporting periodically undertaken by the secretariat would support review of the effectiveness and collective implementation of the ABS regime. Apart from this, the assessment and review done by the COP/MOP would provide the regular opportunity to evolve and update the ABS regime in light of its implementation and subsequent developments at national level.

Apart from it, the ABS regime provided under the CBD and the Nagoya Protocol has been significant legal developments in international law in the last two decades. It expanded the opportunities for access, benefit sharing, equity and justice among the states and other stakeholders on genetic resources and associated traditional

knowledge. However, there is greater flexibility and wider discretion embodied under the provisions of the CBD and the Nagoya Protocol. This would give the options to member states to tailor their own implementation measures taking into account the public welfare and national interest. The existing and future challenges would further determine the actual effectiveness and development of the ABS regime at national and international level. Hence, major findings arrived from the studies and lessons learnt from the projects become significant for the overall development and implementation of the ABS regime.

In the wake this study, some findings have emerged that have been spelled out in different chapters. The major findings outlined could be important in formulation of the ABS legislation and development of the ABS regime in domestic jurisdiction. These could also be raised in further negotiations by the member states and other stakeholders on ABS transactions. Hence, these have been outlined as follows:

The first assumption of this study was that ABS system envisaged by the CBD and its legal instruments provide weak obligations on sharing of the benefits arising from the utilization of genetic resources and associated traditional knowledge. Both the CBD and the Nagoya Protocol are prominent among the international instruments in the introduction of the concept of benefit sharing. It has been set as an objective and the obligation for genetic resources. However, the objectives and the principles have largely remained unimplemented due to weak obligations provided to the user countries. In fact CBD initially called for the fair and equitable sharing of the benefits on the access of genetic resources. Still it did not provide binding obligations and detailed guidance to the member states. The Bonn Guidelines came to be adopted to assist the states and the stakeholders to operationalize the ABS process under the CBD regime. The guidelines have been non-binding and voluntary in nature. Hence they have been found to be insufficient to meet the challenges facing the implementation of ABS provisions.

The Nagoya Protocol was adopted as a binding instrument to regulate access to genetic resource as well as fair and equitable sharing of benefits arising out of its utilization with more certainty, clarity and transparency. Still, it comprised certain vague terms, weak obligations for user countries and uncertain benefits mechanism that is dependent upon capabilities of the parties concerned. For sharing of the

benefits, each party has to take legislative, administrative or policy measures “as appropriate”. This qualifier “as appropriate” provides enough discretion to use the measures under their jurisdiction. The Protocol gives very little guidance as regards how to address benefit sharing process either at the time of access or at the time of utilization during the ABS process. There is no explicit requirement or mechanism in the CBD and its instruments that focus on fair and equitable benefits sharing in the context of specific ABS transactions. The lack of proper definition of several terms used and use of soft language indicate towards somewhat weak obligations on sharing the benefits of the utilization of genetic resources.

The second assumption of the study was that institutional arrangements provided in the CBD and its instruments are insufficient and ineffective for ABS process for the genetic resources and associated traditional knowledge. In this context, this study found that CBD and the Nagoya Protocol establish specific institutional arrangements as well as interact with other international institutions to support the development and implementation of ABS regime both at international and national level. However, these institutions are limited with their mandate and purpose. In fact sometimes they overlap with each other in their functions and operations such as preservation, utilization, commercialization, trade and intellectual property rights on the same genetic resources. In addition, CBD does not provide much clarity on the relationship with other international institutions interfacing with its mandate and objective on ABS regime. The Nagoya Protocol in fact comprises detailed provisions. But they are complex in nature as regards the relationship of the Protocol with existing and future international agreements that were dealt with by different institutions on ABS regime. It calls upon the parties to implement the Protocol in mutually supportive manner with other relevant international instruments adopted or to be adopted by other relevant institutions. It remains to be seen as to what is the effect on conflict of interests and activities between CBD regime specific institution and other existing and future relevant international institutions.

The regime specific institutions have been established to cater the specific requirements of the Convention and its implementation. In actual practice, however, it works on the political will of the sovereign states who are parties to this specific CBD regime. All the functions of the institutions like COP, subsidiary bodies and the secretariat are dependent upon the international cooperation, financial assistance and

resources voluntarily given by the member states. The Nagoya Protocol does comprise compliance related institutions such as ABS CH, CNA, NFP and designated checkpoints to be established by the parties in accordance with their national legislative, administrative or policy measures. However, all these institutions lack adequate powers, functions and resources. In turn, it impinges upon their efficiency and effectiveness for the development and implementation of ABS regime.

The third assumption of this study was that ABS system enshrined in the CBD and its legal instruments provide wide flexibility to the member states for its implementation and enforcement within the domestic jurisdiction. The study has found that implementation and enforcement of the ABS regime remain at the discretion and responsibility of the member states at domestic level. As a result, the actual implementation and enforcement could vary among the member states depending upon their legal, political and social systems. However, the giving effect to domestic ABS measures have been difficult for many of the countries especially due to lack of technical expertise, budgetary constraints, weak political will and support, bureaucratic inefficiency, local and social conflicts over genetic resources.

The CBD and the Nagoya Protocol comprise obligations to take appropriate, effective and proportionate legislative, administrative or policy measures for their implementation within the domestic jurisdiction of the member countries. Such obligations have been stipulated by three qualifiers “appropriate, effective and proportionate” without setting out any specific criteria for them. Each party has the prerogative to decide the criteria and/or the process that would define the legal certainty, clarity and transparency in taking of such measures. It neither sets out the criteria nor the mechanism by which the certainty and clarity could be objectively determined. Besides, there has been use of deliberative qualifiers “as appropriate”, “where applicable”, “as far as possible” and “if available” in many of the provisions of the Protocol. There has also been weak obligations that comprise use of the terms such as “endeavor”, “encourage”, “consider” and “promote” in compliance with provisions of the Protocol. The wider discretion as well as flexibility provided by the options such as “appropriate” and “proportionate” would be detrimental to the implementation of the ABS principles and the procedures. In this way, the implementation and enforcement measures provided under the CBD regime suffer

from several drawbacks which would be detrimental to the very objective of the Convention and the Protocol.

It seems, on the whole, these major obligations relating to the ABS regime remain ambiguous and flexible to make the member states possibly falter in the implementation and development in the domestic jurisdiction. The CBD and the Nagoya Protocol both have left several key issues for further deliberation. It could be addressed through in-built law-making processes in future multilateral negotiations and actions. Hence, further multilateral and bilateral negotiations could offer some guidance to operationalize and implement the ABS regime at national, regional and international level. In this context, certain suggestions could be made as an outcome of this study:

Firstly, all the member states of the CBD regime need to ratify the Nagoya Protocol on Access and Benefit Sharing that provides minimum legal standards and conditions for access to genetic resources and benefit sharing arising out of its utilization. They also need to implement it with maximum access and benefit sharing standards and requirements with more legal clarity, certainty and transparency within their domestic jurisdiction. The member states could possibly promote the conclusion of specific ABS private agreements that can also play important role in setting of such standards and requirements in the ABS transactions.

Secondly, there is need to enact new domestic ABS legislation or amend the existing domestic legislations and policies by the member states. It could be addresses by taking appropriate legislative, administrative and policy measures as required under the CBD regime for proper implementation and development of the ABS principles in their domestic jurisdiction. The specific policies and progrms in this regard could also be evolved and applied in the implementation of the ABS regime in view of contemporary developments and challenges. The voluntary norms developed and adopted by the private entities and indigenous communities such as modal contractual clauses, codes of conducts and best practices and community protocol and procedure could also be used for the effective implementation of the ABS regime.

Thirdly, the member states need to establish the compliance related institutions suggested under the Protocol so as to effectively facilitate and monitor the compliance measures in both provider as well as user countries for utilization of the genetic

resources and associated traditional knowledge. They could establish the competent national authority, national focal point and checkpoints in their domestic jurisdiction and notify them accordingly to the CBD secretariat. The proper and broader mandate and authority could make them quite effective and efficient in putting the ABS process into action. Apart from this, member states need to contribute and cooperate in the multilateral compliance and enforcement mechanism through CBD regime specific institutions like COP/MOP and the Secretariat.

Fourthly, it is also required to promote implementation and development of ABS regime through international cooperation, institutional coordination, public participation, cultural integration and cooperative governance at national and regional sphere. The international cooperation and national coordination within and beyond the CBD regime would facilitate the global governance of the genetic resources and associated traditional knowledge in current scenario.

Fifthly, the member states especially the biodiversity rich countries – need to promote the benefit sharing agenda to share the burdens of biodiversity conservation as global concerns through regional diplomacy and strategic partnerships. They could also take initiatives and leadership in the events and negotiations under the CBD regime and beyond by formalizing the norms, guidelines and institutions regulating the genetic resources and associated traditional knowledge. They need to raise the concerns of their indigenous and local communities for rights and entitlements on the genetic resources held in their traditional territories especially in the trans-boundary existence of the genetic resources and associated knowledge.

Finally, the access to genetic resources and benefit sharing arising out of its utilization are very significant for all the countries and communities for the human, social and economic development. Sometimes, they could come in to conflict with crucial developmental needs, technological advancements and ecological concerns which, in turn, may lead to deleterious effect on the priceless genetic resources. Hence, it is the responsibility of the international community to not only to conserve this invaluable resources but also to manage through sustainable use and equitable benefit sharing to sustain it for the present and the future generations. One only hopes that wiser counsels will prevail for our better sustainable future.

REFERENCES

REFERENCES

(*Indicates Primary Source)

**Agreement Governing the Activities of States on the Moon and other Celestial Bodies, 1979*; 1363 UNTS 3/18, 1852M 1434 (1979);also, available at: http://www.treaties.un.org/pages/view/details/moon_treaty.html Accessed on 12 July, 2016.

**Agreement on Trade Related Aspects of Intellectual Property Rights, 1995*, available at: http://www.wto.org/english/doc_e/legal_e/27-trips.html.Accessed on 20 July, 2016.

**Antarctic Treaty, 1959*,402 UNTS, 71;available at: <http://www.ats.aq/e/ats.html>. Accessed on 22 July, 2016.

Arnold .P. (1975), “The Common Heritage of Mankind as a Legal Concept” *International Lawyer*, Vol.9 (1): 153-158.

Bagemann F.(2012), “Recommendation for the Implementation of the Nagoya Protocol with respect to Genetic Resources in Agriculture, Forestry, Fisheries and Food Industries” Montreal: Secretariat of CBD; available at : http://www.beirat_grs.de/fileadmin/SITE/./Beriet-ABS_04_2012/en/pdf. Accessed on 12 Aug., 2016.

Bavikatte K. and Tavdt M (2015), “Beyond the Thumb Rule Approach: Regulatory Innovations for Bioprospecting in India,” *Law, Environment and Development Journal*, 11/1: 1-20, available at: <http://www.lead-journal.org/content/15001.pdf>. Accessed on 20 Aug., 2016.

