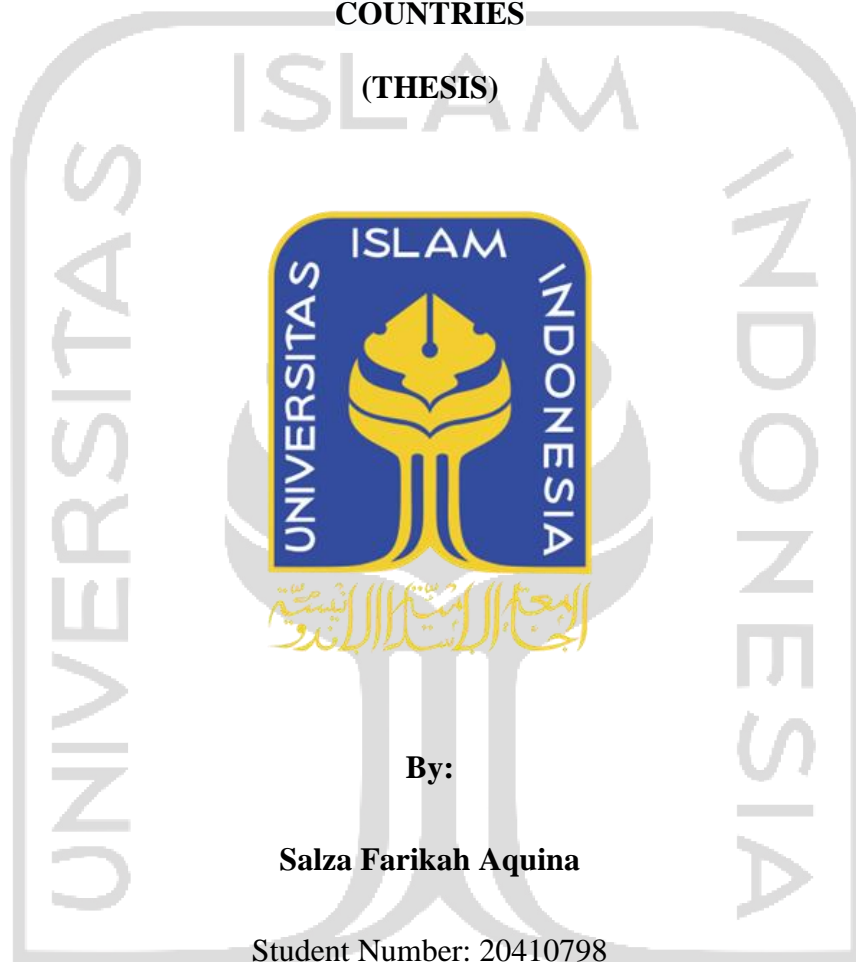


**LEGAL ANALYSIS OF THE EQUITABLE ACCESS TO MARINE
GENETIC RESOURCES IN AREAS BEYOND NATIONAL
JURISDICTION: IN THE PERSPECTIVE OF DEVELOPING
COUNTRIES
(THESIS)**



By:

Salza Farikah Aquina

Student Number: 20410798

**INTERNATIONAL PROGRAM
UNDERGRADUATE STUDY PROGRAM IN LAW
FACULTY OF LAW**

UNIVERSITAS ISLAM INDONESIA

YOGYAKARTA

2024



**ANALISIS HUKUM TENTANG AKSES YANG BERKEADILAN
TERHADAP SUMBER DAYA GENETIK LAUT
DI WILAYAH LUAR YURISDIKSI NASIONAL DALAM
PERSPEKTIF NEGARA BERKEMBANG**

Telah diperiksa dan disetujui Dosen Pembimbing Tugas Akhir untuk diajukan
ke depan TIM Penguji dalam Ujian Tugas Akhir / Pendaran
pada tanggal June 12, 2024

Yogyakarta, May 27, 2024
Dosen Pembimbing Tugas Akhir,

Sri Wartini, Prof., Dra., S.H., M.Hum., Ph.D.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

LANGUAGE ADVISOR APPROVAL PAGE


**LEGAL ANALYSIS OF THE EQUITABILITY ACCESS TO MARINE GENETIC
RESOURCES IN AREAS BEYOND NATIONAL JURISDICTION: IN THE
PERSPECTIVE OF DEVELOPING COUNTRIES
(THESIS)**

Has been examined and approved by the Language Advisor to be submitted before the Board
of Examiners in Final Thesis Examination

Dated on May 28th, 2024

Yogyakarta, May 28th, 2024

Language Advisor


Christopher Cason, B.A., J.D.



**ANALISIS HUKUM TENTANG AKSES YANG BERKEADILAN
TERHADAP SUMBER DAYA GENETIK LAUT
DI WILAYAH LUAR YURISDIKSI NASIONAL DALAM
PERSPEKTIF NEGARA BERKEMBANG**

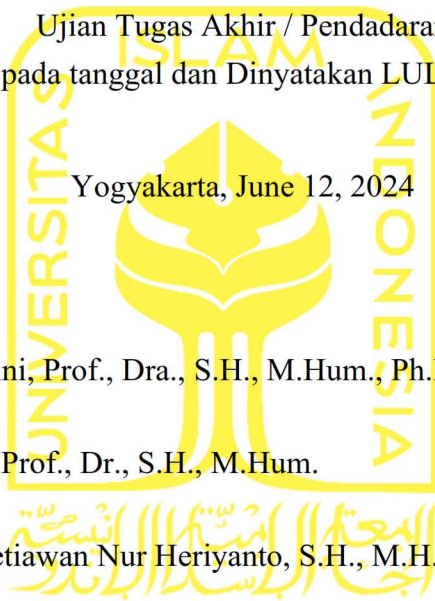
Telah Dipertahankan di Hadapan Tim Penguji dalam
Ujian Tugas Akhir / Pendaran
pada tanggal dan Dinyatakan LULUS

Yogyakarta, June 12, 2024

Tim Penguji

1. Ketua : Sri Wartini, Prof., Dra., S.H., M.Hum., Ph.D.
2. Anggota : Sefriani, Prof., Dr., S.H., M.Hum.
3. Anggota : Dodik Setiawan Nur Heriyanto, S.H., M.H., LL.M., Ph.D.

Tanda Tangan



Mengetahui:
Universitas Islam Indonesia
Fakultas Hukum
Dekan,



Prof. Dr. Budi Agus Riswandi, S.H., M.H.

NIK. 014100109

LETTER OF ORIGINALITY

SURAT PERNYATAAN

ORISINALITAS KARYA ILMIAH BERUPA TUGAS AKHIR

MAHASISWA FAKULTAS HUKUM UNIVERSITAS ISLAM INDONESIA

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Yang bertanda tangan di bawah ini, saya:

Nama : Salza Farikah Aquina

NIM : 20410798

Adalah benar-benar Mahasiswa Fakultas Hukum Universitas Islam Indonesia Yogyakarta yang telah melakukan Karya Tulis Ilmiah (Tugas Akhir) berupa Skripsi dengan judul:

LEGAL ANALYSIS OF THE EQUITABLE ACCESS TO MARINE GENETIC RESOURCES IN AREAS BEYOND NATIONAL JURISDICTION: IN THE PERSPECTIVE OF DEVELOPING COUNTRIES

Karya Ilmiah ini akan Saya ajukan kepada Tim Penguji dalam Ujian Pendarasan yang akan diselenggarakan oleh Fakultas Hukum Universitas Islam Indonesia.

Sehubungan dengan hasil Tugas Akhir berupa Skripsi tersebut, dengan ini Saya menyatakan:

1. Bahwa Karya Tulis Ilmiah ini adalah benar-benar hasil karya saya sendiri yang dalam penyusunannya tunduk dan patuh terhadap kaidah, etik, dan

norma-norma penulisan sebuah Karya Tulis Ilmiah sesuai dengan ketentuan yang berlaku;

2. Bahwa saya menjamin hasil Karya Tulis Ilmiah ini adalah benarbenar asli (orisinil) bebas dari unsur-unsur yang dapat dikategorikan sebagai melakukan perbuatan “penjiplakan karya ilmiah (plagiarism)”;
3. Bahwa meskipun secara prinsip hak milik atas karya ilmiah ini ada pada saya, namun demi kepentingan-kepentingan yang bersifat akademik dan pengembangannya, saya memberikan wewenang kepada Perpustakaan Fakultas Hukum Universitas Islam Indonesia untuk mempergunakan karya tulis ini.

Selanjutnya berkaitan dengan hal di atas (terutama pernyataan butir nomor 1 dan nomor 2, saya sanggup menerima sanksi baik administratif, akademik, bahkan sanksi pidana, jika saya terbukti secara kuat dan meyakinkan telah melakukan perbuatan yang menyimpang dari pernyataan tersebut. Saya juga akan bersikap kooperatif untuk hadir, menjawab, membuktikan, melakukan terhadap pembelaan hak-hak dan kewajiban saya, di depan “Majelis” atau “Tim” Fakultas Hukum Universitas Islam Indonesia yang ditunjuk oleh pimpinan fakultas, apabila tanda-tanda plagiasi disinyalir/terjadi pada karya ilmiah saya ini oleh pihak Fakultas Hukum Universitas Islam Indonesia.

Demikian surat pernyataan ini saya buat dengan sebenar-benarnya, dalam kondisi sehat jasmani dan rohani, dengan sadar dan tidak ada tekanan dalam bentuk apapun dan oleh siapapun.

Yogyakarta, May 28th, 2024

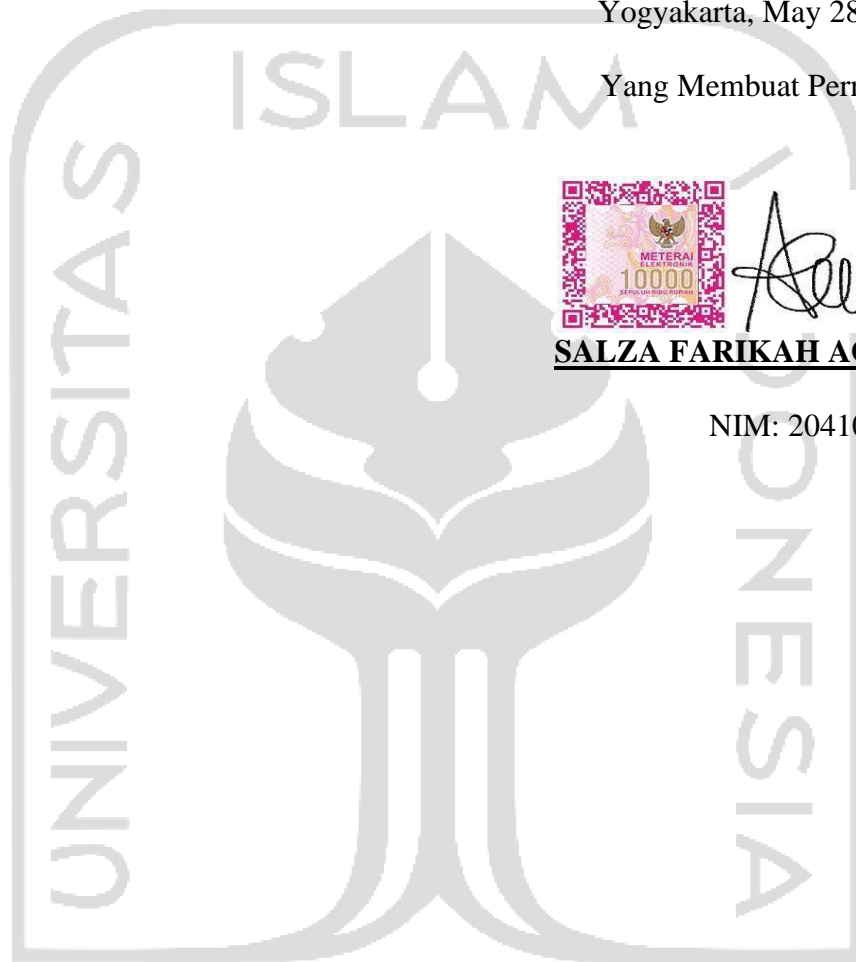
Yang Membuat Pernyataan,



Handwritten signature of Salza Farikah Aquina.

SALZA FARIKAH AQUINA

NIM: 20410798



CURRICULUM VITAE

Name : Salza Farikah Aquina

Place of Birth : Kuningan, Jawa Barat

Date of Birth : 29 Januari 2002

Gender : Female

Blood Type : O

Phone Number : 082130803557

Address : Jl. Langensari Baru, Gg. Manggis No 14, Kec.
Kesambi/Kel. Pekiringan, RT.04/RW.04, Kota
Cirebon, Jawa Barat, Kode pos: 45131

Parents Identity :

a. Father : Deden Zaenudin Saputra, S.T.
Occupation : Entrepreneur

b. Mother : Puspa Wardhani Utami, S.E.
Occupation : Housewife

Education :

a. Elementary School : SD Negeri 1 Sadagori & SD Negeri 1 Luragung
Landeuh

b. Junior High School : SMP Negeri 1 Kuningan

c. Senior High School : SMA Negeri 2 Cirebon

Organization Experiences : 1. Education and Advocacy Staff of Juridical Council of International Program

2. Staff of Student Resource Development Department of Lembaga Eksekutif Mahasiswa Fakultas Hukum UII

3. Head of Legal Studies and Discussion Department of Student Association of International Law

4. Founder of Gemarbantu.id Volunteer as a non-profit organization

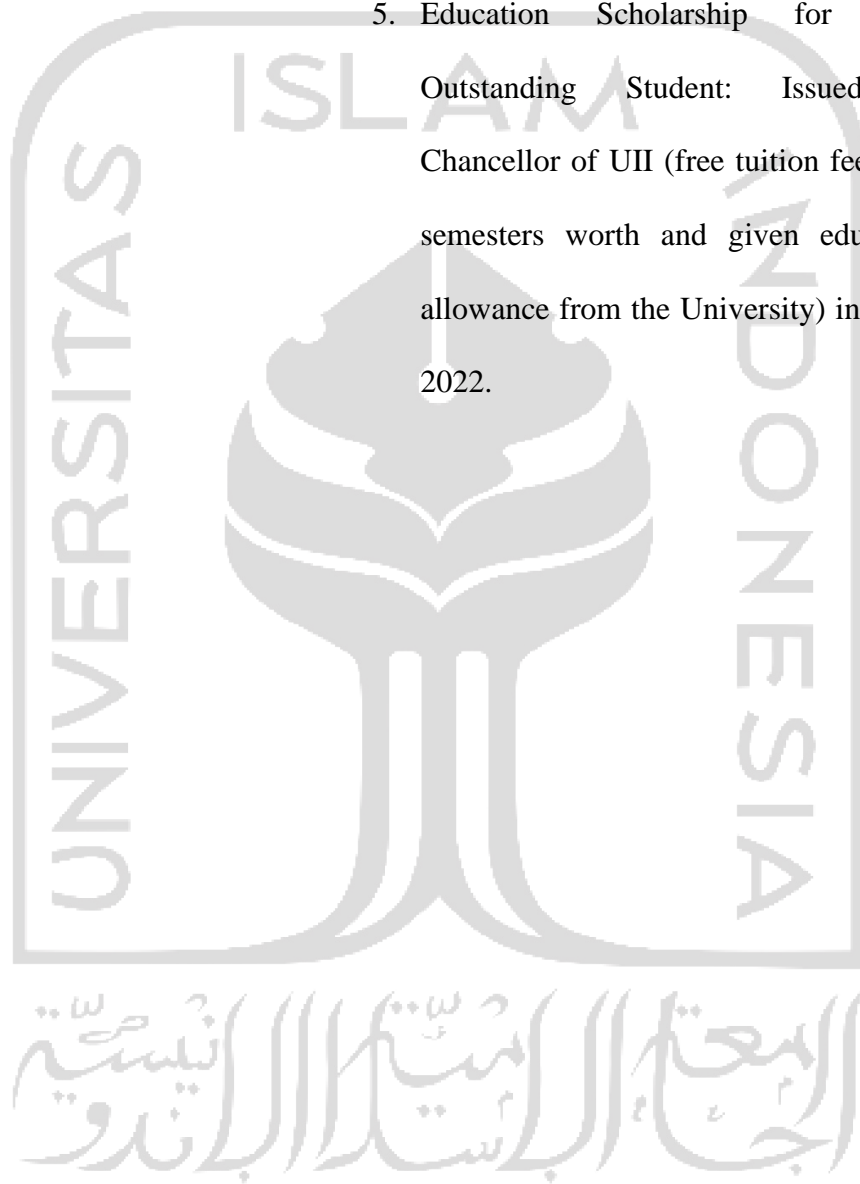
Awards : 1. Delegate, Oralist, and Top 16 of Philip C. Jessup International Law Moot Court Competition 2022 by ILSA.

2. 2nd Place and Best Draft in the National Moot Court Competition Piala Jaksa Agung VII 2023 by Universitas Pancasila & Kejaksaan Republik Indonesia.

3. 2nd Best Winner of Dean Research Grant Competition 2023 by Faculty of Law Universitas Islam Indonesia.

4. Selected Paper and Delegates for the 6th International Conference on Human Rights 2023 at Universitas Gadjah Mada.

5. Education Scholarship for Most Outstanding Student: Issued by Chancellor of UII (free tuition fee for 2 semesters worth and given education allowance from the University) in 2021-2022.



MOTTO

مَكْتَبَ عَلَيْكُمُ الْقِتَالُ وَهُوَ كُرْهُ لَكُمْ وَعَسَىٰ أَن تَكْرَهُوا شَيْئًا وَهُوَ خَيْرٌ لَّكُمْ
وَعَسَىٰ أَن تُحِبُّوا شَيْئًا وَهُوَ شَرٌّ لَّكُمْ وَاللَّهُ يَعْلَمُ وَأَنْتُمْ لَا تَعْلَمُونَ

“Fighting has been made obligatory upon you ‘believers’, though you dislike it. Perhaps you dislike something which is good for you and like something which is bad for you. Allah knows and you do not know.” – Q.S Al-Baqarah verse 216.

“Try not to compare yourself to people around you. Life isn’t a race; it’s about making the right decision at the right time. Do things at your own pace; take less notice of what everyone else is doing. Everything happens at the exact moment it’s supposed to.”

الجامعة الإسلامية
الاندونيسية

DEDICATION

This thesis is wholeheartedly dedicated to:

First and foremost, I express my profound gratitude to Allah Subhanallahu wa ta'ala. It is with immense gratitude that I acknowledge the ease and fluidity granted to me by Allah, enabling me to conclude my thesis successfully. I sincerely thank Allah for consistently bestowing upon me a sense of tranquility, fortitude, concentration, well-being, efficiency, and resilience. I am deeply grateful for the presence of those who have supported me in completing my thesis.

To my beloved parents, who have perpetually cared for me and offered their prayers for my smooth and effortless progress in my thesis work, as well as providing unwavering support and affection.

To my esteemed lecturer, whose patient guidance and instruction have been instrumental from the inception of this journey until its finale. I extend my heartfelt gratitude to Prof. Dra. Sri Wartini, S.H., M.Hum., Ph.D. for your unwavering encouragement, compassion, and kindness.

I appreciate my friends who have stood by my side, assisting me in the making of this thesis, offering support, and extending their prayers.

To my Almamater, Universitas Islam Indonesia, I express my gratitude for affording me the privilege of being a student within its esteemed halls. I am thankful for the exceptional education, resources, and the amiable companionship of fellow students.

My heartfelt gratitude extends to the lecturers of the Faculty of Law at Universitas Islam Indonesia. Your dedicated guidance and mentorship have been pivotal in facilitating my successful completion of the international program.

I acknowledge the invaluable assistance of the staff at the Faculty of Law, Universitas Islam Indonesia, who have tirelessly aided me throughout the entirety of my academic journey.

My beloved country, Indonesia, may this work serve as a small but meaningful contribution to our country's growth and advancement. It is my hope that the insights and findings within these pages will inspire and support efforts towards a brighter, more prosperous future for all Indonesians.

Lastly, I dedicate this achievement to myself as a token of self-appreciation. This is a tribute to my perseverance and unwavering determination as I emerge triumphant in completing my thesis despite the myriad challenges, tears, and struggles accompanying this path.

PREFACE

First and foremost, Alhamdulillahirabbil'alamin, I express my heartfelt gratitude, praising to Allah Subhanallahu wa ta'ala, who has bestowed upon me blessings and guidance, facilitating the completion of my comprehensive thesis with utmost ease and smoothness. I extend sincere Shalawat and Salam to Prophet Muhammad Shallallahu'alaihi wasallam, who serves as a beacon of inspiration for all of humanity. Therefore, I can complete my thesis as one of the most essential requirements to achieve a bachelor degree in the International Undergraduate Program in Law Universitas Islam Indonesia entitled, **“LEGAL ANALYSIS OF THE EQUITABLE ACCESS TO MARINE GENETIC RESOURCES IN AREAS BEYOND NATIONAL JURISDICTION: IN THE PERSPECTIVE OF DEVELOPING COUNTRIES.”**

I could not be at this moment without the unwavering assistance, support, and prayers of my cherished parents, family members, lecturers, and friends. I wholeheartedly extend my gratitude to the following individuals:

1. Mr. Prof. Fathul Wahid, S.T., M.Sc., Ph.D., as the esteemed Rector of Universitas Islam Indonesia.
2. Mr. Prof. Dr. Budi Agus Riswandi, S.H., M. Hum., the respected Dean of the Faculty of Law at Universitas Islam Indonesia.
3. Prof. Dra. Sri Wartini, S.H., M.Hum., Ph.D., Head of the Department of International Law at the Faculty of Law, Universitas Islam Indonesia,

and my thesis advisor. I extend my sincere appreciation for your guidance, teachings, encouragement, and invaluable direction throughout my thesis journey.

4. I would like to express my deepest gratitude to my honorable Thesis Examiners, Prof. Dr. Sefriani, S.H., M.Hum. and Mr. Dodik Setiawan Nur Heriyanto, S.H., M.H., LL.M., Ph.D. who has guided and provided feedback on my thesis since the making of this research proposal so that this thesis can be completed properly both formally and materially.
5. Mr. Christopher Cason, B.A., J.D., my esteemed language advisor. Your meticulous review, guidance, and prayers for my thesis have been greatly appreciated.
6. The entire staff of the International Undergraduate Program in Law at the Faculty of Law, Universitas Islam Indonesia, whose consistent assistance in matters related to campus administration has been invaluable.
7. My beloved parents, Papa and Mama, I extend my heartfelt gratitude to both of you. Your unwavering care, boundless love, unwavering support, unyielding belief in my capabilities, uplifting encouragement, and constant prayers have been instrumental in my journey. Thank you, Mama and Papa, who always trust every choice and decision I make. You have taught me to be a strong, independent, and responsible woman.
8. To my dear Grandma and Grandpa, Mami Papi & Bunda Ayah. Thank you for the support you have given me all this time, making me a

stronger and more independent woman. You always love me without limits and trust whatever decisions I make.

9. To my dear sister, Icel. Your endless support, prayers, and jokes always keep me entertained make me always peaceful, happy, and appreciate every time we spend together. Thank you for always being by my side and making me laugh at the little things we go through together. Your presence makes every process I go through run easily. I will always be proud of you.
10. I would like to express my deepest gratitude to my aunt, uncle, and cousin, whose unwavering support and encouragement have been invaluable throughout the journey of completing this thesis. To Cherelle, your companionship and moral support have been a steady anchor. Your willingness to lend an ear and offer assistance whenever needed has made this journey more manageable and less daunting.
11. None other than my best friends since high school, Chiquitana and Tiyaz (Ppiezz). your constant companionship and motivational words have been a driving force. Thank you for being my sounding boards, for the countless hours of talks, and for always being there to lift my spirits. Your friendship has been a source of inspiration and has made this challenging journey not only bearable but also enjoyable. I am incredibly fortunate to have such a supportive and caring group of friends. Your support has been invaluable, and I am truly grateful for each of you.

12. I would like to express my heartfelt gratitude to my best friend, Nanda, whose unwavering support and encouragement have been essential throughout the journey of completing this thesis. Nanda, your constant presence and belief in my abilities have provided me with the strength and determination to persevere, even in the most challenging times. Your insightful advice, late-night conversations, and unwavering encouragement have been a source of immense comfort and motivation. Once again, thank you for always being there in times of joy and sorrow.
13. To the NMCC Piala Jaksa Agung Delegation Team: Pak Kadel Alpin, Bang Dul, Bang Rifky, Bang Wafi, Bang Azka, Bang Doni, Bang Jek, Bang Danang, Bang Hilmi, Zufar, Kunciung, Kijing, Paiq, Kang Parid, Alcit, Fara, Fitti, Diandra, Piqoh, Zilla, Kak Ami, Iacun, Mami Vira, Wasik, Fajar, Vito, Lusi, dan Rakai. An unforgettable struggle together for 7 months, every day eating together, resting together, joking together, tired together. You have become my new family and have taught me the true meaning of dedication and commitment. Thank you NMCC Delegate, I hope you will all be successful in your respective paths.
14. My dear and proud Jessup Team friends, Alif, Agustina, and Farhan. Thank you for being competition partners during the 7 months of race preparation. You have accompanied me in times of burnout, sadness, and joy together during the competition. I am incredibly fortunate to have had such a supportive and talented team.

15. To Dean Research Grant (DRG) Team, Irfan and Nanda, I would like to extend my deepest gratitude to my amazing DRG team, whose support, collaboration, and encouragement have been integral to the completion of this thesis. Our teamwork, and collective spirit have been a source of inspiration. The countless hours we spent working together, brainstorming, and supporting each other have significantly contributed to my self-development.
16. My dear PKM Team, Bunda Rani, Mine, Mami Vira, Alika, and Nayna. Thank you for making my college years more meaningful, fun, and full of laughter. Your support has helped me during my college years. I hope you will all become successful people in your respective paths.
17. Mba Fasya, Kak Hana, Mba Gemi, Kak Reff, Mba Meiske, and others, I want to express my sincere gratitude for your guidance and assistance. Thank you for generously sharing your knowledge with me. I have indeed learned a great deal from your dedication and self-discipline.
18. To my KKN friends, Oci, Vanya, Bagas, Soryo, Dana, Abror. Thank you for being a good and caring friend during KKN. Every activity we did taught me the meaning of family, patience, and respect for others.
19. SAIL family, my leadership may be far from perfect, but your unwavering support and assistance have made it all worthwhile. Especially to the Study and Discussion Division, thank you for helping me in developing myself to be wiser in making decisions.

ABBREVIATIONS

ABNJ	Areas Beyond National Jurisdiction
MGRs	Marine Genetic Resources
CHM	Common Heritage of Mankind
ABS	Access and Benefit Sharing
MSR	Marine Scientific Research
SDGs	Sustainable Development Goals
CBDR-RC	Common but Differentiated Responsibilities and Respective Capabilities
CCH	Common Concern of Humankind
EEZ	Exclusive Economic Zone
ISA	International Seabed Authority
ILBI	International Legal Binding Instrument
UNCLOS	United Nation Convention on the Law of the Sea 1982
CBD	Convention on Biological Diversity
BBNJ Agreement	United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction

TABLE OF CONTENT

THESIS SUPERVISOR APPROVAL PAGE.....	i
LANGUAGE ADVISOR APPROVAL PAGE	ii
FINAL THESIS APPROVAL PAGE.....	iii
LETTER OF ORIGINALITY.....	v
CURRICULUM VITAE.....	viii
MOTTO	xi
DEDICATION	xii
PREFACE.....	xiv
TABLE OF CONTENT	xx
ABSTRACT.....	xxiii
CHAPTER I	
INTRODUCTION	1
A. BACKGROUND OF STUDY	1
B. PROBLEM FORMULATION	10
C. OBJECTIVE RESEARCH.....	11
D. RESEARCH ORIGINALITY	11
E. BENEFITS OF RESEARCH.....	24
1. Theoretical Benefits.....	24
2. Practical Benefits	25
F. THEORETICAL FRAMEWORK	25
G. DEFINITION OF TERM	41
H. RESEARCH METHOD	43
1. Research Typology	43
2. Research Approach.....	43
3. Research Objectives.....	45
4. Research Data Sources.....	45
5. Data Analysis.....	47
6. Thesis Outline	47

CHAPTER II	
THEORETICAL REVIEW	49
A. CONCEPT OF VARIOUS ZONE AND BOUNDARIES OF THE SEA .	49
1. Internal waters.....	51
2. Territorial Sea	53
3. Contiguous Zone.....	55
4. Exclusive Economic Zone (EEZ)	58
5. Continental Shelf	62
6. HIGH SEAS.....	66
7. SEA-BED OR THE AREA	72
B. AREAS BEYOND NATIONAL JURISDICTION (ABNJ)	87
C. CONCEPT OF MARINE GENETIC RESOURCES (MGR) IN AREAS BEYOND NATIONAL JURISDICTION (ABNJ)	92
1. The Discoveries of Marine Genetic Resources.....	92
2. History of Marine Genetic Resources Regime	99
3. Definition and Current Legal Framework of Marine Genetic Resources	102
D. CONCEPT OF MARINE SCIENTIFIC RESEARCH (MSR).....	114
1. Application of the Marine Scientific Research Regime	114
2. Defining MSR and Bioprospecting.....	121
E. THE PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW	127
1. Common Heritage of Mankind (CHM)	127
2. Equitable Access and Benefit-Sharing (ABS).....	141
3. Sustainable Development Goals (SDGs).....	174
4. Principle of Cooperation.....	184
5. Common but Differentiated Responsibilities Principle and Respective Capabilities (CBDR-RC)	191
6. Precautionary Principle.....	199
F. ISLAMIC PERSPECTIVE OF EQUITABLE ACCESS AND BENEFIT- SHARING	206
1. Holistic/Tauhid	207
2. Khalifah (God's representative)	209
3. Amanah (Principle of Trust)	210

4. I'tidal (Ecological Balance Principle).....	211
5. Istishlah (Useful Creation Principle)	213
6. Inter-generational Equity / Sustainable Use	215
7. Prohibition of Excessive Use of Natural Resources	215
8. Natural Resources Conservation is an Obligation	216
9. Principle of Government Authorized to Regulate and Enforce Laws ...	218
CHAPTER III	
RESULT AND DISCUSSION	225
A. The Necessity of Current International Legal Framework in Addressing Equitable Access and Benefit-Sharing of MGRs in ABNJ among Developed and Developing Countries	225
1. Legal Gap and Challenges in the Current International Legal Regime in Addressing MGRs in ABNJ.....	229
2. The Urgency of ILBI-BBNJ to Cover the Legal Lacunae of MGRs in ABNJ.....	257
3. The Significance Need of Equitable Access and Benefit-Sharing of MGRs in ABNJ for Developing Countries.....	270
B. Assessing Improvements Required by Developing Countries	292
1. Current Capabilities and Limitations of Developing Countries: A Challenge	292
2. Opportunities for Equal Access and Benefit-Sharing for Developing Countries	296
3. Case Studies of Successful Initiatives by Developing Countries	306
4. Developing Countries Efforts for Improving Equitable Access and Utilization of MGRs in ABNJ	313
CHAPTER IV	
CLOSING	329
A. CONCLUSION	329
B. SUGGESTION	331
BIBLIOGRAPHY	333
Lampiran	370

ABSTRACT

Marine Genetic Resources (MGRs) have potential and actual commercial and scientific value. Existing regimes, notably UNCLOS, CBD and Nagoya Protocol, do not govern the utilization and equitable access benefit-sharing for MGRs in Areas Beyond National Jurisdiction (ABNJ), which furthers the gap between developed and developing countries in terms of accessing, exploiting, and benefiting from MGRs in ABNJ. To fill this legal vacuum, the BBNJ Agreement was established under UNCLOS to support SDGs and the legal protection of developing countries in the implementation of equal access and benefit-sharing of MGRs in ABNJ. This research addresses two main issues: Firstly, why does the current international legal frameworks for equitable access of MGRs in ABNJ have to guarantee the equitable among developed and developing countries? Secondly, what improvement should be done by the developing countries to ensure that developing countries have equitable opportunities to access, research, and utilize MGRs in ABNJ? The thesis employs normative juridical research method with four approaches, namely the historical, conceptual, comparative, and statutory approaches. Findings reveal that the reasons the current international legal framework have to guarantee the equitable access among developed and developing countries because MGRs in ABNJ is set as a Global Commons, Promote SDGs, and Uphold Fairness and Equity. The Author suggest there are some efforts can be done by Developing Countries, which encouraging investment in MGR utilization in ABNJ and strengthening international cooperation for technology transfer and capacity-building.