Bharucha E. (2013), *Textbook of Environmental Studies for Undergraduate Courses*, Delhi: UGC Publications.

Bhattarai A.M. (2015), *Protection of Himalayan Biodiversity: International Environmental Law and A Regional Legal Framework*, London: Rutledge.

Birine P. and Boyle A. (2002), *International Law and The Environment*, New York: Oxford University Press.

**Bonn Guidelines on Access to Genetic Resources and Sharing of Benefits Arising out of Their Utilization, 2002*; (UNEP/CBD/COP/DEC/VI/24A); available at: http://www.cbd.int/doc/publication/bonn-gdls_en.pdf. Accessed on 12 July, 2016.

Bosselmann K. (1999), “Plants and Politics: The International legal Regime Concerning Biotechnology and Biodiversity,” *Cornell Journal of International Environmental Law and Policy*, Vol.7: 111-120.

Brush B.S. (2005), "Protecting Traditional Agricultural Knowledge", *Journal of Law and Policy*, Vol. 17: 59-109.

Buck M. and Hamilton C. (2011), "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," *Review of European Community & International Environmental Law*, 20(1): 47-61.

Carrizosa S. et al. (2004), "Accessing to Genetic Resources and Sharing the Benefits: Lesson from Implementing the Convention on Biological Diversity" IUCN Environmental Policy and Law Paper No. 54, Gland: IUCN Publications, available at: <http://www.iucn.org/dbth-wpd/EPLP-54.pdf> Accessed on 2 July, 2016.

**Cartagena Protocol on Biosafety to The Convention on Biological Diversity, 2000*; available at: <http://www.cbd.int/doc/legal/cartagena-protocol.pdf>. Accessed on 15 July, 2016.

CBD (2013), "Valuing the Biodiversity of Dry and Sub-humid Lands" Technical Series No.71. Montreal: Secretariat of the Convention on Biological Diversity, available at: <http://www.cbd.int/abs/doc/technical/doc/en/00071.pdf>. Accessed on 12 July, 2016.

CBD COP 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, 1997; available at: <http://www.cbd.int/decision/cop/default=7104.html>. Accessed on 16 Sept. 2016.

CBD COP Decision VI/12: Guidelines for Sustainable Use of Biodiversity, 2004 (UNEP/CBD/ COP/DEC/VI/12) Montreal: CBD Secretariat; available at: <http://www.cbd.int/docs/decision/cop6/en.pdf> Accessed on 2 July, 2016.

Chennells R. (2013), "Traditional Knowledge and Benefit Sharing after the Nagoya Protocol: Three Cases from South Africa" *Law, Environment and Development Journal*, 9/2:163-184, available at: <http://www.lead-journal.org/content/10246.pdf>. Accessed on 22 Aug, 2016.

**Convention on Biological Diversity, 1992*; *ILM*, Vol.31, 1992, 822; available at: http://www.cbd.int/doc/legal/cbd_un_en.pdf. Accessed on 12 July, 2016.

**Convention on Conservation of Antarctic Marine Living Resources, 1980*, available at: http://www.ccamlr.org/en/organ/cmmlr_convention.html Accessed on 22 July, 2016

Coolsaet B. et al. (2015), *Implementing the Nagoya Protocol: Comparing Access and Benefit Sharing Regimes in Europe*, Leiden: Brill Publishers.

Cullet P. (2005), *Intellectual Property Protection and Sustainable Development*, New Delhi: Lexis Nexus.

Daniel R. (2015), *Biodiversity, Access and Benefit Sharing: Global Case Studies*, London: Rutledge.

Desai B.H et al. (2011) “Implementation of the Convention on Biological Diversity: A Retrospective Analysis in the Hindukush Himalayan Countries.” Kathmandu: ICIMOD; available at: <http://www.icimod.org/publications/record/8923.pdf>. Accessed on 5 Nov., 2016.

Desai B.H. (2000), “Revitalizing International Environmental Institutions: The UN Task Force Report and Beyond” *Indian Journal of International Law*, Vol. 40 (3):455-506.

Desai B.H. (2002), “Mapping the Future of International Environmental Governance,” *Yearbook of International Environmental Law*, Vol.13:43-61.

Desai B.H. (2003), *Institutionalizing International Environmental Law*, New York: Translational Publishers.

Desai B.H. (2010), *Multilateral Environmental Agreements: Legal Status of the Secretariat*, New York: Cambridge University Press.

Desai B.H. (2014), *International Environmental Governance: Towards UNEPO*, Leiden: Brill Publishers.

Dutfield D. (2013), “Trans boundary Resource, Consent and Customary Law” *Law, Environment and Development Journal*, 9/2:259-267, p.251; available at: <http://www.lead-journal.org/content/13259.pdf>. Accessed on 20 Aug., 2016.

FAO Global Plan of Action for Animal Genetic Resources, 2007, available at: <http://www.fao.org/docrep/010/a1260e.html>. Accessed on 8 Aug, 2016.

FAO Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, 1996; available at: <http://www.fao.org/nr/cgfra/cgfra-globalplan/en.html> Accessed on 8 Aug, 2016.

FAO Interlaken Declaration on Animal Genetic Resources, 2007; available at: <http://www.fao.org/docrep/010/a1404e.html>. Accessed on 8 Aug, 2016.

**FAO International Undertaking on Plant Genetic Resources, 1983*, available at: <http://www.fao.org/nr/cgrfa/cgrfa-about/history.html>. Accessed on 15 July, 2016.

FAO State of World's Animal Genetic Resources, 2007; available at: <http://www.fao.org/docrep/010/a1260e.html>. Accessed on 8 Aug, 2016.

**FAO International Treaty on Plant Genetic Resources for Food and Agriculture, 2001*; Report of the Conference of FAO Thirty-First Session Resolution, 3/2001; available at: http://www.fao.org/plant_treaty/en.html. Accessed on 20 July, 2016.

Glowka L. et.al (1994), "A Guide to The Convention on Biological Diversity," IUCN Environmental Law and Policy Paper. 30; Gland: IUCN Publication, available at: <http://www.iucn.org/dbth-wpd/EPLP-30.pdf>. Accessed on 20 July, 2016.

Glwoka, L. (1998), "A Guide to Designing Legal Framework to Determine Access to Genetic Resources," IUCN Environmental Law and Policy Paper. 34, Gland: IUCN Publications, available at: <http://www.iucn.org/dbth-wpd/EPLP-34.pdf>. Accessed on 12 July, 2016.

Grajal A. (1999), "Biodiversity and National State: Regulating Access to Genetic Resources Limits Biodiversity Research in Developing Countries" *Conservation Biology*, Vol. 13 (1): 6-10.

Greiber T., et.al. (2012), "An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing", Environmental Policy and Law Paper No. 83, Gland: IUCN Publication, p. 93; available at: <https://portals.iucn.org/library/efiles/documents/eplp-083.pdf>. Accessed on 04 July, 2016.

Gunaeratne C. (2012), *Genetic Resources, Equity and International Law*, Cheltenham: Edward Elgar.

Halewood S. et.al.(2013), "Implementing 'Mutually Supportive' Access and Benefit Sharing Mechanism under The Plant Treaty, Convention on Biological Diversity and Nagoya Protocol" *Law, Environment and Development Journal*, 9/2: 70-95; available at: <http://www.lead-journal.org/content/10346.pdf>. Accessed on 22 Aug, 2016.

Halewood S. et al (2013), *Crop Genetic Resources as a Global Commons: Challenges in International Law and Governance*, London: Routledge.

Hodges J. and Denial R. (2005), "Promises and Pitfalls: First Step on Road to the International ABS Regime" *Review of European Community & International Environmental Law*, 14(2):148-160.

**ILO Convention concerning Indigenous and Tribal Peoples, 1989 (No.169)*, available at: <http://www.ilo.org/dyn/normlex/en.pdf>. Accessed on 20 July, 2016.

**Indian Biological Diversity Rules, 2004*, available at: <http://www.nba.in/abs/documents/rules/2004.pdf>. Accessed on 2 July, 2016.

**Indian Guidelines on Access to Biological Resources and Associated Traditional Knowledge and Benefit Sharing Regulations, 2014*, available at: <http://www.nba.in/abs/documents/guidelines/2014.pdf>. Accessed on 2 July, 2016.

**International Convention on Protection of New Varieties of Plants, 1991*, available at: <http://www.upov.int/about/en/pdf/pub437.pdf>. Accessed on 20 July, 2016

**International Conventions on Civil and Political Rights, 1976*, available at: <http://www.treaties.un.org/doc/publications/unit/vol/999.html>. Accessed on 20 July, 2016

*International Covenant on Economic, Social and Cultural Rights, 1976, *See, Full Text*, available at: http://www.treaties.un.org/doc/publications/unit/1976/CH_IV_03.html. Accessed on 20 July, 2016.

Jeffery M. (2002), "Bioprospecting: Access to Genetic Resource and Benefit Sharing under the Convention on Biodiversity and the Bonn Guidelines," *Singapore Journal of International & Comparative Law*, 6: 747-788.

Jeffery M. et. al. (2008), *Biodiversity Conservation Law+ Livelihoods: Bridging the North- South Divide*, New York: Cambridge University Press.

Johannesburg Plan of Implementation of the World Summit on Sustainable Development, 2002 available at: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/english/WSSD.pdf Accessed on 12 July, 2016.

Jonge B.D. (2013), "Towards a Fair and Equitable ABS Regime: Is Nagoya leading us in the Right Direction?" *Law, Environment and Development Journal*, 9/2: 241-155; available at: <http://www.lead-journal.org/content/10326.pdf>. Accessed on 22 Aug, 2016.

Joseph R. (2010), "International Regime on Access and Benefit Sharing: Where are We Now?" *Asian Biotechnology and Development Review*, 12(8): 77-94.

Kamau E. C. And Winter G. (2009), *Genetic Resource, Traditional Knowledge and the Law*, London: Earth Scan.

Kamau E.C. and Winter G. (2011), *Common Pool of Genetic Resources: Equity and Innovation under International Biodiversity Law*, London: Routledge.

Kamau E.C. et. al. (2010), "The Nagoya Protocol on Access to Genetic Resources and Benefit Sharing: What is New and What are the Implications for the Provider and User Countries and the Scientific Community?" *Law, Environment and Development Journal*, 6/3:246-262, p.262; available at: <http://www.lead-journal.org/content/0246.pdf>. Accessed on 22 Aug, 2016.

Kate ten K. and Laird S. (1999), *The Commercial Use of Biodiversity: Access to Genetic Resources and Benefits Sharing*, London: Earth Scan.

Kate ten K. and Laird S. (2000), "Biodiversity and Business: Coming to Terms with the 'Grand Bargains'" *International Affairs*, 76(1): 241-264.

Kiss A. and Shelton D. (1999), *A Guide to International Environmental Law*, Leiden: MartiunsNijhoff Publishers.