Keywords: MGRs, ABNJ, Equity, Benefit-Sharing, Developing Countries

الجمهورية العربية السورية
الجامعة اللبنانية
الكلية الهندسية
الهندسة المدنية

CHAPTER I INTRODUCTION

A. BACKGROUND OF STUDY

Areas Beyond National Jurisdiction (ABNJ) encompass 64% of the ocean surface and 95% of its volume.¹ ABNJ are situated outside the Exclusive Economic Zones (EEZ) and continental shelves of coastal States, consisting of the high seas and the Area defined as the seabed, ocean floor, and subsoil beyond national jurisdiction limits.² The territorial seas, contiguous zones, economic exclusive zones, and continental shelves represent areas over which a state holds sovereignty or sovereign rights.³ As the ABNJ is outside the exclusive economic zone and continental shelf, it cannot be claimed by a state as its sovereign right.⁴ Thus, there is no single state have the responsibility and authority to manage and protect the ABNJ.⁵

Even though the wide, deep oceanic region that makes up ABNJ has not been thoroughly studied, scientific studies have already shown an abundance and diversity of species.⁶ Nearly two-thirds of it is beyond national

¹Global Environment Facility. "Areas Beyond National Jurisdiction". <https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-Main%20Issue,has%20sole%20responsibility%20for%20management>.

² Article 1 (1) of UNCLOS

³ Sri Wartini. (2022). The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction. *Varia Justicia*: Vol. 18 No. 1, p. 52.

⁴ Ibid

⁵ Ibid

⁶ Lisa A Levin and Myriam Sibuet. (2012). 'Understanding Continental Margin Biodiversity: A New Imperative' 4(1) *Annual review of marine science* 79.

jurisdiction along with its unique-rare species and ecosystems. This area is vital for marine biodiversity and have been increasingly subject to scientific research and commercial exploitation.⁷ Therefore, the diversity of marine life presents a valuable wellspring of natural innovation, providing numerous potential advantages such as expanding our scientific understanding of ocean systems and addressing societal requirements by creating advancements in health, food security, and the preservation of robust ocean ecosystems.⁸

The world was largely unaware that there were living resources in the ABNJ, especially in the Area, during the time that UNCLOS was being negotiated. At first, it was thought that photosynthesis was impossible on the ocean floor due to a lack of sunshine.⁹ Due to their lack of knowledge at that time, the UNCLOS's drafters only included mining operations and mineral resources while ignoring life resources. When experts formed UNCLOS, they did not consider genetic resources found in water columns or on the seabed. Furthermore, they remained oblivious to the enormous worth of genetic resources even after the hydrothermal vent was found in 1977.¹⁰ The high seas' living resources were only managed to address fisheries concerns, especially for highly migratory species and straddling stocks. The potential benefits of these resources, especially those for medicinal applications, have become more

⁷ Ibid

⁸ E RamirezLlodra et al, 'Deep, diverse and definitely different: unique attributes of the world's largest ecosystem' (2010) 7(9) Biogeosciences 2851-2899.

⁹ Fernanda Millicay, "A Legal Regime for the Biodiversity of the Area" in Law, Science, and Ocean Management, Myron H. Nordquist et. al. ed. (Leiden: Martinus Nijhoff, 2007), p. 745.

¹⁰ Friederike Lehmann, "The Legal Status of Genetic Resources of the Deep Seabed," New Zealand Journal of International Law 11, no. 33 (2007): 39.

apparent with the advancement of modern technology; yet, there is currently no comprehensive regulation in place. Consequently, there is a legal gap in UNCLOS that governs the definition of marine genetic resources and the regulation of marine scientific research to use and commercialize Marine Genetic Resources (hereinafter MGRs) in the ABNJ.

Marine Genetic Resources (MGRs) refer to any material of marine plant, animal, microbial, or other origin containing functional genetic units with actual or potential value.¹¹ The 1992 Convention on Biological Diversity (CBD) and the 2010 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization under the CBD regulate the management of genetic resources. These regulations are applicable to genetic resources within national jurisdiction. In the context of ABNJ, the CBD and the Nagoya Protocol do not have jurisdiction over MGRs. This means that regulations related to benefit-sharing and access agreements for marine genetic resources in ABNJ are not covered by the CBD or the Nagoya Protocol.

UNCLOS and other legal frameworks, such as the CBD and Nagoya Protocol, do not govern bioprospecting for MGRs in ABNJ, which furthers the gap between developed and developing nations in terms of accessing, exploiting, and benefiting from MGRs in ABNJ. This leads to a disparity between States that can profit from access to MGRs and those that cannot, as

¹¹ Article 1 (11) on Agreement Under The United Nations Convention on The Law Of The Sea on The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.

well as gaps in the laws controlling the exploitation of MGRs in the Area and on the high seas.¹² Recognizing the need to address gaps and fragmentation in the legal framework governing ABNJ, states are preparing to initiate the development of a new International Legally Binding Instrument (hereinafter ILBI) under the UNCLOS. This instrument aims to promote the conservation and sustainable use of marine biological diversity in ABNJ.¹³

To address the regulation of access to and benefit-sharing of MGRs in ABNJ, the Agreement Under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (referred to as the BBNJ Agreement) was adopted in March 2022. The negotiations for this agreement focused on four main components: marine genetic resources (including access and benefit-sharing), area-based management tools such as Marine Protected Areas (MPAs), Environmental Impact Assessments (EIAs), and efforts related to capacity building and technology transfer. However, BBNJ Agreement cannot immediately enter into force. The Vienna Convention of 1969 states that an international agreement will only take effect once all requirements have been met, which is must be ratified by 60 UN member states before it can enter into

¹² Schoenberg, P.L. (2009). Polarizing Dilemma: Accessing Potential Regulatory Gap-Filling Measures for Arctic and Antarctic Marine Genetic Resources Access and Benefit Sharing. *Cornell International Law Journal*, 42, 271-299.

¹³ United Nations General Assembly, Resolution Adopted by the General Assembly, 'International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction', GA Res 72/249, 72nd sess, Agenda Item 77, A/Res/72/249 (24 December 2017) para 1. For a discussion of the ILBI see Section 1.2.1 of this Chapter.

force and it could take some time. For instance, the 1982 Convention on the Law of the Sea was adopted in 1982, but the UNCLOS didn't come into effect until 1994 after the convention was ratified by its sixty-first state.¹⁴

A recent research investigation highlighted the potential of marine genetic resources in biotechnology, revealing 18,000 natural products and 4,900 patents linked to genes found in marine organisms.¹⁵ MGRs in the ABNJ have garnered attention from the global community over the past ten years due to their high potential economic value and potential humanitarian benefits, as they can be used as raw materials for pharmaceutical products,¹⁶ cosmetics, and serious illnesses including cancer, Alzheimer's, and HIV.¹⁷ Marine life offers several potential treatments for human diseases. antimicrobial, anti-inflammatory, and cancer treatments, for instance. Many are in use, such as the antiviral vidarabine for treating herpes viruses, cytarabine for treating acute lymphocytic leukemia, and trastedin for treating metastatic cancer.¹⁸

The significant funding from the National Cancer Institute in the United States, combined with its dedication to worldwide collection of MGRs,

¹⁴ Aaron M Riggio, "Giving Teeth To The Tiger: How The South China Sea Crisis Demonstrates The Need For Revision To The Law Of The Sea," *Military Law Review* 224 (2016): 597-638.

¹⁵ Sophies Arnaud-Haond, Jesus M. Arrieta, Cados M. Duarte, "Marine Biodiversity and Gene Patents", 331 *Science*.

¹⁶ Fernando de la Calle. (2009). "Marine Genetic Resources. A Source of New Drugs The Experience of the Biotechnology Sector", 24(2) *The International Journal of Marine and Coastal Law*, p. 209-220.

¹⁷ Mar Campins Eritja. (2017). "Bio-Prospecting in the Arctic: An Overview of the Interaction Between the Rights of Indigenous Peoples and Access and Benefit Sharing," *Boston College Environmental Affairs Law Review* 44, no. 2. p. 223.

¹⁸ Kelly Macnamara. 2023. *Drugs from the deep: scientists explore ocean frontiers.* <https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>

emphasized a concentration on cancer treatment. This primarily involved compounds gathered from shallow tropical reefs and sourced from marine invertebrates.¹⁹ Consequently, among the eight clinically sanctioned medications originating from MGRs, five are specifically made for cancer treatment. The remaining three target neuropathic pain, Herpes simplex virus, and hypertriglyceridemia. Of these, seven are derived from marine invertebrates, while one comes from an oily fish.²⁰ Additionally, the European Medicines Agency has authorized certain over-the-counter remedies developed from MGRs, including Carragelose, an effective antiviral medication widely applicable in treating respiratory viruses like the common cold.²¹ Out of the over 33,000 recorded marine natural compounds, 28 items derived from the sea are presently undergoing clinical trials, while another 250 are undergoing preclinical research.²² This is an astounding success rate when compared with terrestrial natural products.

Starting in 1969, research began on reef creatures like sponges, seasquirts, and soft corals. Then, in the early 1990s, scientists shifted their focus to studying marine bacteria found in marine sediments, which were easier

¹⁹ Thornburg, C.C., J.R. Britt, J.R. Evans, R.K. Akee, J.A. Whitt, S.K. Trinh, M.J. Harris, et al. 2018. "NCI Program for Natural Product Discovery: A Publicly-Accessible Library of Natural Product Fractions for HighThroughput Screening." *ACS Chemical Biology* 13 (9): 2484–97. <https://doi.org/10.1021/acscchembio.8b00389>.

²⁰ Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et al. 2020. *The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources*. Washington, DC: World Resources Institute. p. 13.

²¹ Alves, C., J. Silva, S. Pinteus, H. Gaspar, M.C. Alpoim, L.M. Botana and R. Pedrosa. 2018. "From Marine Origin to Therapeutics: The Antitumor Potential of Marine Algae-Derived Compounds." *Frontiers in Pharmacology* 9. <https://doi.org/10.3389/fphar.2018.00777>.

²² MarinLit. 2020. "A Database of Marine Natural Products Literature." <http://pubs.rsc.org/marinlit/>.

and more cost-effective to gather.²³ Anti-inflammatory and antibacterial medications, as well as cancer treatments, have all been developed using sea sponges. Up to 30% of all active marine metabolites are produced by sea sponges, which presents business prospects for the biomaterials and pharmaceutical industries.²⁴ The first marine natural products were from marine sponges, and the first antiviral medication, Ara-A (Vidarabine®), was created in the 1950s with the discovery of nucleoside spongouridine.²⁵ Spongouridine's antiviral activity was initially reported in 1964, and subsequent research demonstrated its clinical efficacy in treating Herpes infections in immunocompromised patients and neonates.²⁶ Even if more recent antiviral medications have replaced it, vidarabine is the most ancient antiviral medication still in use. The richest primary source of recognized marine natural products has been found in sponges.²⁷

Only 31 out of 194 countries worldwide have patents citing marine genes, with 10 holding 90% of the total. By 2017, the gap had grown, with the top 10 nations holding 98% of the overall share and organizations or researchers from the US, Germany, and Japan accounting for 70% of the applications. These companies and researchers have the financial resources and

²³ Midwestern University, 'Clinical Pipeline: Marine Pharmacology: Approved Marine Drugs' <https://www.midwestern.edu/departments/marinepharmacology/clinical-pipeline.xml>

²⁴ T. Kodadek, 'The rise, fall and reinvention of combinatorial chemistry' 55 *Chemical Communications* (2011) 47, 9757–9763.

²⁵ W. Bergmann and R. J. Feeney, *J. Org. Chem.* (1951). "Contributions to the Study of Marine Products". XXXII. The Nucleosides Of Sponges. I. 16, 981–98.

²⁶ De Clercq E, Field HJ. 2006. Antiviral prodrugs - the development of successful prodrug strategies for antiviral chemotherapy. *Br J Pharmacol.* 147(1):1-11. doi: 10.1038/sj.bjp.0706446

²⁷ Sagar S, Kaur M, Minneman KP. 2010. Antiviral lead compounds from marine sponges. *Mar Drugs.* 8(10):2619-38. doi: 10.3390/md8102619

technological know-how to investigate and utilize the MGRs in ABNJ.²⁸ Approximately 1,600 patent sequences came from species that are typically found in ABNJ and are connected to the deep marine and hydrothermal vent systems. The high expenses associated with marine bioprospecting research, in addition to the sophisticated equipment and knowledge needed,²⁹ have meant that most exploration has been undertaken by high-income countries. Notably, these are the United States, United Kingdom, Australia, Canada, Japan, Germany and Russia.³⁰

Knowledge about MGRs is politically salient because of its potential economic worth and extremely unequal global distribution.³¹ Only a handful of countries globally possess the financial means and scientific capabilities required for MGRs research, which is a highly challenging domain. However, exploration and sampling of the ocean genome frequently occur in the ocean regions of low- or middle-income nations, particularly in the ABNJ, outside any nation's territorial control. Most nations don't have the resources to enter and leverage the swiftly expanding genetic sequence databases or conduct this research independently.³² This lack of resources and infrastructures for

²⁸ Blasiak, R., J.-B. Jouffray, C.C.C. Wabnitz, E. Sundström and H. Österblom. 2018. "Corporate Control and Global Governance of Marine Genetic Resources." *Science Advances* 4 (6): eaar5237.

²⁹ Greiber, T. 2012. *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-Sharing*. 83. Gland, Switzerland: International Union for Conservation of Nature.

³⁰ Arnaud-Haond, S., J.M. Arrieta and C.M. Duarte. 2011. "Marine Biodiversity and Gene Patents." *Science* 331 (6024): 1521–22.