Klemm C. (1993), "Biological Diversity Conservation and the Law: Legal Mechanism for Conserving Species and Ecosystem" *Environmental Policy and Law*

Paper No. 29, Bonn: IUCN, available at:<http://www.iucn.org/dbth-wpd/EPLP-29.pdf>. Assessed on 2 July, 2016.

Koutouki, K. (2011), "The Nagoya Protocol: Statutes of Indigenous and Local Communities" Legal Aspects of Sustainable Development: Legal Working Paper Series, Montreal: CISDL, available at: http://www.cisd.org/the_nagoyaprotocol20%_status20%_local20%_communities.pdf Accessed on 12 Aug, 2016.

Koutouki K. and Bieberstein K. (2012), "The Nagoya Protocol: Sustainable Access and Benefit Sharing for Indigenous and Local Communities," *Vermont Journal of Environmental Law*, Vol.13: 512-535.

Laird S. and Wynberg R. (2008), "Access and Benefits Sharing in Practice: Trends in Partnership across Sectors" CBT Technical Series No 38: Montreal: Secretariat of CBD; available at: <http://www.cbd.int/doc/publications/cbd-to-38-en.pdf>. Accessed on 15 July, 2016.

Lewinski S.V. (2008), *Indigenous Heritage and Intellectual Property: Genetic Resources, Traditional Knowledge and Folklore*, New York: Walters Kluwer.

Mafuratidize R. (2011), "Critical Review of the Nagoya Protocol on Access and Benefit Sharing: Analysis of Its Provision against African Model Law and Possibilities for its Implementation at National Level" CISDL: Africa; available at: http://www.cisd.zu/critical/doc/african_model/eng.pdf Accessed on 12 Sept. 2016.

McManis F. and Charles R. (2007), *Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge*, London: Earth Scan.

Medaglia J.C., et al. (2012), "Overview of National and Regional Measure on Access to Genetic Resources and Benefit Sharing: Challenges and Opportunities in Implementing the Nagoya Protocol" Montreal: CISDL; available at: <http://www.cisd.org/biodiversity-biosafety1-overivewofABS-measure.pdf> Accessed on 18 July 2016.

Medaglia J.C. (2010), "The Relationship between the Access and Benefit Sharing International Regime and Other International Instruments: The World Trade Organization and the International Union for the Protection of New Varieties of Plants", *Sustainable Development Law and Policy*, Vol.10 (3): 24-52.

Mgbeoji I. (2006), *Global Bio-piracy: Patents, Plants and Indigenous Knowledge*, New York: Carnell University Press.

Moregera E. and Tsioumani E. (2010), "Yesterday, Today, and Tomorrow: Looking Afresh at the Convention on Biological Diversity," *Yearbook of International Environmental Law*, Vol.21 (1): 3-40.

Moregera E. et al. (2013), *The 2010 Nagoya Protocol on Access and Benefit Sharing in Perspective: Implication for International Law and Implication Challenge*, Leiden: Martinis Nijhoff.

Moregera E. et al. (2014), *Unravelling The Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity*, London: Brill Publishers.

Muller R. (2010), "Thinking outside Box: Innovative Options for an Operational Regime on Access and Benefit Sharing", Issue Paper No. 1, CTSD; available at: <http://www.ictsd.org/downloads/2011/12/thinking-outside-the-box-innovative-options-for-an-operational-regime-on-access-and-benefit-sharing.pdf>. Accessed on 28 January, 2017.

Nanda V. P. and Pring G. (2003), *International Environmental Law and Policy for the 21st Century*, Second Ed., Leiden: MartinusNijhoff Publishers.

Nanda V.P. (1995), *International Environmental Law and Policy*, New York: Translational Publisher.

Nijar G.S. (2010), "Incorporating Traditional Knowledge in an International Legal Regime on Access to Genetic Resources and Benefit Sharing: Problems and Prospects," *The European Journal of International Law*, Vol. 21 (2): 457-475.

Nijar G.S. (2011), "Food Security and Access and Benefit Sharing Laws relating to Genetic Resources: Promoting Synergies in National and International Governance," *International Environmental Agreements*, 11:99-116.

Nijar G.S. (2011), "The Nagoya Protocol on Access and Benefit Sharing of Genetic Resources: An Analysis" CEBLAW Brief, Kuala Lumpur: University of Malaya; available at: http://biogov.uclouvain.be/multistakeholder/presentations/Gurdial-Nijar-NagoyaProtocol-CEBLAW_Brief.pdf. Accessed on 12 Sept. 2016.

Nijar G.S. (2011), "The Nagoya protocol on Access and Benefits Sharing of Genetic Resources: Analysis and Implementation of Options for Developing Countries" Research Paper 36, Malaysia: South Centre, available at:http://www.southcentre.org/index.php?option=com_docman&task.pdf Accessed on 15 July, 2016.

Oli K.P. (2009), "Access and Benefit Sharing from Biological Resources and Associated Traditional Knowledge ion the HKH Region: Protecting Community Interest" *International Journal of Biodiversity and Conservation*, Vol. 1 (5): 105-118.

Pavoni R. (2010), "Mutual Supportiveness as a Principle of International Law Making: A Watershed for the WTO and Competing Regimes", *European Journal of International Law*, 2: 649-680.

Posey D.A. et.al. (1999), *Cultural and Spiritual Value of Biodiversity*, Nairobi: UNEP Publication.

Prester F. (2002), "The CBD at Ten: The Long Road to Effectiveness", *Journal of International Wildlife Law and Policy*, 5: 269-285.

R. Anderson et al. (2010), "International Agreement Affecting an International Regime on Access and Benefit Sharing under the CBD: Implications for its Scope and Possibilities of a Sectoral Approach" FNI Report 3/2010; available at: <http://www.fni.org/repoet/2010/en.pdf>. Accessed on 24 Feb. 2017.

Ramakrishna P.S. (2010), *Premier on Characterizing Biodiversity: Trans-disciplinary Dimensions*, Delhi: National Book Trust.

Report of the World Commission on Environment and Development, 1988. (UN/A/42/427), available at: <http://www.un-documents.net/our-comman-future.pdf>. Accessed on 20 July, 2016.

Richerzhagen C. (2014), "The Nagoya Protocol: Fragmentation or Consolidation?" *Resources*, Vol.3:135-151.

Rosendal G.K. (2006), "Balancing Access and Benefit Sharing and Legal Protection of Innovations from Bioprospecting," *The Journal of Environment and Development*, 15(4), 428-447.

Rosendal G.K. (2005), "Regulating the Use of Genetic Resources: Between International Authorities" *European Environment*, Vol.16 (5):265-277.

Ruiz M. (2010), "Logic should prevail: New Theoretical and Operational Framework for the International Regime on access to genetic resources and Fair and Equitable sharing of benefits" Initiative for the Prevention of Biopiracy Research Document, Year V: 13; available at: <http://www.Planttreaty.org/es/content/logic.pdf>. Accessed on 25 July, 2016.

Ruiz M. and Vernooy R. (2012), *The Custodians of Biodiversity: Sharing Access to and Benefits of Genetic Resources*, London: Routledge.

Sachi, P. and Tvedt. M.N. (2010), "Genetic Resources' in the CBD: The Working in the Past, The Present and the Future", FNI Report: 4/2010, Bonn: FNI; available at: <https://www.fni.org/getfile.php/131744/Filer/Pub/FNI-R0410.pdf>. Accessed on 20 July, 2016.

Safrin S. (2004), "Hyper-ownership in a Time of Biotechnological Promises: The International Conflict to Control of the Building Block of Life," *The American Journal of International Law*, Vol. 98(4): 642-695.

Sahai S. (2004), *Protection of Traditional Knowledge of Biodiversity*, New Delhi: Gene Campaign Publication, available at: <http://genecampaign.org/pub/TK/eng.pdf>. Accessed on 12 Aug., 2016.

Sahai S. (2014), *Biodiversity Matters*, Delhi: Gene Campaign, available at: <http://genecampaign.org/pub/doc/eng.pdf>. Accessed on 12 Aug., 2016.

Sampath G.L. (2005), *Regulating Bio-prospecting: Institutions for Drug Research, Access and Benefit Sharing* New York: UNU Press.

Santilli, J. (2012); *Agro biodiversity and The Law: Regulating Genetic Resources, Food Security and Cultural Diversity*, London: Earth Scan.

Secretariat of the Convention on Biological Diversity: Addis Ababa Principles and Guidelines for Sustainable Use of Biodiversity, 2004; Montreal: CBD Secretariat; See, Full Text, available at: <http://www.cbd.int/docs/publications/addis-gdls-en.pdf>. Accessed on 2 July, 2016.

Smagodi A. (2009), “National Measures on Access to Genetic Resources and Benefit Sharing: The Case of the Philippines”, *Law, Environment and Development Journal*, 1/2: 50-70, available at: <http://www.lead-journal.org/content/002.pdf>. Accessed on 18 July, 2016.

Suneetha M. and Pisupati B. (2009); “Benefit Sharing in ABS: Options and Elaboration” UNU_IAS Report, Sibuya-ku (Japan): United Nations University Press; available at: http://www.cbd.int/abs/doc/unu_report_2009.en.html. Accessed on 2 Aug, 2016.

Sebastian O. and Rosendal G. (2014), *Global Governance of Genetic Resources: Access and Benefit Sharing after Nagoya Protocol*, London: Routledge.

Tobin B.M. (2013), “Bridging the Nagoya Compliance Gap: The Functional Role of Customary Law in Protection of Indigenous Peoples Resources and Knowledge Rights” *Law, Environment and Law Journal*, 9/2: 142-162; available at: <http://www.lead-journal.org/content/13142.pdf>. Accessed on 22 Aug. 2016.

Tripathi S.K (2003), “Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore: International, Regional and National Perspective, Trends and Strategies” *Journal of Intellectual Property Rights*, Vol. 3, 468-477.

Tully S. (2003), “The Bonn Guidelines on Access to Genetic Resources and Benefit Sharing from their Utilization”, *Review of European Community and International Environment Law*, 12 (1): 84-98.

Tvedt W. and Young T. (2007), “Beyond Access: Exploring Implementation for the Fair and Equitable Sharing Commitment in the CBD,” Environmental Policy and Law Paper No. 67/2; Gland: IUCN; available at: http://www.iucn.org/dbtn_wpd/EPLP-2.pdf. Accessed on 12 May, 2016.

*UN Declaration on Human Cloning, 2005; available at: <http://www.un.org/press/en/2005/ga10333.doc.html>. Accessed on 5 Aug, 2016.

*UN Declaration on the Rights of Indigenous Peoples, 2007; available at: <http://www.un.org/esa/socdev/unpfii/documents/DRIPS.html>. Accessed on 20 July, 2016.

UN Environment Annual Report, 2016: Engaging People to Protect the Planet; available at: <http://www.unep.org/annual-report/2016.html>. Accessed on 20 July, 2016.

**UN General Assembly Resolution 1803 (XVII): Permanent Sovereignty over Natural Resources, 1962*, available at: http://www.legal.un.org/al/ha/ga_1803.html. Accessed on 20 July, 2016.

**UN General Assembly Resolution 3201 (S-VI): Declaration on the Establishment of New International Economic Order, 1972. (A/Res/S-VI/3201)* available at: <http://www.un-documents.net/s6r3201.html>. Accessed on 20 July, 2016.

**UN General Assembly Resolution 523 (VI): Integrated Economic Development and Commercial Agreements, 1952*, available at: <http://www.un.org/documents/ga/res/6/ares6.html>. Accessed on 20 July, 2016.

**UN General Assembly Resolution, 3281(XXIX): Charter of Economic Rights and Duties of States, 1974. (A/Res/29/3281)* available at: <http://www.un-documents.net/a29r3281.html>. Accessed on 20 July, 2016

UNCTAD (2012), “The Convention on Biological Diversity and the Nagoya Protocol: Intellectual Property Implications”, Technical Study, available at: http://www.unctad.org/documents/technical_study/en.pdf. Accessed on 5 Aug, 2016.

UNEP (1978), Principles of Conduct in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States, 1978; available at: <http://www.un.org/documents/ga/res/34/a34res186.html>. Accessed on 20 July, 2016.

United Nation Conference on Human Environment, 1972; Stockholm Declaration; available at: <http://www.un-documents.net/unchedec.html>. Accessed on 20 July, 2016.

United Nations Conference on Environment and Development, 1992; Rio Declaration; available at: <http://www.un.org/genifo/bp/enviro.html>. Accessed on 20 July, 2016.

**United Nations Convention on the Law of the Sea (1982)*, 1833 UNTS 3/21; available at: http://www.un.org/dept/los/convention_agreements/text/unclos.html. Accessed on 20 July, 2016.

**Universal Declaration on Bioethics and Human Rights, 2005*; available at: <http://www.unesco.org/new/en/social-and-human-sciences/theme/bioethics/bioethics-and-human-rights.html>. Accessed on 5 Aug, 2016.

**Universal Declaration on Human Genetic Data, 2003*; available at: <http://www.unesco.org/en/social-and-human-science/theme/human-genome/data.html>. Accessed on 5 Aug, 2016

**Universal Declaration on Human Genome and Human Rights, 1997*; available at: <http://www.unesco.org/new/en/social-andhuman-sciences/theme/bioethics/humane-genome-andhuman- rights.html>. Accessed on 5 Aug, 2016.

Vankataraman K. (2008), “Access and Benefit Sharing and the Biological Diversity Act of India: Progress Report” *Asian Biotechnological and Development Review*, Vol.10, (3): 69-80.

Venkataraman K. (2009), “India's Biodiversity Act, 2002 and its Role in Conservation”, *Tropical Ecology*, 50(1): 23-30.

Verschuuren B. (2002), “An Overview of Cultural and Spiritual Values in Ecosystem Management and Conservation Strategies” Research Paper, Netherlands: Foundation for Sustainable Development; available at: http://www.sustainabledevelopment.org/research_paper/eng.pdf. Accessed on 22 Aug, 2016.

Winter G. (2013), “An Introduction to the International ABS Regime and A Comment on its Transposition by the EU,” *Law, Environment and Law Journal*, 9/2: 106-126; available at: http://www.lead_journal.org/content/13106.pdf. Accessed on 22 Aug, 2016.

WIPO Draft Text Relating to Intellectual Property and Genetic Resources (WIPO GA/40/7) 12 Aug. 2011; available at: http://www.wipo.int/edocs/mdocs/gov/en/wo_ga_40_7.doc. Accessed on 20 Sept. 2016.

World Charter for Nature, 1982, (A/RES/37/7), available at: <http://www.un.org/documents/ga/res/37/a37r007.html>. Accessed on 20 July, 2016.

World Conservation Strategy: Living Resource Conservation for Sustainable Development, 1980; available at: http://www.portals.iucn.org/library/efiles/doc/wcs_004.html Accessed on 20 July, 2016.

**World Health Organization, World Health Resolution 60.28: Pandemic Influenza Preparedness: Sharing of Viruses and Access to Vaccines and other Benefits, 2011*; available at: http://apps.who.int/gb/ebwha/pdf_files/WHASSA_WHA60-Rec1/E/reso-60-en.pdf Accessed on 20 Sept. 2016.

Young T. (2007) “Covering ABS: Addressing the Need for Sectoral, Geographical, Legal and Integration in the ABS Regime,” Environmental Policy and Law Paper No. 67/5, Paper and Studies of the ABS Project; Gland: IUCN Publications; available at: <http://www.iucn.org/dbth-wpd/EPLP-67.pdf>. Accessed on 2 July, 2016.

Young T. (2008), “The Challenge of a New Regime: The Quest for Certainty in ‘Access to Genetic Resources and Benefit Sharing’,” *Asian Biotechnology and Development Review*, Vol. 10(3): 113- 126.

ANNEXURES

**ANNEXURE-I: CONVENTION ON BIOLOGICAL DIVERSITY,
1992**

**ANNEXURE-II: 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, 2010**

ANNEXURE I: CONVENTION ON BIOLOGICAL DIVERSITY, 1992

The Contracting Parties,

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

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

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

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

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

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

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

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

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

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

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

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

Recognizing also the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women

at all levels of policy-making and implementation for biological diversity conservation,

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

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

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

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

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

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

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

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

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

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

Have agreed as follows:

Article 1:OBJECTIVES

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

Article 2: USE OF TERMS

For the purposes of this Convention:

“Biological diversity” means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

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

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

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

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

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

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

“Ex-situ conservation” means the conservation of components of biological diversity outside their natural habitats.

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

“Genetic resources” means genetic material of actual or potential value.

“Habitat” means the place or type of site where an organism or population naturally occurs.

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

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

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

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

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

“Technology” includes biotechnology.

Article 3: PRINCIPLE

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Article 4: JURISDICTIONAL SCOPE

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

- a) In the case of components of biological diversity, in areas within the limits of its national jurisdiction; and
- b) In the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.

Article 5: COOPERATION

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

Article 6: GENERAL MEASURES FOR CONSERVATION AND SUSTAINBLE USE

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

- a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies,

plans or programmes which shall reflect, *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned; and

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

Article 7: IDENTIFICATION AND MONITORING

- a) Each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:
- b) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;
- c) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;
- d) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and
- e) Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

Article 8: *IN-SITU* CONSERVATION

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

- a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
- c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
- d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies;
- g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could

- affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;
- h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
 - i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;
 - j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;
 - k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations;
 - l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and
 - m) Cooperate in providing financial and other support for in-situ conservation outlined in subparagraphs (a) to (l) above, particularly to developing countries.

Article 9:EX-SITU CONSERVATION

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

Article 10: SUSTAINABLE USE OF COMPONENTS OF BIOLOGICAL DIVERSITY

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

Article 11: INCENTIVE MEASURES

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

Article 12: RESEARCH AND TRAINING

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

- a) Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries;
- b) Promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, *inter alia*, in accordance with decisions of the Conference of the Parties taken in consequence of recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice; and
- c) In keeping with the provisions of Articles 16, 18 and 20, promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.

Article 13: PUBLIC EDUCATION AND AWARENESS

The Contracting Parties shall:

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

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

Article 14: IMPACT ASSESSMENT AND MINIMIZING ADVERSE IMPACTS

1. Each Contracting Party, as far as possible and as appropriate, shall:
 - a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;
 - b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account;
 - c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate;
 - d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and
 - e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.
2. The Conference of the Parties shall examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.

Article 15: ACCESS TO GENETIC RESOURCES

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.
2. Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.
3. For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources

or by the Parties that have acquired the genetic resources in accordance with this Convention.

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

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

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

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

Article 16: ACCESS TO AND TRANSFER OF TECHNOLOGY

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

2. Access to and transfer of technology referred to in paragraph 1 above to developing countries shall be provided and/or facilitated under fair and most favourable terms, including on concessional and preferential terms where mutually agreed, and, where necessary, in accordance with the financial mechanism established by Articles 20 and 21. In the case of technology subject to patents and other intellectual property rights, such access and transfer shall be provided on terms which recognize and are consistent with the adequate and effective protection of intellectual property rights. The application of this paragraph shall be consistent with paragraphs 3, 4 and 5 below.

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

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

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

Article 17: EXCHANGE OF INFORMATION

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

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

Article 18: TECHNICAL AND SCIENTIFIC COOPERATION

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

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

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

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

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

Article 19: HANDLING OF BIOTECHNOLOGY AND DISTRIBUTION OF ITS BENEFITS

1. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, to provide for the effective participation in biotechnological research activities by those Contracting Parties, especially developing countries, which provide the genetic resources for such research, and where feasible in such Contracting Parties.
2. Each Contracting Party shall take all practicable measures to promote and advance priority access on a fair and equitable basis by Contracting Parties, especially developing countries, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties. Such access shall be on mutually agreed terms.
3. The Parties shall consider the need for and modalities of a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity.
4. Each Contracting Party shall, directly or by requiring any natural or legal person under its jurisdiction providing the organisms referred to in paragraph 3 above, provide any available information about the use and safety regulations required by that Contracting Party in handling such organisms, as well as any available information on the potential adverse impact of the specific organisms concerned to the Contracting Party into which those organisms are to be introduced.

Article 20: FINANCIAL RESOURCES

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

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

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

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

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

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

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

Article 21: FINANCIAL MECHANISM

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

2. Pursuant to the objectives of this Convention, the Conference of the Parties shall at its first meeting determine the policy, strategy and programme priorities, as well as

detailed criteria and guidelines for eligibility for access to and utilization of the financial resources including monitoring and evaluation on a regular basis of such utilization. The Conference of the Parties shall decide on the arrangements to give effect to paragraph 1 above after consultation with the institutional structure entrusted with the operation of the financial mechanism.

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

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

Article 22: RELATIONSHIP WITH OTHER INTERNATIONAL CONVENTIONS

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

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

Article 23: CONFERENCE OF THE PARTIES

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

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

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

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

- a) Establish the form and the intervals for transmitting the information to be submitted in accordance with Article 26 and consider such information as well as reports submitted by any subsidiary body;
- b) Review scientific, technical and technological advice on biological diversity provided in accordance with Article 25;
- c) Consider and adopt, as required, protocols in accordance with Article 28;
- d) Consider and adopt, as required, in accordance with Articles 29 and 30, amendments to this Convention and its annexes;
- e) Consider amendments to any protocol, as well as to any annexes thereto, and, if so decided, recommend their adoption to the parties to the protocol concerned;
- f) Consider and adopt, as required, in accordance with Article 30, additional annexes to this Convention;
- g) Establish such subsidiary bodies, particularly to provide scientific and technical advice, as are deemed necessary for the implementation of this Convention;
- h) Contact, through the Secretariat, the executive bodies of conventions dealing with matters covered by this Convention with a view to establishing appropriate forms of cooperation with them; and
- i) Consider and undertake any additional action that may be required for the achievement of the purposes of this Convention in the light of experience gained in its operation.