³¹ *Ibid*

³² *Ibid*

exploring into marine biodiversity has caused a global gap in both research and the issuance of patents encompassing MGRs.³³

Global disparities in scientific and technological capabilities mean that certain nations are not able to obtain and utilize so-called "marine genetic resources" in ABNJ.³⁴ and there is currently no applicable international legal regime for access and benefit-sharing.³⁵ Developed countries, most of which have low levels biodiversity, benefit more from being able to access and exploit the rich biodiversity in developing countries.³⁶ Exploitation in marine ABNJ worsens the issue. The ability of developed nations to utilize the Area for the benefit of MGRs rises with advancements in technology.³⁷ Within this area, known as the "common heritage of mankind," the discrepancy between developed and developing nations in accessing and deriving benefits from Marine Genetic Resources (MGRs) becomes apparent.³⁸

Thus, it is necessary to conduct further research to find out the legal arrangements regarding equality of access and benefit-sharing of MGRs in

³³ Tolochko, P., & Vadrot, A. B. (2021). The usual suspects? Distribution of collaboration capital in marine biodiversity research. *Marine Policy*, 124, 104318. Also see Vadrot, A., Langlet, A., Tessnow von Wysocki, I. (2021). Who owns marine biodiversity? Contesting the world order through the 'common heritage of humankind' principle. *Environmental politics*.

³⁴ Christopher R German et al, 'Deep-Water Chemosynthetic Ecosystem Research During the Census of Marine Life Decade and Beyond: A Proposed DeepOcean Road Map' (2011) 6(8) PLoS ONE 1.

³⁵ Arianna Broggiato et al, 'Fair and equitable sharing of benefits from the utilization of marine genetic resources in areas beyond national jurisdiction: Bridging the gaps between science and policy' (2014) 49(0) *Marine Policy*. p. 176-185.

³⁶ De Jonge, B. (2011). What Is Fair and Equitable Benefit-sharing? *Journal of Agricultural & Environmental Ethics*, 24, 127-146. <https://doi.org/10.1007/s10806-010-9249-3>

³⁷ Russell, L. (2009). The Future of the Seabed. *Economic Affairs*, 29, p. 69-70. <https://doi.org/10.1111/j.1468-0270.2009.01898.x>

³⁸ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations (1982) United Nations Convention on the Law of the Sea.

ABNJ in Developing Countries. While waiting for the transition period of the BBNJ Agreement to come into force, the author will criticize one of the elements that is a gap in the current regulatory legal regime regarding Equal Access to MGRs in ABNJ along with benefit-sharing between Developed and Developing Countries. In addition, the author will discuss what efforts can be made by developing countries to gain equal access to developed countries. Based on the background above, the author is interested in conducting research entitled **“Legal Analysis of the Equitable Access to Marine Genetic Resources in Areas Beyond National Jurisdiction: In The Perspective of Developing Countries”**.

B. PROBLEM FORMULATION

Based on the background that has been described, the formulation of the research problem are:

1. Why does the current international legal frameworks for equitable access of Marine Genetic Resources (MGRs) in Areas Beyond National Jurisdiction (ABNJ) have to guarantee the equity among developed and developing countries?
2. What improvement should be done by the developing countries to ensure that developing countries have equitable opportunities to access, research, and utilize MGRs in ABNJ?

C. OBJECTIVE RESEARCH

Based on the problem formulations above, the research objectives are:

1. To examine why does the current international legal frameworks for equitable access of Marine Genetic Resources (MGRs) in Areas Beyond National Jurisdiction (ABNJ) have to guarantee the equity among developed and developing countries.
2. To analyze what kind of improvements should be done by the developing countries to ensure that developing nations have equitable opportunities to access, research, and utilize MGRs in ABNJ.

D. RESEARCH ORIGINALITY

Prior to initiating this research, the author conducted a comprehensive literature review, which included searching for information from various sources such as books, papers, journals, the internet, and seeking insights from experts in the field. This research is a completely original work, containing absolutely no elements of plagiarism from theses or similar works. This approach was taken to underscore the uniqueness of this research and to proactively avoid duplication of topics similar to this research. Below are the related studies related to this research topic that I have found to compare with previous research:

First, In 2018 thesis titled "The Scope of an Access and Benefit-Sharing Regime for Marine Genetic Resources in Areas Beyond National Jurisdiction: Future Prospects and Potential Challenges," Mathilde Morel Daasvatn from the

Faculty of Law at The Arctic University of Norway provides an analysis of the Areas Beyond National Jurisdiction and discusses the BBNJ (Biodiversity Beyond National Jurisdiction) process. The thesis explores the conditions necessary to establish a fair and equitable Access and Benefit-Sharing (ABS) regime for Marine Genetic Resources sourced from ABNJ.³⁹

Second, thesis written by Ingrid Nikolaisen, 2022, Faculty of Law, The Arctic University of Norway, with the title "Marine Genetic Resources in Areas Beyond National Jurisdiction: Developing Countries and Issues Related to Equitable Benefit Sharing". Examines the necessary measures to ensure fair and equitable access and utilization of benefits derived from Marine Genetic Resources activities in Areas Beyond National Jurisdiction. She specifically addresses the challenging issues that emerged during the negotiation of the final implementation agreement, focusing on equitable benefit-sharing of MGRs in ABNJ, especially for developing countries. The thesis reviews past negotiations to identify potential measures that could be adopted to achieve the goal of fair and equitable sharing of access and benefits related to MGRs in ABNJ.⁴⁰

Third, article written by Jorge Cabrera Medaglia and Frederic Perron-Welch, entitled "The benefit-sharing principle in international law", Journal of Intellectual Property Law & Practice, 2019, Vol. 14, No. 1. In this article, the

³⁹ Mathilde Morel Daasvatn. (2018). *"The Scope of an Access and Benefit-Sharing Regime for Marine Genetic Resources in Areas Beyond National Jurisdiction: Future Prospects and Potential Challenges."*

⁴⁰ Ingrid Nikolaisen. (2022). *"Marine Genetic Resources in Areas Beyond National Jurisdiction: Developing Countries and Issues Related to Equitable Benefit Sharing"*.

author addresses the benefit-sharing concept as a potential emerging principle in international sustainable development law. It reviews and studies how benefit sharing is treated in different international law regimens including the Convention on Biological Diversity and its Nagoya Protocol and other Rio Conventions, the International Treaty on Plant Genetic Resources for Food and Agriculture, Law of the Sea, selected regional agreements and ongoing international processes such as the negotiation of an international instrument for the conservation and sustainable use of biodiversity in areas beyond national jurisdiction (ABNJ). Also, this article provide an analysis of the benefit sharing concept in international sustainable development law and the most relevant international law instruments and processes in which benefit sharing has been addressed.⁴¹

Fourth, an article written by Laura E. Lallier, Arianna Broggiato, Dominic Muyltermans and Thomas Vanagt, entitled "Marine Genetic Resources and the Access and Benefit-Sharing Legal Framework", Springer International Publishing Switzerland, 2016, L.J. Stal and M.S. Cretoiu (eds.), *The Marine Microbiome*. This article discusses the legal framework for ABS related to the utilization of marine GR. The article is also intended to inform scientists working with GRS about the new regulatory framework brought about by the CBD and Nagoya Protocol, as well as the EU ABS regulations on compliance, while raising awareness about the potential overlap with permit

⁴¹ Jorge Cabrera Medaglia and Frederic Perron-Welch. (2019). *"The benefit-sharing principle in international law"*.

requirements due to GRS sampling at sea, where the law of the sea guides coastal state legislation on marine scientific research.⁴²

Fifth, an article written by Rogers AD, Baco A, Escobar-Briones E, Currie D, Gjerde K, Gobin J, Jaspars M, Levin L, Linse K, Rabone M, Ramirez-Llodra E, Sellanes J, Shank TM, Sink K, Snelgrove PVR, Taylor ML, Wagner D and Harden-Davies H, 2021, entitled "Marine Genetic Resources in Areas Beyond National Jurisdiction: Promoting Marine Scientific Research and Enabling Equitable Benefit Sharing". The authors here describe what MGRs are, the methods required to collect, study and archive them, including data arising from scientific investigations. They explore the practical requirements of access by developing countries. They also outline existing infrastructure and shared resources that facilitate MGRs access, research, development and benefit sharing from ABNJ.⁴³

Sixth, an article written by Rabone M, Harden-Davies H, Collins JE, Zajderman S, Appeltans W, Droege G, Brandt A, Pardo-Lopez L, Dahlgren TG, Glover AG and Horton T, (2019, entitled "Access to Marine Genetic Resources (MGRs): Raising Awareness of Best Practices Through a New Treaty for Biodiversity beyond National Jurisdiction (BBNJ)". *Front. Mar. Sci.* 6:520. Here the authors describe commitments to best practices that will enable greater sharing of MGRs for research and broad secondary uses including

⁴² Laura E. Lallier, et.al., (2016), "*Marine Genetic Resources and the Access and Benefit-Sharing Legal Framework*".

⁴³ Rogers AD., et.al., (2021), "*Marine Genetic Resources in Areas Beyond National Jurisdiction: Promoting Marine Scientific Research and Enabling Equitable Benefit Sharing*".

conservation and environmental monitoring, and provide examples for access and benefit sharing (ABS) to inform biodiversity beyond national jurisdiction (BBNJ) processes. The article also outlines recommendations for streamlining access to MGRs from ABNJ.⁴⁴

Seventh, article written by Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et al. 2020. entitled "The Ocean Genome: Conservation and Fair, Equitable, and Sustainable Use of Marine Genetic Resources. Washington, DC: World Resources Institute". In this article the authors evaluate the prospects for conservation and sustainable use of the ocean genome. It is analyzed our understanding of the genetic diversity of life within the ocean, the threats posed to such diversity, the benefits provided by genetic diversity and the ecosystems it supports in the context of a changing world, as well as tools and approaches for ensuring fair and equitable sharing of these benefits.⁴⁵

Eighth, an article written by Balakrishna Pisupati, David Leary, and Salvatore Arico, entitled "Access and Benefit Sharing: Issues Related to Marine Genetic Resources", Asian Biotechnology and Development Review, 2008, Vol. 10 No. 3, pp. 49-68. This article try to address some keys legal and policy issues that negotiators of the international regime on ABS need to consider in relation to marine genetic resources. The intention on the paper is

⁴⁴ Rabone M, et.al., (2019), "Access to Marine Genetic Resources (MGRs): Raising Awareness of Best Practices Through a New Treaty for Biodiversity beyond National Jurisdiction (BBNJ)".

⁴⁵ Blasiak, R., et.al, (2020), "The Ocean Genome: Conservation and Fair, Equitable, and Sustainable Use of Marine Genetic Resources."

not to provide a prescriptive idea for the negotiations, but provide an information compilation which may provide useful to negotiators to consider when finalizing the international regime on sectoral issues such as marine genetic resources and links to other multilateral negotiation processes.⁴⁶

Ninth, an article written by Sri Wartini, entitled “The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction”, *Varia Justicia*, Vol. 18 No. 1 (2022) pp. 52-70. In this article, the author addressed the legal lacunae in order to maintain equitable benefit sharing in the utilization of MGRs in the ABNJ. Therefore, in order to overcome the legal lacunae of UNCLOS and CBD, it is urgent to create new internationally binding Agreement. The paper also discussed the access and equitable benefit sharing of MGRs in the ABNJ and the legal lacunae of UNCLOS and CBD to regulate access and equitable benefit sharing of MGRs in the ABNJ.⁴⁷

Tenth, article written by Nurbintoro, Gulardi and Nugroho, Haryo Budi, 2016, "Biodiversity Beyond National Jurisdiction: Current Debates and Indonesian Interests," *Indonesia Law Review*: Vol. 6: No. 3, Article 2. The author in this article seeks to further explain the issues of BBNJ left behind by the current international legal system and the relationship between various international legal instruments related to BBNJ issues. This paper will also

⁴⁶ Balakrishna Pisupati, et.al., (2008), "Access and Benefit Sharing: Issues Related to Marine Genetic Resources".

⁴⁷ Sri Wartini. (2022). "The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction".

discuss the Convention on Biological Diversity (CBD) as well as the framework of the World Intellectual Property Organization (WIPO) with regard to genetic resources.⁴⁸

The tenth previous studies can be seen in the following list of table

1.1.

No.	Past Research	Differentiating Element
1.	Mathilde Morel Daasvatn, 2018, Faculty of Law The Arctic University of Norway, "The Scope of an Access and Benefit-Sharing Regime for Marine Genetic Resources in Areas Beyond National Jurisdiction: Future Prospects and Potential Challenges.	This thesis primarily explores the necessary conditions to establish a fair and equitable Access and Benefit-Sharing (ABS) regime for Marine Genetic Resources (MGRs) originating from Areas Beyond National Jurisdiction (ABNJ). The research focuses on the challenges encountered and the efforts required, particularly from the perspective of developing countries, to ensure equal access to MGRs compared to developed countries. The goal is to identify and address barriers that hinder equitable sharing of benefits and promote a more balanced and inclusive approach to MGRs governance in ABNJ.

⁴⁸ Nurbintoro, et.al., (2016), "Biodiversity Beyond National Jurisdiction: Current Debates and Indonesian Interests."

2.	<p>Ingrid Nikolaisen, 2022, Faculty of Law The Arctic University of Norway, “Marine Genetic Resources in Areas Beyond National Jurisdiction: Developing States and issues relating to equitable benefit sharing”.</p>	<p>This thesis analyzes the most challenging issues of equitable benefit sharing of MGRs in ABNJ for developing countries, but the author does not comprehensively explain what challenges are faced by developing countries. Meanwhile, in this research the author will provide a clear explanation of the conditions, capabilities, and challenges faced by developing countries and relate them to the rights that should be felt by each developing country in MGRs in ABNJ.</p>
3.	<p>Jorge Cabrera Medaglia and Frederic Perron-Welch, entitled “The benefit-sharing principle in international law”, Journal of Intellectual Property Law & Practice, 2019, Vol. 14, No. 1.</p>	<p>This article analyzes the benefit sharing concept in international sustainable development law and the most relevant international law instruments and processes in which benefit sharing has been addressed. While the author in this study specifically describes the perspective of developing countries on equal access to MGRs in ABNJ which has not been regulated in the international legal framework. In addition, this research will provide solutions that</p>

		can be applied in the future for developing countries.
4.	Laura E. Lallier, Arianna Broggiato, Dominic Muyldermans and Thomas Vanagt, entitled “Marine Genetic Resources and the Access and Benefit-Sharing Legal Framework”, Springer International Publishing Switzerland, 2016, L.J. Stal and M.S. Cretoiu (eds.), The Marine Microbiom.	This article describes in general terms the conditions and legal framework for access and benefit-sharing associated with the utilization of marine GRs. Meanwhile, this research will examine critically and in detail the international arrangements related to the utilization of MGRs in ABNJ, especially what obstacles are faced by developing countries so that they have not received the rights they should get.
5.	Rogers AD, Baco A, Escobar-Briones E, Currie D, Gjerde K, Gobin J, Jaspars M, Levin L, Linse K, Rabone M, Ramirez-Llodra E, Sellanes J, Shank TM, Sink K, Snelgrove PVR, Taylor ML, Wagner D and Harden-Davies H, 2021, entitled “Marine Genetic Resources in Areas Beyond National Jurisdiction: Promoting	This article focuses more on the discussion of bioprospecting and Exploration of Marine Genetic resources systematically as well as the access and benefit sharing of the MGRs. While this research will focus on analyzing international legal arrangements related to equal access to MGRs in ABNJ by developing countries and recommendations for diplomacy or development efforts that can be carried out by developing countries.