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

Article 24: SECRETARIAT

1. A secretariat is hereby established. Its functions shall be:
 - a) To arrange for and service meetings of the Conference of the Parties provided for in Article 23;
 - b) To perform the functions assigned to it by any protocol;
 - c) To prepare reports on the execution of its functions under this Convention and present them to the Conference of the Parties;
 - d) To coordinate with other relevant international bodies and, in particular to enter into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and
 - e) To perform such other functions as may be determined by the Conference of the Parties.

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

Article 25: SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

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

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

3. Provide scientific and technical assessments of the status of biological diversity;

4. Prepare scientific and technical assessments of the effects of types of measures taken in accordance with the provisions of this Convention;

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

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

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

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

Article 26: REPORTS

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

Article 27: SETTLEMENT OF DISPUTES

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

2. If the parties concerned cannot reach agreement by negotiation, they may jointly seek the good offices of, or request mediation by, a third party.
3. When ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, a State or regional economic integration organization may declare in writing to the Depositary that for a dispute not resolved in accordance with paragraph 1 or paragraph 2 above, it accepts one or both of the following means of dispute settlement as compulsory:
 - a) Arbitration in accordance with the procedure laid down in Part 1 of Annex II;
 - b) Submission of the dispute to the International Court of Justice.
4. If the parties to the dispute have not, in accordance with paragraph 3 above, accepted the same or any procedure, the dispute shall be submitted to conciliation in accordance with Part 2 of Annex II unless the parties otherwise agree.
5. The provisions of this Article shall apply with respect to any protocol except as otherwise provided in the protocol concerned.

Article 28: ADOPTION OF PROTOCOLS

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

Article 29: AMENDMENT OF THE CONVENTION OR PROTOCOLS

1. Amendments to this Convention may be proposed by any Contracting Party. Amendments to any protocol may be proposed by any Party to that protocol.
2. Amendments to this Convention shall be adopted at a meeting of the Conference of the Parties. Amendments to any protocol shall be adopted at a meeting of the Parties to the Protocol in question. The text of any proposed amendment to this Convention or to any protocol, except as may otherwise be provided in such protocol, shall be communicated to the Parties to the instrument in question by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate proposed amendments to the signatories to this Convention for information.
3. The Parties shall make every effort to reach agreement on any proposed amendment to this Convention or to any protocol by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a two-third majority vote of the Parties to the instrument in question present and voting at the meeting, and shall be submitted by the Depositary to all Parties for ratification, acceptance or approval.
4. Ratification, acceptance or approval of amendments shall be notified to the Depositary in writing. Amendments adopted in accordance with paragraph 3 above

shall enter into force among Parties having accepted them on the ninetieth day after the deposit of instruments of ratification, acceptance or approval by at least two thirds of the Contracting Parties to this Convention or of the Parties to the protocol concerned, except as may otherwise be provided in such protocol. Thereafter the amendments shall enter into force for any other Party on the ninetieth day after that Party deposits its instrument of ratification, acceptance or approval of the amendments.

5. For the purposes of this Article, “Parties present and voting” means Parties present and casting an affirmative or negative vote.

Article 30: ADOPTION AND AMENDMENT OF ANNEXES

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

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

- a) Annexes to this Convention or to any protocol shall be proposed and adopted according to the procedure laid down in Article 29;
- b) Any Party that is unable to approve an additional annex to this Convention or an annex to any protocol to which it is Party shall so notify the Depositary, in writing, within one year from the date of the communication of the adoption by the Depositary. The Depositary shall without delay notify all Parties of any such notification received. A Party may at any time withdraw a previous declaration of objection and the annexes shall thereupon enter into force for that Party subject to subparagraph (c) below;
- c) On the expiry of one year from the date of the communication of the adoption by the Depositary, the annex shall enter into force for all Parties to this Convention or to any protocol concerned which have not submitted a notification in accordance with the provisions of subparagraph (b) above.

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

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

Article 31: RIGHT TO VOTE

1. Except as provided for in paragraph 2 below, each Contracting Party to this Convention or to any protocol shall have one vote.
2. Regional economic integration organizations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States which are Contracting Parties to this Convention or the relevant protocol. Such organizations shall not exercise their right to vote if their member States exercise theirs, and vice versa.

Article 32: RELATIONSHIP BETWEEN THIS CONVENTION AND ITS PROTOCOLS

1. A State or a regional economic integration organization may not become a Party to a protocol unless it is, or becomes at the same time, a Contracting Party to this Convention.
2. Decisions under any protocol shall be taken only by the Parties to the protocol concerned. Any Contracting Party that has not ratified, accepted or approved a protocol may participate as an observer in any meeting of the parties to that protocol.

Article 33: SIGNATURE

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

Article 34: RATIFICATION, ACCEPTANCE OR APPROVAL

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

Article 35: ACCESSION

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

Article 36: ENTRY INTO FORCE

1. This Convention shall enter into force on the ninetieth day after the date of deposit of the thirtieth instrument of ratification, acceptance, approval or accession.
2. Any protocol shall enter into force on the ninetieth day after the date of deposit of the number of instruments of ratification, acceptance, approval or accession, specified in that protocol, has been deposited.
3. For each Contracting Party which ratifies, accepts or approves this Convention or accedes thereto after the deposit of the thirtieth instrument of ratification, acceptance, approval or accession, it shall enter into force on the ninetieth day after the date of deposit by such Contracting Party of its instrument of ratification, acceptance, approval or accession.
4. Any protocol, except as otherwise provided in such protocol, shall enter into force for a Contracting Party that ratifies, accepts or approves that protocol or accedes thereto after its entry into force pursuant to paragraph 2 above, on the ninetieth day after the date on which that Contracting Party deposits its instrument of ratification, acceptance, approval or accession, or on the date on which this Convention enters into force for that Contracting Party, whichever shall be the later.
5. For the purposes of paragraphs 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such organization.

Article 37: RESERVATIONS

No reservations may be made to this Convention.

Article 38: WITHDRAWALS

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

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

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

Article 39: FINANCIAL INTERIM ARRANGEMENTS

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

Article 40: SECRETARIAT INTERIM ARRANGEMENTS

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

Article 41: DEPOSITARY

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

Article 42: AUTHENTIC TEXTS

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

Annex I - IDENTIFICATION AND MONITORING

1. Ecosystems and habitats: containing high diversity, large numbers of endemic or threatened species, or wilderness; required by migratory species; of social, economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes;

2. Species and communities which are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; or social, scientific or cultural importance; or importance for research into the conservation and sustainable use of biological diversity, such as indicator species; and

3. Described genomes and genes of social, scientific or economic importance.

Annex II - PART 1. ARBITRATION

Article 1

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

Article 2

1. In disputes between two parties, the arbitral tribunal shall consist of three members. Each of the parties to the dispute shall appoint an arbitrator and the two arbitrators so appointed shall designate by common agreement the third arbitrator who shall be the President of the tribunal. The latter shall not be a national of one of the parties to the dispute, nor have his or her usual place of residence in the territory of one of these parties, nor be employed by any of them, nor have dealt with the case in any other capacity.
2. In disputes between more than two parties, parties in the same interest shall appoint one arbitrator jointly by agreement.
3. Any vacancy shall be filled in the manner prescribed for the initial appointment.

Article 3

1. If the President of the arbitral tribunal has not been designated within two months of the appointment of the second arbitrator, the Secretary-General of the United Nations shall, at the request of a party, designate the President within a further two-month period.
2. If one of the parties to the dispute does not appoint an arbitrator within two months of receipt of the request, the other party may inform the Secretary-General who shall make the designation within a further two-month period.

Article 4

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

Article 5

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

Article 6

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

Article 7

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

- a) Provide it with all relevant documents, information and facilities; and
- b) Enable it, when necessary, to call witnesses or experts and receive their evidence.

Article 8

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

Article 9

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

Article 10

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

Article 11

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

Article 12

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

Article 13

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

Article 14

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

Article 15

The final decision of the arbitral tribunal shall be confined to the subject-matter of the dispute and shall state the reasons on which it is based. It shall contain the names of the members who have participated and the date of the final decision.

Article 16

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

Article 17

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

Annex II - PART 2. CONCILIATION

Article 1

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

Article 2

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

Article 3

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

Article 4

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

Article 5

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

Article 6

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

ANNEXURE II: 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, 2010

The Parties to this Protocol,

Being Parties to the Convention on Biological Diversity, hereinafter referred to as “the Convention”,

Recalling that the fair and equitable sharing of benefits arising from the utilization of genetic resources is one of three core objectives of the Convention, and recognizing that this Protocol pursues the implementation of this objective within the Convention,

Reaffirming the sovereign rights of States over their natural resources and according to the provisions of the Convention,

Recalling further Article 15 of the Convention,

Recognizing the important contribution to sustainable development made by technology transfer and cooperation to build research and innovation capacities for adding value to genetic resources in developing countries, in accordance with Articles 16 and 19 of the Convention,

Recognizing that public awareness of the economic value of ecosystems and biodiversity and the fair and equitable sharing of this economic value with the custodians of biodiversity are key incentives for the conservation of biological diversity and the sustainable use of its components,

Acknowledging the potential role of access and benefit-sharing to contribute to the conservation and sustainable use of biological diversity, poverty eradication and environmental sustainability and thereby contributing to achieving the Millennium Development Goals,

Acknowledging the linkage between access to genetic resources and the fair and equitable sharing of benefits arising from the utilization of such resources,

Recognizing the importance of providing legal certainty with respect to access to genetic resources and the fair and equitable sharing of benefits arising from their utilization,

Further recognizing the importance of promoting equity and fairness in negotiation of mutually agreed terms between providers and users of genetic resources,

Recognizing also the vital role that women play in access and benefit-sharing and affirming the need for the full participation of women at all levels of policy-making and implementation for biodiversity conservation,

Determined to further support the effective implementation of the access and benefit-sharing provisions of the Convention,

Recognizing that an innovative solution is required to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent,

Recognizing the importance of genetic resources to food security, public health, biodiversity conservation, and the mitigation of and adaptation to climate change,

Recognizing the special nature of agricultural biodiversity, its distinctive features and problems needing distinctive solutions,

Recognizing the interdependence of all countries with regard to genetic resources for food and agriculture as well as their special nature and importance for achieving food security worldwide and for sustainable development of agriculture in the context of poverty alleviation and climate change and acknowledging the fundamental role of the International Treaty on Plant Genetic Resources for Food and Agriculture and the FAO Commission on Genetic Resources for Food and Agriculture in this regard,

Mindful of the International Health Regulations (2005) of the World Health Organization and the importance of ensuring access to human pathogens for public health preparedness and response purposes,

Acknowledging ongoing work in other international forums relating to access and benefit-sharing,

Recalling the Multilateral System of Access and Benefit-sharing established under the International Treaty on Plant Genetic Resources for Food and Agriculture developed in harmony with the Convention,

Recognizing that international instruments related to access and benefit-sharing should be mutually supportive with a view to achieving the objectives of the Convention,

Recalling the relevance of Article 8(j) of the Convention as it relates to traditional knowledge associated with genetic resources and the fair and equitable sharing of benefits arising from the utilization of such knowledge,

Noting the interrelationship between genetic resources and traditional knowledge, their inseparable nature for indigenous and local communities, the importance of the traditional knowledge for the conservation of biological diversity and the sustainable use of its components, and for the sustainable livelihoods of these communities,

Recognizing the diversity of circumstances in which traditional knowledge associated with genetic resources is held or owned by indigenous and local communities,

Mindful that it is the right of indigenous and local communities to identify the rightful holders of their traditional knowledge associated with genetic resources, within their communities,

Further recognizing the unique circumstances where traditional knowledge associated with genetic resources is held in countries, which may be oral, documented or in other

forms, reflecting a rich cultural heritage relevant for conservation and sustainable use of biological diversity,

Noting the United Nations Declaration on the Rights of Indigenous Peoples, and

Affirming that nothing in this Protocol shall be construed as diminishing or extinguishing the existing rights of indigenous and local communities,

Have agreed as follows:

Article 1: OBJECTIVE

The objective of this Protocol is the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.