	Marine Scientific Research and Enabling Equitable Benefit Sharing”.	
6.	Rabone M, Harden-Davies H, Collins JE, Zajderman S, Appeltans W, Droege G, Brandt A, Pardo-Lopez L, Dahlgren TG, Glover AG and Horton T, (2019, entitled “Access to Marine Genetic Resources (MGRs): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ).	This article provides recommendations on best practices to streamline access and benefit-sharing sharing of MGRs for research and extensive secondary use including conservation and environmental monitoring, and provides an exemplar for access and benefit-sharing (ABS) to inform the biodiversity beyond national jurisdiction (BBNJ) process. However, the author here finds an element of difference with this research where the author will compare the access enjoyed by developed and developing countries. In addition, the author in this research will answer the question whether the current international legal arrangements have reflected the equality of access.
7.	Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et	This article is more likely evaluating the prospects for conservation and sustainable use of

	<p>al. 2020. "The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources. Washington, DC: World Resources Institute".</p>	<p>the ocean genome. It is also analyzing our understanding of the genetic diversity of life within the ocean, the threats posed to such diversity, as well as tools and approaches for ensuring fair and equitable sharing of these benefits. Meanwhile, this research does not focus on conservation and sustainable use but on the application of international legal arrangements to equal access to MGRs utilization in ABNJ between developing and developed countries.</p>
<p>8.</p>	<p>Balakrishna Pisupati, David Leary, and Salvatore Arico, entitled "Access and Benefit Sharing: Issues Related to Marine Genetic Resources", Asian Biotechnology and Development Review, 2008, Vol. 10 No. 3, pp 49-68.</p>	<p>This article tries to address some key legal and policy issues that negotiators of the international regime on ABS need to consider in relation to marine genetic resources, as well as provide an information compilation to consider the international regime on sectoral issues such as marine genetic resources and links to other multilateral negotiation processes. While this research will provide recommendations or solutions to</p>

		<p>issues with more complete both internal and external efforts, and the author will explain conceptually and comprehensively the gaps and challenges that occur in the utilization of MGRs in ABNJ.</p>
<p>9.</p>	<p>Sri Wartini, “The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction”, <i>Varia Justicia</i>, Vol. 18 No. 1 (2022) pp. 52-70.</p>	<p>This article discussed the access and equitable benefit sharing of MGRs in the ABNJ and the legal lacunae of UNCLOS and CBD to regulate access and equitable benefit sharing of MGRs in the ABNJ. Besides that, it provides recommendations to enhance the implementation of UNCLOS and CBD in the transition period while the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of ABNJ has not come into force. However, the difference with this research is that the author here will focus specifically on comprehensively describing the gaps and challenges from the perspective of developing countries towards equal access to MGRs in ABNJ which has not</p>

		<p>been clearly regulated in the current international legal framework. In addition, in this study the author will provide solutions that can be applied in the future for developing countries in order to maximize the benefits of MGRs in ABNJ.</p>
10.	<p>Nurbintoro, Gulardi and Nugroho, Haryo Budi, 2016, "Biodiversity Beyond National Jurisdiction: Current Debate and Indonesia's Interest," <i>Indonesia Law Review</i>: Vol. 6 : No. 3 , Article 2.</p>	<p>This article explains further the BBNJ issues that are left out by the current international legal system and the relation between different international law instruments related to the issues of BBNJ. This paper also addresses Indonesia's position and interest related to this issue of the unfairness of access and benefit-sharing. While in this research the author will explain the access gap that occurs between developing countries and developed countries as a whole and not only criticize the BBNJ Treaty but various international legal instruments related to this issue.</p>

Table 1. 1 The tenth previous studies

Based on the description of the originality of previous research that has been presented, it can be concluded that the focus of research conducted by researchers is different from previous researchers. However, the existence of previous studies that have some similarities in focus and study provides its own contribution to complement further research. In this research, the author here will focus specifically on comprehensively describing the gaps and challenges from the perspective of developing countries towards equal access to MGRs in ABNJ which has not been clearly regulated in the current international legal framework. In addition, in this study the author will provide solutions that can be applied in the future for developing countries in order to maximize the benefits of MGRs in ABNJ.

E. BENEFITS OF RESEARCH

1. Theoretical Benefits

The results of this research are expected to contribute to the development of legal science, especially the legal lacunae of International Law of the Sea in regulating Equal Access and Benefit-sharing for Developing Countries so that they can utilize MGRs in ABNJ as well as developed countries. In addition, the results of this study are expected to provide a formulation of solutions or improvisations for Developing Countries to obtain equal access in the utilization of MGRs in ABNJ.

2. Practical Benefits

The results of this study can be used as input for international legal arrangements and existing stakeholders in order to regulate the utilization of MGRs in ABNJ and how these rules reflect the principle of equality between developed and developing countries. In addition, this research will provide improvised solutions for developing countries to initiate, innovate, and other arrangements so that they can actively compete and have the same access opportunities as developed countries.

F. THEORETICAL FRAMEWORK

1. Various Zone and Boundaries of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) of 1982 regulates various zones and boundaries for sea areas:

- a. **Internal Waters:** Internal waters generally consist of bays, estuaries, harbors and waters enclosed by straight baselines. The coastal state has full sovereignty over internal waters, so there is no right of innocent passage for foreign vessels.
- b. **Territorial Sea:** The Territorial Sea extends up to 12 nautical miles from the baseline. Within this area, the coastal state exercises sovereignty, which includes control over the airspace above and the seabed below.⁴⁹

⁴⁹ Article 3 of UNCLOS

- c. **Contiguous Zone:** According to Article 33 of UNCLOS 1982, the Contiguous Zone is defined as a maritime area that extends up to 24 nautical miles from the baseline used to measure the width of the Territorial Sea, or up to 12 nautical miles if measured from the outer limit of the Territorial Sea.⁵⁰ In the Contiguous Zone, coastal states have a limited authority to enforce certain laws related to customs, taxation, immigration, and pollution control.
- d. **Exclusive Economic Zone (EEZ):** The EEZ is the maritime area beyond and adjacent to the Territorial Sea, subject to a distinct legal framework. This framework governs the jurisdiction and rights of the coastal State over the exploitation, conservation, and management of natural resources within this zone, as well as the freedoms and rights of other States. According to the relevant provisions of the Convention, the width of the Exclusive Economic Zone for any coastal State shall not exceed 200 nautical miles measured from the baseline used to determine the width of the Territorial Sea.⁵¹
- e. **Continental Shelf:** Coastal states possess sovereign rights to explore and exploit natural resources located on the seabed and subsoil of the submerged areas beyond the Exclusive Economic Zone (EEZ) and extending to the outer edge of the continental margin or 200 nautical miles from the baseline, whichever is greater.⁵²

⁵⁰ Dhiana Puspitawati. 2017. *Hukum Laut Internasional*, Depok: Kencana, p.64.

⁵¹ Article 57 of UNCLOS

⁵² Article 76 (1) of UNCLOS

- f. High Seas: The High Seas refer to areas beyond national jurisdiction where all states have the right to freely navigate, conduct overflights, lay submarine cables and pipelines, and exercise other freedoms related to the use of the sea. No state may claim or exercise sovereignty or rights over any part of the High Seas.⁵³
- g. Seabed or The Area: The term "Area" refers to the seabed, ocean floor, and subsoil beyond national jurisdiction. Within this area, the principle of the common heritage of mankind applies. This principle entails that all countries have the freedom to conduct exploration activities in the Area and share a collective responsibility to monitor and protect it from potential damage.⁵⁴

2. Areas and Areas Beyond National Jurisdiction (ABNJ)

ABNJ itself consists of two separate maritime zones delineated in the UNCLOS: **the high seas**, referring to the water column outside of national jurisdiction.⁵⁵ and **the Area**, i.e. the seabed, ocean floor and subsoil thereof beyond the limits of national jurisdiction.⁵⁶ Any state has no control over the sea outside of these boundaries, which is referred to as the high seas.⁵⁷ Article 87 of UNCLOS stipulates that the high seas are

⁵³ Article 87 of UNCLOS

⁵⁴ M. Ilham F. Putuhena, Urgensi Pengaturan Mengenai Eksplorasi dan Eksploitasi Pertambangan di Area Dasar Laut Internasional, *Jurnal Rechtsvinding*, Vol. 8, No. 2, 2019, p. 174.

⁵⁵ Paul A Berkman, *Op. Cit.* p. 311-320.

⁵⁶ Article 1 (1) of UNCLOS

⁵⁷ Article 86 of UNCLOS

accessible to all nations, irrespective of their geographic location. Consequently, no individual nation holds exclusive sovereignty or accountability for their administration. However, the Convention granted the International Seabed Authority (ISA) the mandate to oversee the exploration and utilization of resources located in "the Area."⁵⁸

The rights and obligations on the high seas are governed by UNCLOS Part VII. This includes the capacity for overflight, navigation, building artificial islands, installing undersea cables, fishing, and conducting scientific research. The list is not all-inclusive and only includes a few of the activities that are permissible to be carried out on the high seas. Since marine genetic resources are derived from living things that can be found in the sea, they must be seen as falling within this clause.⁵⁹ Beside that, BBNJ Agreement also regulate several freedoms in High Sea including the rights and obligation of each state which include to conduct Marine Scientific Research, Environmental Impact Assessment, Fair and Equitable Benefit Sharing, Capacity Building, and Technology Transfer.⁶⁰ However, enforcement in the future will depend on the willingness of nations to commit to the Agreement's principles, the development of effective monitoring mechanisms, various international

⁵⁸ Article 137 (2) of UNCLOS

⁵⁹ Article 87(2) of UNCLOS. In the 1974 Fisheries Jurisdiction case (Federal Republic of Germany vs. Iceland), the International Court of Justice characterized the freedom of the high seas as "a recognition of the duty to have due regard to the rights of other States and the needs of conservation for the benefit of all." (ICJ Reports), 3.

⁶⁰ UNGA A/RES/66/119 (30 June 2011) p. 2, para 1 (b).

institution, cooperation among states, and the establishment of robust governance structures to ensure effective implementation once the treaty becomes legally binding.⁶¹

3. Marine Scientific Research (MSR)

The general phrase most frequently used to characterize actions carried out in ocean and coastal waters with the aim of advancing scientific understanding of the marine environment and its processes is "marine scientific research."⁶² Legal scholars have used the description "any type of scientific exploration, whether foundational or practical, focused on the marine environment, meaning research that centers on the marine environment itself."⁶³ Marine scientific research may include physical oceanography, marine chemistry, marine biology, fisheries research, scientific ocean drilling and coring, geological and geophysical research, and other activities with a scientific purpose. On the other hand, Part XIII of UNCLOS regulates marine scientific research which conducted by states both for education purposes and commercial purposes.⁶⁴

⁶¹ Carlos M. Correa, 'Access to and Benefit Sharing of Marine Genetic Resources Beyond National Jurisdiction: Developing a new Legally Binding Instrument', South Centre, Research Paper 79 (2017), p. 15.

⁶² National Oceanic and Atmospheric Administration, U.S. Department of Commerce "Marine Scientific Research" <https://www.noaa.gov/marine-scientific-research>

⁶³ P. Birnie, 'Law of the Sea and Ocean Resources: Implications for Marine Scientific Research' 10 International Journal of Marine and Coastal Law (1995), p. 242.

⁶⁴ Sri Wartini, Op. Cit, p.65.

Another regime that could potentially regulate States' rights to access and utilize MGRs is the regime of Marine Scientific Research, outlined in Part XIII of the UNCLOS. MSR is recognized as one of the freedoms of the high seas, allowing States to conduct scientific research in the Area in accordance with the provisions of Part XI of UNCLOS.⁶⁵ According to Article 238 of UNCLOS, "All States" and "competent international organizations" have the entitlement to conduct MSR, subject to the conditions specified in the convention.⁶⁶ Therefore, scientific research in marine areas is considered a fundamental freedom of the high seas, intended to be conducted solely for peaceful purposes and in accordance with the general principles outlined in UNCLOS Article 240.⁶⁷ It is evident that every state has the right to conduct marine scientific research in ABNJ. Marine scientific research conducted in the Area is governed by the principle of the Common Heritage of Mankind (hereinafter CHM), meaning that the benefits of such research should accrue to the entire global community.⁶⁸ This includes the publication of research findings and the transfer of scientific knowledge resulting from this research, with a particular emphasis on benefiting developing states.⁶⁹

⁶⁵ Articles 256 and 257 of UNCLOS

⁶⁶ Article 238 of UNCLOS

⁶⁷ Article 240 of UNCLOS

⁶⁸ Waseem Ahmad Qureshi, "Protecting the Common Heritage of Mankind beyond National Jurisdiction," *Arizona Journal of International and Comparative Law* 36, no. 1 (2019): 79–110.

⁶⁹ Sri Wartini, *Op. Cit.*, p.66.

MSR stated in the BBNJ Agreement in the Article 7 (c), “*The freedom of marine scientific research, together with other freedoms of the high seas*”.⁷⁰ This shows that the BBNJ Agreement guarantees the freedom and right to marine scientific research to all countries on the high seas, which in this case includes ABNJ. Also, in the Article 8 of BBNJ Agreement regulates regarding International cooperation which stated “Parties are required to encourage international cooperation in marine scientific research and the development and transfer of marine technology, aligning with the principles of the Convention, to support the objectives outlined in this Agreement.”⁷¹ To guarantee comprehensive understanding of the biological diversity in ABNJ, diversity depends on international cooperation for current and upcoming research.⁷² Therefore, it will fill up the gaps in scientific understanding of biological variety, particularly for the most challenging areas. improved political involvement may result from improved information sharing, and increased research capacity and technology transfer may follow. Furthermore, the possibility of achieving global financial cooperation may play a critical role in guaranteeing benefit sharing and equal access.

⁷⁰ Article 7 (c) of BBNJ Agreement

⁷¹ Article 8 of BBNJ Agreement

⁷² The Ad Hoc Open-ended Informal Working Group established to study issues related to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (referred to as the BBNJ Working Group) UNGA A/RES/59/24 (17 November 2004), p. 13, para 73.

4. The Principles of International Environmental Law

Countries in conducting exploration and exploitation of MGRs in ABNJ require regulation and application in the principles of International Environmental Law:

a. Common Heritage of Mankind (CHM)

The principle of the common heritage of mankind asserts that specific geographical regions and elements of humanity's cultural and natural heritage should be conserved for future generations and protected from exploitation by private entities or individual national governments. It's important to differentiate the concept of CHM from two previously established concepts: *res nullius* and *res communis*.

Res Nullius means that certain objects or things which according to the traditional legal system include wild animals and plants are not owned by anyone and can be freely used and taken by everyone.⁷³ *Res*

Communis, on the other hand, has implications for international law in that some parts of the earth's surface, such as the high seas and outer space, cannot be owned since they are owned by certain communities.

However, the resources can be used by everyone.⁷⁴

The concept of the CHM recognized in the Article 7 of BBNJ Agreement. The inclusion of the CHM principle in the BBNJ Agreement is substantiated by significant policy decisions and

⁷³ Jonathan M. Harris, Basic Principles of Sustainable Development, Working Paper 00-04, Global Development and Environment Institute, June 2000, p. 5-6.

⁷⁴ Ibid

foundational values in textual interpretation. Embracing a system built on this principle aligns with the core goals of the Agreement: fostering both the preservation and responsible utilization of marine biodiversity while concurrently establishing an equitable ocean governance framework for the collective advantage of current and future generations worldwide.⁷⁵ CHM Principle states that all countries have equal rights to certain resources, such as resources in outer space and non-living resources on the undersea floor. That no country will exercise its sovereignty over these resources, as they belong to all humanity. States should cooperate in managing and using such resources in a sustainable manner and the economic or financial gains from the exploitation of such resources should be shared equitably.⁷⁶ This concept is also contained in the provisions of Article 36 of UNCLOS, which states that the high seas and the resources contained therein are the CHM. Article 36 states: “*the area and its resources are the common heritage of mankind*”.⁷⁷

⁷⁵ Opinio Juris. “Memorandum on the Common Heritage of Mankind and Biodiversity Beyond National Jurisdiction (Part II)”. <https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-of-mankind-and-biodiversity-beyond-national-jurisdiction-part-ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries%20across%20the%20globe.>

⁷⁶ Chris World, The Status of Sea Turtles under International Environmental Law and International Environmental Agreements, *Journal of International Wildlife Law and Policy*, 2008, p. 23-24.