Article 2: USE OF TERMS

The terms defined in Article 2 of the Convention shall apply to this Protocol. In addition, for the purposes of this Protocol:

- (a) “Conference of the Parties” means the Conference of the Parties to the Convention;
- (b) “Convention” means the Convention on Biological Diversity;
- (c) “Utilization of genetic resources” means to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology as defined in Article 2 of the Convention;
- (d) “Biotechnology” as defined in Article 2 of the Convention means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use;
- (e) “Derivative” means a naturally occurring biochemical compound resulting from the genetic expression or metabolism of biological or genetic resources, even if it does not contain functional units of heredity.

Article 3: SCOPE

This Protocol shall apply to genetic resources within the scope of Article 15 of the Convention and to the benefits arising from the utilization of such resources. This Protocol shall also apply to traditional knowledge associated with genetic resources within the scope of the Convention and to the benefits arising from the utilization.

Article 4: RELATIONSHIP WITH INTERNATIONAL AGREEMENTS AND INSTRUMENTS

1. The provisions of this Protocol shall not affect the rights and obligations of any Party deriving from any existing international agreement, except where the

exercise of those rights and obligations would cause a serious damage or threat to biological diversity. This paragraph is not intended to create a hierarchy between this Protocol and other international instruments.

2. Nothing in this Protocol shall prevent the Parties from developing and implementing other relevant international agreements, including other specialized access and benefit-sharing agreements, provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol.
3. This Protocol shall be implemented in a mutually supportive manner with other international instruments relevant to this Protocol. Due regard should be paid to useful and relevant ongoing work or practices under such international instruments and relevant international organizations, provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol.
4. This Protocol is the instrument for the implementation of the access and benefit-sharing provisions of the Convention. Where a specialized international access and benefit-sharing instrument applies that is consistent with, and does not run counter to the objectives of the Convention and this Protocol, this Protocol does not apply for the Party or Parties to the specialized instrument in respect of the specific genetic resource covered by and for the purpose of the specialized instrument.

Article 5: FAIR AND EQUITABLE BENEFIT-SHARING

1. In accordance with Article 15, paragraphs 3 and 7 of the Convention, benefits arising from the utilization of genetic resources as well as subsequent applications and commercialization shall be shared in a fair and equitable way with the Party providing such resources that is the country of origin of such resources or a Party that has acquired the genetic resources in accordance with the Convention. Such sharing shall be upon mutually agreed terms.
2. Each Party shall take legislative, administrative or policy measures, as appropriate, with the aim of ensuring that benefits arising from the utilization of genetic resources that are held by indigenous and local communities, in accordance with domestic legislation regarding the established rights of these indigenous and local communities over these genetic resources, are shared in a fair and equitable way with the communities concerned, based on mutually agreed terms.
3. To implement paragraph 1 above, each Party shall take legislative, administrative or policy measures, as appropriate.
4. Benefits may include monetary and non-monetary benefits, including but not limited to those listed in the Annex.
5. Each Party shall take legislative, administrative or policy measures, as appropriate, in order that the benefits arising from the utilization of traditional

knowledge associated with genetic resources are shared in a fair and equitable way with indigenous and local communities holding such knowledge. Such sharing shall be upon mutually agreed terms.

Article 6: ACCESS TO GENETIC RESOURCES

1. In the exercise of sovereign rights over natural resources, and subject to domestic access and benefit-sharing legislation or regulatory requirements, access to genetic resources for their utilization shall be subject to the prior informed consent of the Party providing such resources that is the country of origin of such resources or a Party that has acquired the genetic resources in accordance with the Convention, unless otherwise determined by that Party.
2. In accordance with domestic law, each Party shall take measures, as appropriate, with the aim of ensuring that the prior informed consent or approval and involvement of indigenous and local communities is obtained for access to genetic resources where they have the established right to grant access to such resources.
3. Pursuant to paragraph 1 above, each Party requiring prior informed consent shall take the necessary legislative, administrative or policy measures, as appropriate, to:
 - (a) Provide for legal certainty, clarity and transparency of their domestic access and benefit sharing legislation or regulatory requirements;
 - (b) Provide for fair and non-arbitrary rules and procedures on accessing genetic resources;
 - (c) Provide information on how to apply for prior informed consent;
 - (d) Provide for a clear and transparent written decision by a competent national authority, in a cost-effective manner and within a reasonable period of time;
 - (e) Provide for the issuance at the time of access of a permit or its equivalent as evidence of the decision to grant prior informed consent and of the establishment of mutually agreed terms, and notify the Access and Benefit sharing Clearing-House accordingly;
 - (f) Where applicable, and subject to domestic legislation, set out criteria and/or processes for obtaining prior informed consent or approval and involvement of indigenous and local communities for access to genetic resources; and
 - (g) Establish clear rules and procedures for requiring and establishing mutually agreed terms. Such terms shall be set out in writing and may include, *inter alia*:
 - (i) A dispute settlement clause;
 - (ii) Terms on benefit-sharing, including in relation to intellectual property rights;

- (iii) Terms on subsequent third-party use, if any; and
- (iv) Terms on changes of intent, where applicable.

Article 7: ACCESS TO TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES

In accordance with domestic law, each Party shall take measures, as appropriate, with the aim of ensuring that traditional knowledge associated with genetic resources that is held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities, and that mutually agreed terms have been established.

Article 8: SPECIAL CONSIDERATIONS

In the development and implementation of its access and benefit-sharing legislation or regulatory requirements, each Party shall:

- (a) Create conditions to promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, including through simplified measures on access for non-commercial research purposes, taking into account the need to address a change of intent for such research;
- (b) Pay due regard to cases of present or imminent emergencies that threaten or damage human, animal or plant health, as determined nationally or internationally. Parties may take into consideration the need for expeditious access to genetic resources and expeditious fair and equitable sharing of benefits arising out of the use of such genetic resources, including access to affordable treatments by those in need, especially in developing countries;
- (c) Consider the importance of genetic resources for food and agriculture and their special role for food security.

Article 9: CONTRIBUTION TO CONSERVATION AND SUSTAINABLE USE

The Parties shall encourage users and providers to direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and the sustainable use of its components.

Article 10: GLOBAL MULTILATERAL BENEFIT-SHARING MECHANISM

Parties shall consider the need for and modalities of a global multilateral benefit sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent. The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally.

Article 11: TRANSBOUNDARY COOPERATION

1. In instances where the same genetic resources are found *in situ* within the territory of more than one Party, those Parties shall endeavour to cooperate, as appropriate, with the involvement of indigenous and local communities concerned, where applicable, with a view to implementing this Protocol.
2. Where the same traditional knowledge associated with genetic resources is shared by one or more indigenous and local communities in several Parties, those Parties shall endeavour to cooperate, as appropriate, with the involvement of the indigenous and local communities concerned, with a view to implementing the objective of this Protocol.

Article 12: TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES

1. In implementing their obligations under this Protocol, Parties shall in accordance with domestic law take into consideration indigenous and local communities' customary laws, community protocols and procedures, as applicable, with respect to traditional knowledge associated with genetic resources.
2. Parties, with the effective participation of the indigenous and local communities concerned, shall establish mechanisms to inform potential users of traditional knowledge associated with genetic resources about their obligations, including measures as made available through the Access and Benefit-sharing Clearing-House for access to and fair and equitable sharing of benefits arising from the utilization of such knowledge.
3. Parties shall endeavour to support, as appropriate, the development by indigenous and local communities, including women within these communities, of:
 - (a) Community protocols in relation to access to traditional knowledge associated with genetic resources and the fair and equitable sharing of benefits arising out of the utilization of such knowledge;
 - (b) Minimum requirements for mutually agreed terms to secure the fair and equitable sharing of benefits arising from the utilization of traditional knowledge associated with genetic resources; and
 - (c) Model contractual clauses for benefit-sharing arising from the utilization of traditional knowledge associated with genetic resources.
4. Parties, in their implementation of this Protocol, shall, as far as possible, not restrict the customary use and exchange of genetic resources and associated traditional knowledge within and amongst indigenous and local communities in accordance with the objectives of the Convention.

Article 13: NATIONAL FOCAL POINTS AND COMPETENT NATIONAL AUTHORITIES

1. Each Party shall designate a national focal point on access and benefit-sharing.

The national focal point shall make information available as follows:

- (a) For applicants seeking access to genetic resources, information on procedures for obtaining prior informed consent and establishing mutually agreed terms, including benefit-sharing;
 - (b) For applicants seeking access to traditional knowledge associated with genetic resources, where possible, information on procedures for obtaining prior informed consent or approval and involvement, as appropriate, of indigenous and local communities and establishing mutually agreed terms including benefit-sharing; and
 - (c) Information on competent national authorities, relevant indigenous and local communities and relevant stakeholders.
 - (d) The national focal point shall be responsible for liaison with the Secretariat.
2. Each Party shall designate one or more competent national authorities on access and benefitsharing. Competent national authorities shall, in accordance with applicable national legislative, administrative or policy measures, be responsible for granting access or, as applicable, issuing written evidence that access requirements have been met and be responsible for advising on applicable procedures and requirements for obtaining prior informed consent and entering into mutually agreed terms.
 3. A Party may designate a single entity to fulfil the functions of both focal point and competent national authority.
 4. Each Party shall, no later than the date of entry into force of this Protocol for it, notify the Secretariat of the contact information of its national focal point and its competent national authority or authorities. Where a Party designates more than one competent national authority, it shall convey to the Secretariat, with its notification thereof, relevant information on the respective responsibilities of those authorities. Where applicable, such information shall, at a minimum, specify which competent authority is responsible for the genetic resources sought. Each Party shall forthwith notify the Secretariat of any changes in the designation of its national focal point or in the contact information or responsibilities of its competent national authority or authorities.
 5. The Secretariat shall make information received pursuant to paragraph 4 above available through the Access and Benefit-sharing Clearing-House.