⁷⁷ Article 36 of UNCLOS

b. Equitable Access and Benefit-Sharing

The BBNJ Agreement, particularly in Article 7, establishes provisions for equity and the fair and equitable sharing of benefits.

The preamble and Article 9 of the BBNJ Agreement recognize the importance of access to and utilization of digital sequence information on marine genetic resources in areas beyond national jurisdiction, alongside fair and equitable benefit-sharing, to foster research and innovation between developed and developing countries.⁷⁸

Furthermore, the objectives of the CBD emphasize the conservation of biodiversity, sustainable use of its components, and ensuring just and equitable distribution of benefits derived from genetic resources.

This includes provisions for funding, access, and transfer of relevant technologies.⁷⁹ The Nagoya Protocol on Access and Benefit-sharing

reinforces this connection by linking fair and equitable benefit-sharing from genetic resource utilization with biodiversity conservation and

sustainable use of its components. The protocol encourages both users and providers to direct benefits arising from genetic resource use

towards biodiversity conservation and sustainable component utilization.⁸⁰

⁷⁸ The Preamble and Article 9 of BBNJ Agreement

⁷⁹ Smagadi, A. (2006) Analysis of the Objectives of the Convention on Biological Diversity: Their Interrelation and Implementation Guidance for Access and Benefit Sharing. *Columbia Journal of Environmental Law*, 16, 243-284.

⁸⁰ Siebenhuner, B. and Suplie, J. (2005) Implementing the Access and Benefit-Sharing Provisions of the CBD: A Case for Institutional Learning. *Ecological Economics*, 53, 507-522. <https://doi.org/10.1016/j.ecolecon.2004.10.012>

c. Sustainable Development Goals (SDGs)

SDGs (Sustainable Development Goals) is a sustainable development program in which there are 17 goals with 169 measurable targets with specified deadlines. The SDGs are a global development agenda that aims for the well-being of people and the planet. The SDGs cover a wide range of social and economic development issues. These include poverty, hunger, health, education, climate change, water, sanitation, energy, environment and social justice. The SDGs are also known as Transforming our World: the 2030 Agenda for Sustainable Development. The SDGs consist of three aspects: economic, environmental, and social. The 17 goals of the SDGs are interconnected and influence each other. Achieving the SDGs requires collaboration and cooperation. The SDGs are a global commitment to achieve better sustainable development where efforts to improve the economic climate must also pay attention to ecological or environmental and social aspects. Every country has the responsibility to achieve the SDGs goals.

d. Principle of Cooperation

The obligation of states to cooperate with other states is a central feature of international law in general. Many international treaties are based on the recognition of the need for cooperation

between states at different levels, whether bilateral, regional or global.⁸¹ The establishment of a number of international institutions also highlights the importance of cooperation between states. These international institutions aim to strengthen and accelerate cooperation among their member states.⁸²

In the field of environmental protection, international cooperation is a very important aspect in order to preserve the environment as a whole, both in the jurisdiction of countries or the environment outside the jurisdiction of the state, such as the high sea, Antarctica, or space. The principle of cooperation can be seen from international legal instruments, namely UNCLOS in article 118 which reads.⁸³

“States are encouraged to cooperate with each other in the conservation and management of living resources in the high seas areas. States whose nationals exploit the same or different living resources in the same area are expected to engage in negotiations to implement necessary measures for the conservation of the relevant living resources. Additionally, they should collaborate to establish subregional or regional fisheries organizations, as appropriate, to facilitate these conservation efforts.”

The duty to cooperate is a core principle of general international law. In a dissenting opinion, even Judge Rudiger

⁸¹ Howard Mann, *International Environmental Law*, Alexandre Kiss and Dinah Shelton, New York: Transnational Publishers, Inc., 1991, Pp. 541, *Yearbook of International Environmental Law*, Volume 2, Issue 1, 1991, p. 72, <https://doi.org/10.1093/yiel/2.1.476>

⁸² Ibid

⁸³ Article 118 of UNCLOS

Wolfrum stated that the obligation to cooperate with other states whose interests will be involved in the framework of environmental protection is a Grundnorm that is not only found in Part XII of UNCLOS but also in customary international law.⁸⁴

e. Common but Differentiated Responsibilities Principle

The principle of common but differentiated responsibilities is contained in principle 7 of the Rio Declaration which states as follows:⁸⁵

“States are obligated to collaborate in a spirit of global partnership to conserve, protect, and restore the health and integrity of the Earth's ecosystem. Recognizing the varying degrees of contribution to global environmental degradation, States acknowledge the principle of common but differentiated responsibilities. Developed countries acknowledge their particular responsibility in the international pursuit of sustainable development, considering the pressures their societies place on the global environment and the technologies and financial resources at their disposal.”

According to Alexandre Kiss, the concept of "shared responsibility" is easy to understand, whereas the concept of "differentiated liability" requires further explanation. Likewise, Christopher D. Stone argues that the concept of "differentiated liability" is problematic,⁸⁶ but can be interpreted as follows

⁸⁴ Chinthaka Mendis. (2006). 'Sovereignty vs. trans-boundary environmental harm: The evolving International law obligations and the Sethusamudram Ship Channel Project'. United Nations/Nippon Foundation Fellow Paper.

⁸⁵ Principle 7 of Rio Declaration

⁸⁶ Christopher D. Stone, Common but Differentiated Responsibilities in International Law, the American Journal of International Law, Vol. 98: 276, p. 277.

“ ‘Common’ suggests that certain risks affect and are affected by every nation on earth. These include not only the climate and ozone shield, but all risks related global public goods, including peace, public health, and terrorism. In reducing the mutual risks, all nations should cooperate in a spirit of a global partnership. Responsibilities are said to be “differentiated”, however, in that not all countries should contribute equally. Common but differentiated responsibility charger some nations, ordinarily the Rich, with carrying a greater share of the burden than others, ordinarily the Poor.”⁸⁷

According to the Third World Network, what is meant by common but differentiated responsibilities is that the destruction of the earth and environmental degradation is our common responsibility, both northern nations and southern nations, but in terms of the obligation to help heal and preserve it, because the degree of contribution to damage is different (with Industrialization the northern nations have more sins), northern nations are obliged to contribute technology and income much more.⁸⁸

f. Precautionary Principle

Precautionary principle are principles that were originally adopted in the declaration and later adopted in various conventions as a form of embodiment of the principle of sustainable development principle. The precautionary principle was originally codified into law in 1971 when it was included as *"vorsorge"* in the German Program

⁸⁷ Ibid, p. 276-277.

⁸⁸ Third World Network, *Pengelolaan Lingkungan Internasional dari Sudut Pandang Negara Sedang Berkembang* (Yogyakarta: Cinderalas Pustaka Rakyat Cerdas, 2005), p. vi-vii.

of Environmental Protection. The precautionary principle is one of the guiding concepts included in a number of rules that emerged from this initiative and are part of Germany's extensive environmental protection legislation.⁸⁹ This principle is a development in national and international policies that aim to protect humans and the environment from and the environment from serious and irreversible harm. irreversible harm. Precautionary principle emphasizes on how to take precautions so that no degradation of the quality of the environment due to pollution.⁹⁰ One definition of the precautionary principle is contained in in Article 15 of the Rio Declaration, as follows:⁹¹

“In situations where there are threats of serious or irreversible damage to the environment, the absence of complete scientific certainty should not be a justification for delaying cost-effective measures aimed at preventing environmental degradation.”

The precautionary principle or approach has regulated in the Article 7 (e) of BBNJ Agreement.⁹² According to this principle, scientific uncertainty cannot be used as an excuse to postpone taking appropriate action to avert environmental damage if there is a threat

⁸⁹ Cranor, Carl. F. 1999. Asymmetric Information, the Precautionary Principle, and Burdens of Proofs, in Carolyn Raffensperger and Joel A. Tickner, Protecting Public Health and the Environment: Implementing the Precautionary Principle, Washington DC: Island Press. p.4.

⁹⁰ Wibisana, M.R.A.G. 2008. Law and Economic Analysis of the Precautionary Principle. Desertasi Doktor Maastricht University, Maastricht. p. 214.

⁹¹ Article 15 Rio Declaration

⁹² Article 7 (e) of BBNJ Agreement

or very serious harm. On the other hand, the precautionary principle states that no action will be made in the absence of sufficient scientific evidence. An action will only be performed in the event that there is sufficient scientific evidence.⁹³ Prevention is carried out on activities and/or businesses where the extent and magnitude of the loss and/or damage is not yet known. Prevention is carried out by taking concrete steps, even though there is no scientific evidence regarding the extent and magnitude of the consequences that may occur. However, this principle will only apply to estimates of serious and irreversible damage to the environment.⁹⁴ In the context of MGRs exploitation in ABNJ, the precautionary principle is of great relevance. The limited knowledge of the potential long-term impacts of exploitation of genetic resources in international waters poses serious uncertainties. Therefore, the precautionary principle demands precautionary measures and careful management of MGRs exploitation activities in ABNJ even though there is no conclusive evidence of their impacts.

⁹³ Anais Kedgley Laidlaw, "Is it Better to be Safe than Sorry? The Cartagena Protocol versus The World Trade Organisation", *Victoria University of Wellington Law Review*, August, 2005, p. 6.

⁹⁴ Freestone, David & Ellen Hey. 1996. *Origins and Development of the Precautionary Principle*, dalam *The Precautionary Principle and International Law, The Challenge of Implementation*. Hague: Kluwer Law International. p.12.

G. DEFINITION OF TERM

The title of this thesis writing is “**Legal Analysis of the Equitable Access to Marine Genetic Resources in Areas Beyond National Jurisdiction: In The Perspective of Developing Countries**”, there are several explanations to provide an understanding that will be examined in this research, including:

1. Areas Beyond National Jurisdiction (ABNJ)

UNCLOS recognizes Areas Beyond National Jurisdiction (ABNJ) as "Areas," referring to "the seabed, ocean floor, and subsoil thereof, beyond the limits of national jurisdiction."⁹⁵ The BBNJ Agreement further clarifies ABNJ as encompassing the high seas and the Area.⁹⁶

2. Marine Genetic Resources (MGRs)

Marine genetic resources are defined as any material of marine plant, animal, microbial, or other origin containing functional units of heredity of actual or potential value. This definition is derived from Article 1(11) of the United Nations Draft Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.⁹⁷

⁹⁵ Article 1 (1) of UNCLOS

⁹⁶ Article 1 (2) on Agreement Under The United Nations Convention on The Law Of The Sea on The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction

⁹⁷ Article 1 (8) on Agreement Under The United Nations Convention on The Law Of The Sea on The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.

3. Marine Scientific Research (MSR)

Marine Scientific Research is defined as any fundamental or applied research and related experimental work conducted by States, their legal entities, physical persons, and international organizations. This research is not aimed directly at industrial exploitation but is designed to acquire knowledge of all aspects of natural processes and phenomena occurring in ocean space, including the seabed and subsoil. Such knowledge is necessary for the peaceful activities of States, further development of navigation, utilization of the sea, and utilization of the airspace above the world ocean". Another definition proposed by legal scholars describes Marine Scientific Research as "any form of scientific investigation, whether fundamental or applied, focused on the marine environment." This definition emphasizes research that targets the marine environment as its primary subject of study.⁹⁸

4. Developing Country

As per the Dictionary of Indonesian Language, a developing country is defined as one that has undeveloped industries, a huge population with a high rate of growth, low per capita income, unexplored natural resources, and traditional agriculture as the principal element

⁹⁸ Patricia Birnie, "Law of the Sea and Ocean Resources: Implications for Marine Scientific Research" published in the *International Journal of Marine and Coastal Law* (1995), p. 242, see also this definition applied by Tim Stephens and Donald R. Rothwell in 'Marine Scientific Research', *The Oxford Handbook of the Law of the Sea*, Oxford University Press (2015), p. 2.

of production.⁹⁹ Furthermore, a developing country is characterized as a low-income country that mainly relies on agriculture for its economic growth. These countries may be experiencing demographic changes, are often industrializing, and have little means to deal with their own socioeconomic and environmental problems.¹⁰⁰

H. RESEARCH METHOD

The research methods used in preparing this thesis are described in more detail as follows:

1. Research Typology

The author's typology or type of research is normative juridical research, which is carried out by looking at secondary data or library resources that use actual libraries as the topic of writing studies. The author uses several book references to conduct research related to the topic in this study,¹⁰¹ which is how developing countries' access to MGRs in ABNJ is followed by the application of international environmental law principles.

2. Research Approach

⁹⁹ Kamus Besar Bahasa Indonesia, Badan Pengembangan dan Pembinaan Bahasa, Jakarta, 2016.

¹⁰⁰ Oxford University Press's Dictionaries, Companions, and Encyclopedias.

¹⁰¹ Blasiak, R., R. Wynberg, K. Grotud-Colvert, S. Thambisetty, et al. 2020. The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources. Washington, DC: World Resources Institute. Also see: Evanson Chege Kamau. (2022). "Transformations in International Law on Access to Genetic Resources and Benefit-Sharing and Domestic Implementation. Introduction, Synthesis, Observations, Recommendations and Conclusions," IUS Gentium 95.

This research used historical approach, conceptual approach, and statutory approach. Historical approach is an approach used to find out the historical values that become the background and that affect the values contained in a regulation or statute.¹⁰² Furthermore, conceptual approach is a type of approach in legal research that provides an analytical point of view of solving problems in legal research from the aspect of the legal concepts behind it, or it can even be seen from the values contained in the enactment of a regulation in relation to the concepts used.¹⁰³ Other than that, the statutory approach is a research that prioritizes legal material in the form of laws and regulations as a basic reference material in conducting research. The statutory approach is usually used to examine laws and regulations in which there are still shortcomings or even multiply deviant practices either at the technical level or in their implementation in the field.¹⁰⁴

In this research, the author will discuss the equality of access of developing countries to the utilization of MGRs in ABNJ by describing the historical approach to ABNJ arrangements in International Law of the Sea first, then linking it to concepts or principles in applicable International Environmental Law. In addition, the author will use a lot of statutory

¹⁰² S. Nasution. (2011). *Metode Research (Penelitian Ilmiah) usulan Tesis, Desain Penelitian, Hipotesis, Validitas, Sampling, Populasi, Observasi, Wawancara, Angket*, (PT. Bumi Aksara, Jakarta, Cetakan ke-4), p. 16.

¹⁰³ Soerjono Soekanto dan Sri Mamuji. (2001). *Penelitian Hukum Normatif (Suatu Tinjauan Singkat)*, Rajawali Pers, Jakarta, p. 14.

¹⁰⁴ Peter Mahmud Marzuki. (2005). *Penelitian Hukum*, Prenada Media, Jakarta, p. 87 – 91.

approaches and their derivatives.¹⁰⁵ However, the question raised by this thesis cannot be resolved solely by applying these instruments. The legal challenges addressed have been tried to be resolved through the BBNJ Agreement.¹⁰⁶ For that reason, the most recent BBNJ Agreement will act as the primary source throughout this thesis.

3. Research Objectives

The object of research in this study is to examine why does the current international legal frameworks for equitable access of Marine Genetic Resources (MGRs) in Areas Beyond National Jurisdiction (ABNJ) have to guarantee the equity among developed and developing countries. This research also will analyze what kind of improvements should be done by the developing countries to ensure that developing nations have equitable opportunities to access, research, and utilize MGRs in ABNJ.

4. Research Data Sources

Research The data sources needed in this research use secondary data with the following legal materials:

a. Primary Legal Materials

¹⁰⁵ Such as UNCLOS, CBD, as well as its associated protocols, such as the Nagoya Protocol.