**Article 14: THE ACCESS AND BENEFIT-SHARING CLEARING-HOUSE
AND INFORMATION-SHARING**

1. An Access and Benefit-sharing Clearing-House is hereby established as part of the clearinghouse mechanism under Article 18, paragraph 3, of the Convention. It shall serve as a means for sharing of information related to access and benefit sharing. In particular, it shall provide access to information made available by each Party relevant to the implementation of this Protocol.

2. Without prejudice to the protection of confidential information, each Party shall make available to the Access and Benefit-sharing Clearing-House any information required by this Protocol, as well as information required pursuant to the decisions taken by the Conference of the Parties serving as the meeting of the Parties to this Protocol. The information shall include:
 - (a) Legislative, administrative and policy measures on access and benefit-sharing;
 - (b) Information on the national focal point and competent national authority or authorities; and
 - (c) Permits or their equivalent issued at the time of access as evidence of the decision to grant prior informed consent and of the establishment of mutually agreed terms.
3. Additional information, if available and as appropriate, may include:
 - (a) Relevant competent authorities of indigenous and local communities, and information as so decided;
 - (b) Model contractual clauses;
 - (c) Methods and tools developed to monitor genetic resources; and
 - (d) Codes of conduct and best practices.
4. The modalities of the operation of the Access and Benefit-sharing Clearing-House, including reports on its activities, shall be considered and decided upon by the Conference of the Parties serving as the meeting of the Parties to this Protocol at its first meeting, and kept under review thereafter.

Article 15: COMPLIANCE WITH DOMESTIC LEGISLATION OR REGULATORY REQUIREMENTS ON ACCESS AND BENEFIT-SHARING

1. Each Party shall take appropriate, effective and proportionate legislative, administrative or policy measures to provide that genetic resources utilized within its jurisdiction have been accessed in accordance with prior informed consent and that mutually agreed terms have been established, as required by the domestic access and benefit-sharing legislation or regulatory requirements of the other Party.
2. Parties shall take appropriate, effective and proportionate measures to address situations of noncompliance with measures adopted in accordance with paragraph 1 above.
3. Parties shall, as far as possible and as appropriate, cooperate in cases of alleged violation of domestic access and benefit-sharing legislation or regulatory requirements referred to in paragraph 1 above.

Article 16: COMPLIANCE WITH DOMESTIC LEGISLATION OR REGULATORY REQUIREMENTS ON ACCESS AND BENEFIT SHARING FOR TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES

1. Each Party shall take appropriate, effective and proportionate legislative, administrative or policy measures, as appropriate, to provide that traditional knowledge associated with genetic resources utilized within their jurisdiction has been accessed in accordance with prior informed consent or approval and involvement of indigenous and local communities and that mutually agreed terms have been established, as required by domestic access and benefit-sharing legislation or regulatory requirements of the other Party where such indigenous and local communities are located.
2. Each Party shall take appropriate, effective and proportionate measures to address situations of non-compliance with measures adopted in accordance with paragraph 1 above.
3. Parties shall, as far as possible and as appropriate, cooperate in cases of alleged violation of domestic access and benefit-sharing legislation or regulatory requirements referred to in paragraph 1 above.

Article 17: MONITORING THE UTILIZATION OF GENETIC RESOURCES

1. To support compliance, each Party shall take measures, as appropriate, to monitor and to enhance transparency about the utilization of genetic resources. Such measures shall include:
 - (a) The designation of one or more checkpoints, as follows:
 - (i) Designated checkpoints would collect or receive, as appropriate, relevant information related to prior informed consent, to the source of the genetic resource, to the establishment of mutually agreed terms, and/or to the utilization of genetic resources, as appropriate;
 - (ii) Each Party shall, as appropriate and depending on the particular characteristics of a designated checkpoint, require users of genetic resources to provide the information specified in the above paragraph at a designated checkpoint. Each Party shall take appropriate, effective and proportionate measures to address situations of noncompliance;
 - (iii) Such information, including from internationally recognized certificates of compliance where they are available, will, without prejudice to the protection of confidential information, be provided to relevant national authorities, to the Party providing prior informed consent and to the Access and Benefit-sharing Clearing-House, as appropriate;
 - (iv) Checkpoints must be effective and should have functions relevant to implementation of this subparagraph (a). They should be relevant to the utilization of genetic resources, or to the collection of relevant

information at, *inter alia*, any stage of research, development, innovation, pre-commercialization or commercialization.

- (b) Encouraging users and providers of genetic resources to include provisions in mutually agreed terms to share information on the implementation of such terms, including through reporting requirements; and
 - (c) Encouraging the use of cost-effective communication tools and systems.
2. A permit or its equivalent issued in accordance with Article 6, paragraph 3 (e) and made available to the Access and Benefit-sharing Clearing-House, shall constitute an internationally recognized certificate of compliance.
 3. An internationally recognized certificate of compliance shall serve as evidence that the genetic resource which it covers has been accessed in accordance with prior informed consent and that mutually agreed terms have been established, as required by the domestic access and benefitsharing legislation or regulatory requirements of the Party providing prior informed consent.
 4. The internationally recognized certificate of compliance shall contain the following minimum information when it is not confidential:
 - (a) Issuing authority;
 - (b) Date of issuance;
 - (c) The provider;
 - (d) Unique identifier of the certificate;
 - (e) The person or entity to whom prior informed consent was granted;
 - (f) Subject-matter or genetic resources covered by the certificate;
 - (g) Confirmation that mutually agreed terms were established;
 - (h) Confirmation that prior informed consent was obtained; and
 - (i) Commercial and/or non-commercial use.

Article 18: COMPLIANCE WITH MUTUALLY AGREED TERMS

1. In the implementation of Article 6, paragraph 3 (g) (i) and Article 7, each Party shall encourage providers and users of genetic resources and/or traditional knowledge associated with genetic resources to include provisions in mutually agreed terms to cover, where appropriate, dispute resolution including:
 - (a) The jurisdiction to which they will subject any dispute resolution processes;
 - (b) The applicable law; and/or
 - (c) Options for alternative dispute resolution, such as mediation or arbitration.
2. Each Party shall ensure that an opportunity to seek recourse is available under their legal systems, consistent with applicable jurisdictional requirements, in cases of disputes arising from mutually agreed terms.

3. Each Party shall take effective measures, as appropriate, regarding:
 - (a) Access to justice; and
 - (b) The utilization of mechanisms regarding mutual recognition and enforcement of foreign judgments and arbitral awards.
4. The effectiveness of this Article shall be reviewed by the Conference of the Parties serving as the meeting of the Parties to this Protocol in accordance with Article 31 of this Protocol.

Article 19: MODEL CONTRACTUAL CLAUSES

1. Each Party shall encourage, as appropriate, the development, update and use of sectoral and cross-sectoral model contractual clauses for mutually agreed terms.
2. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall periodically take stock of the use of sectoral and cross-sectoral model contractual clauses.

Article 20: CODES OF CONDUCT, GUIDELINES AND BEST PRACTICES AND/OR STANDARDS

1. Each Party shall encourage, as appropriate, the development, update and use of voluntary codes of conduct, guidelines and best practices and/or standards in relation to access and benefit sharing.
2. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall periodically take stock of the use of voluntary codes of conduct, guidelines and best practices and/or standards and consider the adoption of specific codes of conduct, guidelines and best practices and/or standards.

Article 21: AWARENESS-RAISING

Each Party shall take measures to raise awareness of the importance of genetic resources and traditional knowledge associated with genetic resources, and related access and benefit-sharing issues. Such measures may include, *inter alia*:

- (a) Promotion of this Protocol, including its objective;
- (b) Organization of meetings of indigenous and local communities and relevant stakeholders;
- (c) Establishment and maintenance of a help desk for indigenous and local communities and relevant stakeholders;
- (d) Information dissemination through a national clearing-house;
- (e) Promotion of voluntary codes of conduct, guidelines and best practices and/or standards in consultation with indigenous and local communities and relevant stakeholders;
- (f) Promotion of, as appropriate, domestic, regional and international exchanges of experience;

- (g) Education and training of users and providers of genetic resources and traditional knowledge associated with genetic resources about their access and benefit-sharing obligations;
- (h) Involvement of indigenous and local communities and relevant stakeholders in the implementation of this Protocol; and
- (i) Awareness-raising of community protocols and procedures of indigenous and local communities.

Article 22: CAPACITY BUILDING

1. The Parties shall cooperate in the capacity-building, capacity development and strengthening of human resources and institutional capacities to effectively implement this Protocol in developing country Parties, in particular the least developed countries and small island developing States among them, and Parties with economies in transition, including through existing global, regional, subregional and national institutions and organizations. In this context, Parties should facilitate the involvement of indigenous and local communities and relevant stakeholders, including nongovernmental organizations and the private sector.
2. The need of developing country Parties, in particular the least developed countries and small island developing States among them, and Parties with economies in transition for financial resources in accordance with the relevant provisions of the Convention shall be taken fully into account for capacity-building and development to implement this Protocol.
3. As a basis for appropriate measures in relation to the implementation of this Protocol, developing country Parties, in particular the least developed countries and small island developing States among them, and Parties with economies in transition should identify their national capacity needs and priorities through national capacity self-assessments. In doing so, such Parties should support the capacity needs and priorities of indigenous and local communities and relevant stakeholders, as identified by them, emphasizing the capacity needs and priorities of women.
4. In support of the implementation of this Protocol, capacity-building and development may address, *inter alia*, the following key areas:
 - (a) Capacity to implement, and to comply with the obligations of, this Protocol;
 - (b) Capacity to negotiate mutually agreed terms;
 - (c) Capacity to develop, implement and enforce domestic legislative, administrative or policy measures on access and benefit-sharing; and
 - (d) Capacity of countries to develop their endogenous research capabilities to add value to their own genetic resources.
5. Measures in accordance with paragraphs 1 to 4 above may include, *inter alia*:

- (a) Legal and institutional development;
 - (b) Promotion of equity and fairness in negotiations, such as training to negotiate mutually agreed terms;
 - (c) The monitoring and enforcement of compliance;
 - (d) Employment of best available communication tools and Internet-based systems for access and benefit-sharing activities;
 - (e) Development and use of valuation methods;
 - (f) Bioprospecting, associated research and taxonomic studies;
 - (g) Technology transfer, and infrastructure and technical capacity to make such technology transfer sustainable;
 - (h) Enhancement of the contribution of access and benefit-sharing activities to the conservation of biological diversity and the sustainable use of its components;
 - (i) Special measures to increase the capacity of relevant stakeholders in relation to access and benefit-sharing; and
 - (j) Special measures to increase the capacity of indigenous and local communities with emphasis on enhancing the capacity of women within those communities in relation to access to genetic resources and/or traditional knowledge associated with genetic resources.
6. Information on capacity-building and development initiatives at national, regional and international levels, undertaken in accordance with paragraphs 1 to 5 above, should be provided to the Access and Benefit-sharing Clearing-House with a view to promoting synergy and coordination on capacity-building and development for access and benefit-sharing.

Article 23: TECHNOLOGY TRANSFER, COLLABORATION AND COOPERATION

In accordance with Articles 15, 16, 18 and 19 of the Convention, the Parties shall collaborate and cooperate in technical and scientific research and development programmes, including biotechnological research activities, as a means to achieve the objective of this Protocol. The Parties undertake to promote and encourage access to technology by, and transfer of technology to, developing country Parties, in particular the least developed countries and small island developing States among them, and Parties with economies in transition, in order to enable the development and strengthening of a sound and viable technological and scientific base for the attainment of the objectives of the Convention and this Protocol. Where possible and appropriate such collaborative activities shall take place in and with a Party or the Parties providing genetic resources that is the country or are the countries of origin of such resources or a Party or Parties that have acquired the genetic resources in accordance with the Convention.

Article 24: NON-PARTIES

The Parties shall encourage non-Parties to adhere to this Protocol and to contribute appropriate information to the Access and Benefit-sharing Clearing-House.

Article 25: FINANCIAL MECHANISM AND RESOURCES

1. In considering financial resources for the implementation of this Protocol, the Parties shall take into account the provisions of Article 20 of the Convention.
2. The financial mechanism of the Convention shall be the financial mechanism for this Protocol.
3. Regarding the capacity-building and development referred to in Article 22 of this Protocol, the Conference of the Parties serving as the meeting of the Parties to this Protocol, in providing guidance with respect to the financial mechanism referred to in paragraph 2 above, for consideration by the Conference of the Parties, shall take into account the need of developing country Parties, in particular the least developed countries and small island developing States among them, and of Parties with economies in transition, for financial resources, as well as the capacity needs and priorities of indigenous and local communities, including women within these communities.
4. In the context of paragraph 1 above, the Parties shall also take into account the needs of the developing country Parties, in particular the least developed countries and small island developing States among them, and of the Parties with economies in transition, in their efforts to identify and implement their capacity-building and development requirements for the purposes of the implementation of this Protocol.
5. The guidance to the financial mechanism of the Convention in relevant decisions of the Conference of the Parties, including those agreed before the adoption of this Protocol, shall apply, *mutatis mutandis*, to the provisions of this Article.
6. The developed country Parties may also provide, and the developing country Parties and the Parties with economies in transition avail themselves of, financial and other resources for the implementation of the provisions of this Protocol through bilateral, regional and multilateral channels.

Article 26: CONFERENCE OF THE PARTIES SERVING AS THE MEETING OF THE PARTIES TO THIS PROTOCOL

1. The Conference of the Parties shall serve as the meeting of the Parties to this Protocol.
2. Parties to the Convention that are not Parties to this Protocol may participate as observers in the proceedings of any meeting of the Conference of the Parties serving as the meeting of the Parties to this Protocol. When the Conference of the Parties serves as the meeting of the Parties to this Protocol, decisions under this Protocol shall be taken only by those that are Parties to it.

3. When the Conference of the Parties serves as the meeting of the Parties to this Protocol, any member of the Bureau of the Conference of the Parties representing a Party to the Convention but, at that time, not a Party to this Protocol, shall be substituted by a member to be elected by and from among the Parties to this Protocol.
4. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall keep under regular review the implementation of this Protocol and shall make, within its mandate, the decisions necessary to promote its effective implementation. It shall perform the functions assigned to it by this Protocol and shall:
 - (a) Make recommendations on any matters necessary for the implementation of this Protocol;
 - (b) Establish such subsidiary bodies as are deemed necessary for the implementation of this Protocol;
 - (c) Seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies;
 - (d) Establish the form and the intervals for transmitting the information to be submitted in accordance with Article 29 of this Protocol and consider such information as well as reports submitted by any subsidiary body;
 - (e) Consider and adopt, as required, amendments to this Protocol and its Annex, as well as any additional annexes to this Protocol, that are deemed necessary for the implementation of this Protocol; and
 - (f) Exercise such other functions as may be required for the implementation of this Protocol.
5. The rules of procedure of the Conference of the Parties and financial rules of the Convention shall be applied, *mutatis mutandis*, under this Protocol, except as may be otherwise decided by consensus by the Conference of the Parties serving as the meeting of the Parties to this Protocol.
6. The first meeting of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be convened by the Secretariat and held concurrently with the first meeting of the Conference of the Parties that is scheduled after the date of the entry into force of this Protocol. Subsequent ordinary meetings of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be held concurrently with ordinary meetings of the Conference of the Parties, unless otherwise decided by the Conference of the Parties serving as the meeting of the Parties to this Protocol.
7. Extraordinary meetings of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be held at such other times as may be deemed necessary by the Conference of the Parties serving as the meeting of the Parties to

this Protocol, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the Secretariat, it is supported by at least one third of the Parties.

8. The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State member thereof or observers thereto not party to the Convention, may be represented as observers at meetings of the Conference of the Parties serving as the meeting of the Parties to this Protocol. Anybody or agency, whether national or international, governmental or nongovernmental, that is qualified in matters covered by this Protocol and that has informed the Secretariat of its wish to be represented at a meeting of the Conference of the Parties serving as a meeting of the Parties to this Protocol as an observer, may be so admitted, unless at least one third of the Parties present object. Except as otherwise provided in this Article, the admission and participation of observers shall be subject to the rules of procedure, as referred to in paragraph 5 above.

Article 27: SUBSIDIARY BODIES

1. Any subsidiary body established by or under the Convention may serve this Protocol, including upon a decision of the Conference of the Parties serving as the meeting of the Parties to this Protocol. Any such decision shall specify the tasks to be undertaken.
2. Parties to the Convention that are not Parties to this Protocol may participate as observers in the proceedings of any meeting of any such subsidiary bodies. When a subsidiary body of the Convention serves as a subsidiary body to this Protocol, decisions under this Protocol shall be taken only by Parties to this Protocol.
3. When a subsidiary body of the Convention exercises its functions with regard to matters concerning this Protocol, any member of the bureau of that subsidiary body representing a Party to the Convention but, at that time, not a Party to this Protocol, shall be substituted by a member to be elected by and from among the Parties to this Protocol.

Article 28: SECRETARIAT

1. The Secretariat established by Article 24 of the Convention shall serve as the secretariat to this Protocol.
2. Article 24, paragraph 1, of the Convention on the functions of the Secretariat shall apply, *mutatis mutandis*, to this Protocol.
3. To the extent that they are distinct, the costs of the secretariat services for this Protocol shall be met by the Parties hereto. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first meeting, decide on the necessary budgetary arrangements to this end.

Article 29: MONITORING AND REPORTING

Each Party shall monitor the implementation of its obligations under this Protocol, and shall, at intervals and in the format to be determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol, report to the Conference of the Parties serving as the meeting of the Parties to this Protocol on measures that it has taken to implement this Protocol.

Article 30: PROCEDURES AND MECHANISMS TO PROMOTE COMPLIANCE WITH THIS PROTOCOL

The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first meeting, consider and approve cooperative procedures and institutional mechanisms to promote compliance with the provisions of this Protocol and to address cases of non-compliance. These procedures and mechanisms shall include provisions to offer advice or assistance, where appropriate. They shall be separate from, and without prejudice to, the dispute settlement procedures and mechanisms under Article 27 of the Convention.

Article 31: ASSESSMENT AND REVIEW

The Conference of the Parties serving as the meeting of the Parties to this Protocol shall undertake, four years after the entry into force of this Protocol and thereafter at intervals determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol, an evaluation of the effectiveness of this Protocol.

Article 32: SIGNATURE

This Protocol shall be open for signature by Parties to the Convention at the United Nations Headquarters in New York, from 2 February 2011 to 1 February 2012.

Article 33: ENTRY INTO FORCE

1. This Protocol shall enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession by States or regional economic integration organizations that are Parties to the Convention.
2. This Protocol shall enter into force for a State or regional economic integration organization that ratifies, accepts or approves this Protocol or accedes thereto after the deposit of the fiftieth instrument as referred to in paragraph 1 above, on the ninetieth day after the date on which that State or regional economic integration organization deposits its instrument of ratification, acceptance, approval or accession, or on the date on which the Convention enters into force for that State or regional economic integration organization, whichever shall be the later.
3. For the purposes of paragraphs 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such organization.

Article 34: RESERVATIONS

No reservations may be made to this Protocol.

Article 35: WITHDRAWAL

1. At any time after two years from the date on which this Protocol has entered into force for a Party that Party may withdraw from this Protocol by giving written notification to the Depositary.
2. Any such withdrawal shall take place upon expiry of one year after the date of its receipt by the Depositary, or on such later date as may be specified in the notification of the withdrawal.

Article 36: AUTHENTIC TEXTS

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

IN WITNESS WHEREOF the undersigned, being duly authorized to that effect, have signed this Protocol on the dates indicated.

DONE at Nagoya on this twenty-ninth day of October, two thousand and ten.

Annex: MONETARY AND NON-MONETARY BENEFITS

1. Monetary benefits may include, but not be limited to:
 - (a) Access fees/fee per sample collected or otherwise acquired;
 - (b) Up-front payments;
 - (c) Milestone payments;
 - (d) Payment of royalties;
 - (e) License fees in case of commercialization;
 - (f) Special fees to be paid to trust funds supporting conservation and sustainable use of biodiversity;
 - (g) Salaries and preferential terms where mutually agreed;
 - (h) Research funding;
 - (i) Joint ventures;
 - (j) Joint ownership of relevant intellectual property rights.
2. Non-monetary benefits may include, but not be limited to:
 - (a) Sharing of research and development results;
 - (b) Collaboration, cooperation and contribution in scientific research and development programmes, particularly biotechnological research activities, where possible in the Party providing genetic resources;
 - (c) Participation in product development;
 - (d) Collaboration, cooperation and contribution in education and training;
 - (e) Admittance to ex situ facilities of genetic resources and to databases;

- (f) Transfer to the provider of the genetic resources of knowledge and technology under fair and most favorable terms, including on concessional and preferential terms where agreed, in particular, knowledge and technology that make use of genetic resources, including biotechnology, or that are relevant to the conservation and sustainable utilization of biological diversity;
- (g) Strengthening capacities for technology transfer;
- (h) Institutional capacity-building;
- (i) Human and material resources to strengthen the capacities for the administration and enforcement of access regulations;
- (j) Training related to genetic resources with the full participation of countries providing genetic resources, and where possible, in such countries;
- (k) Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies;
- (l) Contributions to the local economy;
- (m) Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources in the Party providing genetic resources;
- (n) Institutional and professional relationships that can arise from an access and benefit-sharing agreement and subsequent collaborative activities;
- (o) Food and livelihood security benefits;
- (p) Social recognition;
- (q) Joint ownership of relevant intellectual property rights.