¹⁰⁶ UNGA, A/CONF.232/2022/5 (2022), ‘Further revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction’.

1. United Nations Convention on the Law of the Sea (UNCLOS), adopted 10 December 1982, entered into force 16 November 1994, 1833 UNTS 396.
2. United Nations Convention on Biological Diversity (CBD), adopted 15 June 1992, entered into force 29 December 1993, 1760 UNTS 107.
3. 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, adopted 29 October 2010, entered into force 12 October 2014.
4. Agreement Under The United Nations Convention on The Law Of The Sea on The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement, has not come into force).

b. Secondary Legal Materials

Secondary legal materials have the function of discussing or further explaining primary legal materials, such as draft laws, literature books, journals, research reports, the internet, documents, infographics, and other scientific works related to this research.

c. Tertiary Legal Materials

Legal materials that serve to provide explanations of primary and/or secondary legal materials consisting of legal dictionaries, the Big Indonesian Dictionary, and others.

5. Data Analysis

The author uses a qualitative descriptive analysis method, namely by collecting data which is then processed and analyzed with the existing problems. The results of the analysis are then presented in narrative form.

6. Thesis Outline

To facilitate the discussion in writing, this research is organized using the following systematics:

CHAPTER I INTRODUCTION

It is a chapter that contains an introduction which includes the background of the problem, problem formulation, research objectives, research originality, literature review, operational definitions, and research methods.

CHAPTER II THEORETICAL REVIEW

A chapter that presents an explanation of the potential of MGRs in ABNJ, an explanation of the current legal frameworks governing access to the utilization of MGRs in ABNJ today, to the concept of equal access and benefit-sharing of the utilization of MGRs in ABNJ in the perspective of Developing Countries itself. The author will explain starting from the theories and principles in international law such as Common Heritage of Mankind, Equitable Access and Benefit-Sharing, Sustainable Development Goals, Common but Differentiated Responsibilities

Principle, Principle of Cooperation, and Precautionary Principle. The author will elaborate on the definition, its regulation both in national and international law, its implementation, the effectiveness of the legal regulation, and the view according to Islam.

CHAPTER III ANALYSIS RESULT AND DISCUSSION

This is a chapter of research results regarding the implementation of the current international legal frameworks for equitable access of Marine Genetic Resources (MGRs) in Areas Beyond National Jurisdiction (ABNJ), and the implementation of equitable access among developed and developing countries. Whether it has shown the equitability among developed and developing countries or not. Then the author would discuss and give suggestion what kind of improvements could be done by the developing countries to ensure that developing nations have equitable opportunities to access, research, and utilize MGRs in ABNJ.

CHAPTER IV CLOSURE

It is a chapter that contains conclusions from the discussion of the previous chapters and also contains suggestions as a reference to utilize and develop research in this thesis to make it better and perfect

CHAPTER II

THEORETICAL REVIEW

A. CONCEPT OF VARIOUS ZONE AND BOUNDARIES OF THE SEA

The 1982 Convention on the Law of the Sea (hereinafter UNCLOS) contains provisions governing various maritime zones with different legal status. Broadly speaking, the convention divides the sea into two parts: maritime zones under and beyond the national jurisdiction of a state. The maritime zones under national jurisdiction are further divided into those under the full sovereignty of a coastal state, and those parts of the maritime zone over which the coastal state may exercise special powers and rights under the Convention.¹⁰⁷ Maritime zones under full sovereignty include archipelagic waters, territorial sea, and deep waters. Zones under the authority and special rights of coastal states encompass the contiguous zone, Exclusive Economic Zone (EEZ), and continental shelf. Maritime zones that are beyond national jurisdiction comprise the high seas and the international seabed area.¹⁰⁸

¹⁰⁷ Etty R. Agoes. (1996). "Pengaturan tentang Wilayah Perairan Indonesia dan Kaitannya dengan Konvensi Hukum Laut 1982", Makalah yang disampaikan pada ceramah Fakultas Hukum Universitas Trisakti Jakarta, p.2.

¹⁰⁸ Mochtar Kusumaatmadja dan Etty R. Agoes. (2003). "Pengantar Hukum Laut Internasional". Pusat Studi Wawasan Nusantara, Hukum dan Pembangunan. P.T. Alumni, Bandung, p. 161-162.

Figure 2.1 Maritime Zones and Levels of Sovereignty

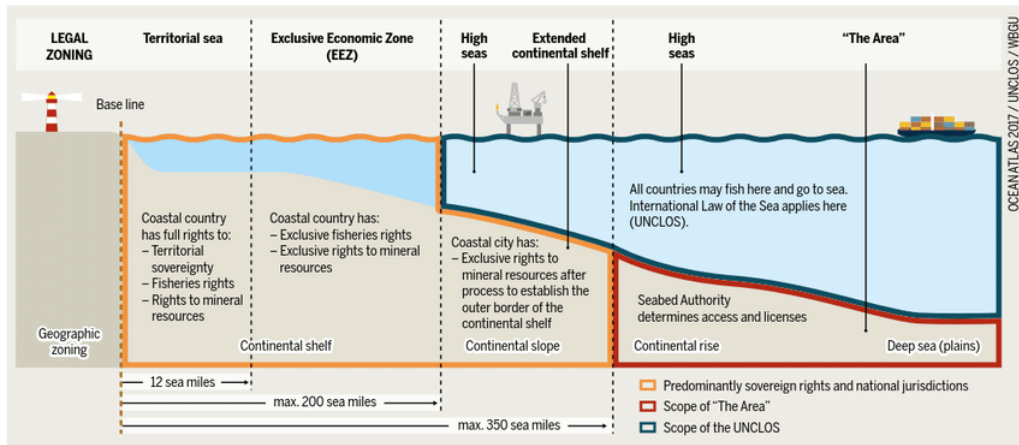


Figure 2.1 Maritime Zones and Levels of Sovereignty

Source: Bähr, U. (2017). Ocean Atlas - Facts and Figures on the Threats to Our Marine Ecosystems.¹⁰⁹

In relation to sovereignty and jurisdiction at sea, it should be pointed out that the regulation of maritime zones has two purposes: first, to establish the authority of the coastal state to make rules and enforce compliance by other states and their nationals; second, to grant rights and obligations to other states and their nationals in certain parts of the sea.¹¹⁰ Certain parts of the sea need to be differentiated into maritime zones that are within jurisdiction within the 12-mile wide limit and beyond the 12-mile limit. In the law of the sea beyond the 12-mile limit, additional channels are recognized, the concept of sovereign

¹⁰⁹ Bähr, U., (et al., 2017). Ocean Atlas - Facts and Figures on the Threats to Our Marine Ecosystems. Bonifatius GmbH Druck – Buch – Verlag, Paderborn. 1st edition, May 2017.

¹¹⁰ Brian Opeskin and Martin Tsamenyi. (2006). "The law of the Sea", in Sam Blay, Ryszard and Martin Tsamenyi (eds). Public International Law: An Australian Perspective (Second Edition). Oxford University Press. p. 328.

rights of coastal states over the exclusive economic zone up to the 200-nautical-mile limit, and the continental shelf up to the 350-nautical-mile limit that still falls within the limits of national jurisdiction. Meanwhile, outside the limits of national jurisdiction, all countries have various freedoms on the high seas, including the freedom to fish and the right to utilize the natural resources contained in the international seabed area based on the principle of common heritage of mankind.¹¹¹ Furthermore, the division of maritime zones based on UNCLOS 1982 will be explained in more depth.

1. Internal waters

According to Article 5 paragraph (1) of the Convention on the Territorial Sea and the Contiguous Zone 1958 and Article 8 of UNCLOS 1982 the waters inside the baseline have a regime as internal waters. River estuaries, bays, harbors, sea channels and submerged islands are also part of inland waters. Thus, the inland waters of an archipelagic state lie within the waters of the archipelago where a closing line has been drawn in terms of river mouths, bays and harbors.¹¹² According to international law, the base line is the dividing line between the land territory of a country and the inland waters of a country and the territorial sea of a country. Thus, the territorial sea boundary in the land direction is the outer limit of a country's inland waters. Therefore, the level of sovereignty of a coastal state over its

¹¹¹ Ibid

¹¹² Dhiana Puspitawati. (2017). "Hukum Laut Internasional". Edisi Kedua Cetakan ke IV. Depok: Kencana. p.47.

inland waters is identical to the sovereignty of the country's land territory, so that automatically in inland waters no peaceful passage is allowed. The only exception to this principle is if the drawing of a straight baseline on an inward-bending coastal area or a coast where there are small islands in front of the main island of the country, causes waters that were previously not inland waters to become inland waters, then, the right of peaceful passage in these waters remains valid.¹¹³

Because the sovereignty of the coastal state in inland waters is identical to the sovereignty of the state on land, if a foreign ship enters a port or other inland water area, the ship is considered to have entered the jurisdiction of the coastal state. Thus, the coastal state has the right to enforce its laws on the foreign ship and anyone on board the ship while taking into account the provisions on diplomatic immunities, especially for foreign warships. However, keeping in mind the principle of floating islands and flag states, against such foreign vessels, especially non-combatant foreign vessels, the coastal state will only enforce its sovereignty and enforce its laws if the interests of the coastal state are disturbed.¹¹⁴

State sovereignty over inland waters means that there is no right to peaceful floors of foreign vessels in inland waters. However, because inland waters also include ports, the problem here is whether it is true that

¹¹³ Ibid, p.49.

¹¹⁴ Dhiana Puspitawati. Op. Cit. p.50.

a country can unilaterally close its ports, whereas as is known, for coastal countries and island countries, foreign ship traffic, especially commercial ships that are conducting international trade, has a very important contribution in terms of a country's economy.¹¹⁵

2. Territorial Sea

The Territorial Sea is national waters in the form of sea lanes located along the coast from the base line and limited by the outer limit line of the Territorial Sea.¹¹⁶ This definition is a general understanding because at that time there was no determination of the width of the Territorial Sea. After UNCLOS 1982 was established, the width of the Territorial Sea could be formulated with certainty, where each State has the right to determine the width of its Territorial Sea not exceeding 12 nautical miles measured from the base line. Article 2 paragraph (1) of UNCLOS 1982 explains that the sovereignty of a coastal state, in addition to its land territory and inland waters, and in the case of an archipelagic state, its archipelagic waters, includes a sea line bordering it called the territorial sea.¹¹⁷ Based on paragraph 2 of this convention, the sovereignty of the coastal state also includes the airspace above and on the seabed and the land beneath it, including the natural resources contained therein,

¹¹⁵ Huala Adolf. (2002). "Aspek-Aspek Negara Dalam Hukum Internasional". Jakarta: Raja Grafindo Persada. p.147

¹¹⁶ Mochtar Kusumaatmadja. (1983). "Hukum Laut Internasional". Bandung: Binacipta. p. 317.

¹¹⁷ Article 2 of UNCLOS 1982

especially fish resources. The sovereignty of the coastal state over the territorial sea must be exercised in accordance with the provisions of UNCLOS 1982 and other rules of international law. Within the territorial sea, a coastal state has full sovereignty, but essentially applies the right of peaceful passage to foreign vessels¹¹⁸ as long as the foreign vessel does not violate or disturb the peace, rule of law and security of the country being passed through.¹¹⁹ In the implementation of coastal state sovereignty over natural resources in the territorial sea, a coastal state has the authority to make laws and regulations relating to the conservation and preservation of marine biological resources, prevention of violations of laws and regulations in the field of fisheries and preservation of the marine environment of the coastal state.¹²⁰

According to article 3 of UNCLOS 1982, each state is granted the right to determine the width of its territorial sea to a limit not exceeding 12 nautical miles, measured from its base line. The sovereignty of a coastal state over its territorial sea is absolute and complete, although it is limited by international obligations arising from the provisions of customary international law and international treaties.¹²¹ Based on these provisions, other countries cannot simply carry out exploration and exploitation

¹¹⁸ Article 17 of UNCLOS 1982

¹¹⁹ Article 19 of UNCLOS 1982

¹²⁰ Mochtar Kusumaatmadja. Op. Cit, p. 317.

¹²¹ Article 3 and 4 of UNCLOS 1982

activities of natural resources contained in the territorial sea of the coastal state without permission from the coastal state concerned.¹²²

3. Contiguous Zone

The claim to the additional zone was first raised by the Indian State. The Indian delegation proposed claiming an additional zone of 18 nautical miles beyond the territorial sea or 30 nautical miles from the baseline.¹²³ This additional zone is defined as the water zone after the territorial sea, where the coastal state only has limited authority in terms of law enforcement against customs, fiscal, sanitary, and immigration. Based on the development of the concept, the additional zone actually originated from British legislation known as the Hovering Acts. This regulation was formulated based on the arrest of foreign smuggling vessels which at the time were smuggling at a distance of 24 nautical miles from the coast. These hovering acts were enforced from 1736 until 1876 when the Customs Consolidation Act 1876 came into effect.¹²⁴ These provisions were formulated before the canon-ball theory of the 3 nautical mile limit for the territorial sea was recognized. At that time there were several disputes between England and Spain and England and France. These disputes involved the capture of a vessel within the 6 nautical mile limit.¹²⁵

¹²² J.L.Brierly. (1996). *Hukum Bangsa-Bangsa*, Jakarta: Bhrotara, p. 140.

¹²³ India's statement in the plenary meetings on July 03. (1974). Third UNCLOS Official Records, *Supra*, V.I, 27th meeting, at. 96.

¹²⁴ Churchill, R.R. and Lowe, A.V. (1999). "Law of the Sea". Fourth Edition. p. 132.

¹²⁵ *Ibid*

Following the acceptance of the 3 nautical mile limit for the territorial sea by the international community, the UK applied the 3 nautical mile territorial waters in its own country and in all its colonies with two exceptions, which included:¹²⁶

- 1) **Doctrine of constructive presence.** According to this doctrine "if a ship outside its maritime zone sends a small ship on the boundary for the purpose of releasing captives, there is no distinction between the status of the two ships and the ship can be said to be in violation of the laws of the state and the local coast."
- 2) **Doctrine of hot pursuit.** If a foreign vessel is proven to be carrying out activities prohibited by international law in the territorial sea and there is a pursuit by coastal state law enforcement, the pursuit may be carried out beyond the territorial sea to the high sea.

Churcill & Lowe give a definition on contiguous zone as "a zone of sea contiguous to and seaward of the territorial sea in which states have limited powers for the enforcement of customs, fiscal, sanitary and immigration law."¹²⁷ In addition, according to J. G Starke:

*"Contiguous Zone is a waterway adjacent to the boundary of the Territorial Sea or maritime route, excluding the sovereignty of the coastal State may exercise certain surveillance rights to prevent violations of laws and regulations on sanitary, customs, fiscal, tax and immigration in its Territorial Sea area. Along 12 miles from the base line."*¹²⁸

¹²⁶ Ibid, p. 133

¹²⁷ Ibid, p. 132

¹²⁸ J.G Starke. (2006). "Pengantar Hukum Internasional", Jakarta: Sinar Grafika, p.36.

Thus, the additional zone is an "addition" to the territorial sea but in the additional zone the coastal state's authority is limited to law enforcement related to customs, fiscal, sanitary, and immigration affairs. This additional zone is also to accommodate hot pursuit or instant pursuit carried out by law enforcement officers against foreign vessels that commit prohibited acts in the territorial sea area. Of course, the pursuit cannot stop immediately when it exceeds the territorial sea limit. Such pursuit may continue 24 nautical miles from the base line or 12 nautical miles from the outer limit line of the territorial sea.¹²⁹

Unlike the territorial sea, an additional zone is not automatically granted to a coastal state. To be recognized for an additional zone, a coastal state must make a claim to the additional zone.¹³⁰ Data shows that of all the coastal states in the world, only one-third have made claims to additional zone areas. The extended zone can be claimed for a maximum width of 24 nautical miles from the baseline, "*The contiguous zone may not extend beyond 24 nautical miles from the baselines used to measure the breadth of the territorial sea.*"¹³¹ In relation to the rights of coastal states, of course as stipulated in Article 33 paragraph (1) of UNCLOS 1982 coastal states have the right to enforce laws and regulations relating to customs, fiscal, sanitary and immigration issues.¹³² Conversely, user

¹²⁹ Dhiana Puspitawati. Opcit., p.64.

¹³⁰ Ibid

¹³¹ Article 33 paragraph (2) UNCLOS 1982

¹³² Article 33 (1) of UNCLOS 1982

maritime states have an obligation to comply with such laws and regulations and are entitled to freedom of navigation in the additional zone.

4. Exclusive Economic Zone (EEZ)

The provisions of Article 55 of UNCLOS 1982 establish a definition of an exclusive economic zone as a separate sea lane outside and adjacent to the sea, which is subject to the specific law set out in Chapter V of UNCLOS 1982. EEZ is a territory located outside and bordering the Territorial Sea subject to a special legal regime under which the jurisdiction and rights of coastal states to exploit, preserve and manage natural resources within this zone, as well as the freedoms and rights of other states. States, governed by the appropriate provisions of this convention.¹³³ Under Article 57 of UNCLOS 1982, each coastal state has the right to designate the territory of its EEZ, provided that the distance must not exceed 200 nautical miles measured from the same baseline used to measure the width of its territorial sea.¹³⁴

The EEZ regime grants coastal states a "sovereign right" over the exploration and exploitation of Natural Resources and other related activities in the EEZ. In consideration, the UNCLOS 1982 also gives maritime user states the right to exercise freedom of navigation in the EEZ including freedom of flight and the laying of undersea pipelines and

¹³³ Article 55 of UNCLOS

¹³⁴ Article 57 of UNCLOS

cables.¹³⁵ This was an effort of UNCLOS 1982 which sought to accommodate conflicts of interest between two groups of countries. User maritime states 'fear of " creeping jurisdiction" with the introduction of the EEZ, compensated by the enactment of a high sea regime on the EEZ with respect to freedom of navigation.¹³⁶ Within the Exclusive Economic Zone, the coastal state has sovereign rights for the exploration, exploitation, conservation and management of natural resources, both biological and non-biological, from the waters above the seabed and from the seabed and subsoil and with respect to other activities for the purposes of exploration and exploitation of the economic zone, such as the production of energy from water, currents.¹³⁷ In contrast to the sovereignty of a coastal state over a territorial sea or an island state over its archipelagic waters, the powers of a coastal state over the natural resources contained within an exclusive economic zone are defined as sovereign rights. Under this regime of sovereign rights, the coastal state has no sovereignty.¹³⁸ In this case, the sovereign rights that a coastal state has in the EEZ are residual,¹³⁹ because

¹³⁵ Diantha, I Made Pasek. (2002). "Zona Ekonomi Eksklusif Indonesia Berdasarkan Konvensi Hukum Laut PBB 1982". Denpasar: Mandar Maju, p.27.

¹³⁶ Dhiana Puspitawati, Op. Cit, p. 112.

¹³⁷ Toni, K. Winanda, C.K. Andy, A. Syaiful, S. Rafiq. (2020). "Relevansi Hak Berdaulat Zona Ekonomi Eksklusif Dalam Perkembangan Hukum Laut Internasional Kontemporer". Prosiding Seminar Hukum dan Publikasi Nasional (Serumpun) II. p. 134.

¹³⁸ Martin Tsamenyi and Transform Aqorau. "Fishing Rights and Responsibilities at Sea: Analysis of the Relevant Provisions of the United Nations Convention on the Law of the Sea". In Martin Tsamenyi and Max Herriman (ed) "Rights and Responsibilities in the Maritime Environment: National International Dilemmas". Wollongong Papers on Maritime Policy No. 5, Centre for Maritime Policy, p. 68.

¹³⁹ Ivan Shearer. (1986). "Problems of Jurisdiction and Law Enforcement Against Delinquent Vessels". International Comparative Law Quarterly. Vol. 35. p. 333.

it only applies to biological resources contained in the zone and does not include waters and airspace above.¹⁴⁰ There are also other rights guaranteed by the provisions of Article 58 paragraph (1) of this convention are the freedom to sail in the EEZ, and fly thereon and install cables and pipelines below sea level.¹⁴¹

According to UNCLOS 1982, coastal states, including island states, have sovereign rights to explore and exploit, including conservation and management of natural resources, both biological and non-living, in the EEZ, including the seabed and the land beneath it. The jurisdiction of coastal states / island states in the EEZ also includes the establishment of artificial islands and other infrastructure and buildings, marine research and protection of the marine environment. It is regulated in Article 56 of UNCLOS 1982 as follows:¹⁴²

1. *“In the exclusive economic zone, the coastal State has:*

(a) Sovereign rights entail the authority to explore, exploit, conserve, and manage natural resources, both living and non-living, in the waters above the seabed and its subsoil. These rights also encompass activities related to the economic exploitation and exploration of the zone, including the production of energy from water, currents, and wind;

(b) jurisdiction as specified in the applicable provisions of this Convention concerning:

- i. the establishment and use of artificial islands, installations, and structures*
- ii. marine scientific research*

¹⁴⁰ M. Damhari. (1987). “The Fisheries Regime of the Exclusive Economic Zone”. Martinus Nijhoff Publishers. p. 17.

¹⁴¹ Article 58 paragraph (1) of UNCLOS 1982

¹⁴² Article 56 of UNCLOS 1982

- iii. *the protection and preservation of the marine environment*
- iv. *other rights and obligations outlined in this Convention*

2. *In exercising its rights and fulfilling its obligations under this Convention within the exclusive economic zone, the coastal State must consider the rights and duties of other States and conduct itself in a manner consistent with the provisions of this Convention.*
3. *The rights outlined in this article concerning the seabed and subsoil shall be exercised in accordance with Part VI of the Convention."*

In exercising its sovereign rights, the coastal state is authorized to carry out extensive law enforcement including boarding ships, conducting inspections and even arresting and conducting legal proceedings for foreign ships that violate its legal provisions regarding the exploration and exploitation of Natural Resources in the EEZ.¹⁴³ Furthermore, in exercising their rights, coastal/island states must also act in compliance with the provisions of UNCLOS 1982. This includes provisions on non-living natural resources on the continental shelf. Furthermore, although coastal states have a broad scope in terms of Natural Resource Management and regulation in the EEZ, coastal/island states must ensure that natural resources are not threatened by over-exploitation by conserving and managing natural resources.¹⁴⁴ Such arrangements are intended to ensure that the populations of the species taken can be maintained at levels in accordance with the Maximum Sustainable Yield

¹⁴³ David Attard. (1987). "The Exclusive Economic Zone in International Law". Clarendon Press Oxford. p. 179

¹⁴⁴ Article 61 of UNCLOS 1982

(MSY) as required in environmental and economic standards.¹⁴⁵ Coastal states / island states also have an obligation 'to implement the optimal use of these natural resources, especially fisheries which includes evaluation of the total allowable catch and determine the capacity to be able to take the fish. If the coastal state / island state does not have the capacity to do so, it must provide access to other countries to do so.¹⁴⁶

Furthermore, land-locked States and geographically disadvantaged States are granted the right by UNCLOS 1982 to participate based on the principle of equity or equal rights in the utilization and management of Natural Resources in the EEZ in order to maintain a surplus of natural resources, especially biological resources through mechanisms and ways agreed with coastal countries / island countries related.¹⁴⁷ However, this participatory right excludes a situation in which the coastal state/island state is economically highly dependent on the use of living natural resources in the surrounding sea.¹⁴⁸

5. Continental Shelf

The extension of the sovereignty of coastal states and island states in certain marine areas results in ownership of the seabed in its water area,

¹⁴⁵ Ibid

¹⁴⁶ Donat Pharad and Bob Applebaum. (1993). "Rights of the Coastal State Over Fisheries in the EEZ: Canadian Perspective" in the Donat Pharad and Umberto Leanza (eds). "The Continental Shelf/Exclusive Economic Zone Regime, Martinus Nijhoff, Dordrecht, Boston and London, p. 292.

¹⁴⁷ M.G. Jennings. (1994). "Surveillance, and Control on Marine Resources". In OECD Documents on Fisheries Enforcement Issues, Paris, p. 217.

¹⁴⁸ Article 71 of UNCLOS 1982

which is also commonly called the continental shelf.¹⁴⁹ Ownership or occupation of a coastal country on the seabed on its continental shelf becomes very important with the discovery of minerals, oil and gas content on the continental shelf of a coastal country. In addition to being rich in non-living natural resources, the continental shelf is also rich in living natural resources, such as shellfish, oysters, and lobsters.¹⁵⁰ With the content of so many natural resources, the legal status of the continental shelf becomes very crucial. Geographically the continental shelf can be divided into 3 (three) parts, as stated by Churchill & Lowe in his book *The Law of the Sea* as follows:¹⁵¹

“Physically, the seabed adjacent to a typical coast is commonly divided into three distinct sections. First, there is the continental shelf, which slopes gradually from the low-water mark to a depth of approximately 130 meters, beyond which the angle of declination increases significantly. Second, there is the continental slope, which borders the continental shelf and features a steeper slope descending to depths ranging from around 1,200 to 3,500 meters. Third, beyond the continental slope, there is an area known as the continental rise, where the seabed descends more gradually and is primarily composed of sediments washed down from the continents. The continental rise typically extends to depths of approximately 3,500 to 5,500 meters. Collectively, these three sections form the continental margin, which constitutes about one-fifth of the seafloor.”

¹⁴⁹ Dhiana Puspitawati, *Op. Cit.*, p. 118

¹⁵⁰ Louis B. Sohn and John E. Jones. (2004). *“Cases and Materials of the Law of the Sea”*. (Ardsley, New York: Transnational Publishers). p. 495.

¹⁵¹ Robin Rolf Churchill and Alan Vaughan Lowe. (1983). *“The Law of the Sea”*. New Hampshire: Manchester University Press. p. 109

In Chapter VI, articles 76 to 85 of UNCLOS 1982 specifically regulate the continental shelf. Article 76 of UNCLOS 1982 states that:¹⁵²

“The continental shelf of a coastal state includes the seabed and subsoil of the submarine areas that extend beyond its territorial sea, continuing naturally from its land territory to either the outer edge of the continental margin or a distance of 200 nautical miles from the baselines used to measure the breadth of the territorial sea, whichever is greater. If the outer edge of the continental margin does not reach the 200 nautical mile limit, then the continental shelf extends to that distance from the baselines.”

From the sound of Article 76, it can be seen that the continental shelf is adjacent to or related to the territorial sea. The inner boundary of the continental shelf is often identified as the outer boundary of the territorial sea. Article 76 paragraph (4) (a) of UNCLOS 1982 further says that a coastal state may determine the outer boundary of its continental shelf as far as 200 nautical miles from the baseline.¹⁵³ However, because geographically the continental shelf is closely related to the geographical conditions of the seabed, it is possible that the boundary of the continental slope that forms the continental shelf is more than 200 nautical miles. In such case it is allowed as long as it does not exceed 350 nautical miles or within the limit of 100 nautical miles starting at a depth of 2,500 meters isobath.¹⁵⁴ Although UNCLOS 1982 has determined the limits of the continental shelf, the configuration of the seabed has the potential to change, coupled with global warming that causes sea levels to rise and

¹⁵² Article 76 of UNCLOS 1982

¹⁵³ Article 7 paragraph (4) point (a) of UNCLOS 1982.

¹⁵⁴ Article 76 paragraph (5) of UNCLOS 1982.

thick seabed sediments that change cause continental shelf limits that have been determined by UNCLOS 1982 are difficult to apply.¹⁵⁵

UNCLOS 1982 determined that coastal states only have sovereign rights over the continental shelf with respect to the exploration and exploitation of natural resources both biological and non-biological.¹⁵⁶ As for the legal status of waters above the continental shelf is regulated in Article 78 of UNCLOS 1982, as follows:¹⁵⁷

- (1) *“The right of coastal state over its CS does not affect the legal status of the superjacent waters or of the airspace above the waters*
- (2) *The exercise of the rights of the coastal state over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other states as provided for in this convention.”*

Because coastal states only have sovereign rights on the continental shelf, of course the rights of coastal states on the continental shelf are only limited to the exploration and exploitation of natural resources. The rights and obligations of coastal states on the continental shelf can be seen in Article 77 of UNCLOS 1982, as follows:¹⁵⁸

- (1) *“The coastal state exercise over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources*
- (2) *The rights referred to in paragraph 1 are exclusive in the sense that if the coastal state does not explore the continental shelf or*

¹⁵⁵ Dhiana Puspitawati, Op. Cit, p. 121.

¹⁵⁶ I Made Andi Arsana. (2009). “Menuju Penyelesaian Sengketa Ambalat: Sebuah Kajian Teknis dan Yuridis”. Proceeding Olimpiade Karya Tulis Inovatif (OKTI). Jurusan Teknik Geodesi, Fakultas Teknik Universitas Gadjah Mada. Yogyakarta. p. 6.

¹⁵⁷ Article 78 of UNCLOS 1982

¹⁵⁸ Article 77 of UNCLOS 1982

- exploit its natural resources, no one may undertake these activities without the express consent of the coastal state*
- (3) *The right of the coastal state over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.*
- (4) *The natural resources referred to in this Part consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with seabed or the subsoil.”*

6. High Seas

Before delving deeper into the high seas, it is important to note that the nomenclature used in UNCLOS is High Seas, which is legally defined as the High sea. It is not advisable to understand the high seas as the high seas, because as mentioned above, the essence of the high seas is free and open to all countries because there is no sovereignty of any country in the high seas.¹⁵⁹ The waters beyond the EEZ boundary are called the High Seas. The high seas are part of the maritime zone that is outside the area of national jurisdiction. Freedom in the high seas as a manifestation of the doctrine of "*mare liberium*" has long been recognized and accommodated by UNCLOS 1982.¹⁶⁰ The high seas regime was recognized internationally prior to the codification of the international law of the sea. The first international convention to recognize the high sea regime in writing was

¹⁵⁹ Article 89 UNCLOS 1982. Except in the Floating Islands Principle, where the sovereignty of the flag state of the ship on board a ship flying the flag of a state applies.

¹⁶⁰ Rivai Sihalo. (2013). "Penetapan Garis Batas Zona Ekonomi Eksklusif Indonesia dan India dalam Penegakan Kedaulatan Teritorial Ditinjau dari Hukum Internasional". Skripsi S1 Hukum Internasional Fakultas Hukum USU. p. 45.

the 1958 High Seas Convention produced by UNCLOS I in 1958. Article 1 of the High Seas Convention defines the sea as *“all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state.”*¹⁶¹ This article was later adopted in Article 86 of UNCLOS 1982 with a slight modification to adjust to the existence of new maritime zones, namely EEZs and archipelagic states. Article 86 of UNCLOS 1982 states:¹⁶²

“all parts not included in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state. This article does not entail any abridgement of a freedoms enjoyed by all states in the exclusive economic zone in accordance with article 58.”

Thus, this article defines the high seas as the part of the sea that does not include the exclusive economic zone, territorial sea or inland waters of a country or the archipelagic waters of an archipelagic country and it can be said that the outer limit of the EEZ is the water area where the high sea regime begins.¹⁶³

The provisions on the high seas set out in UNCLOS 1982 were largely adopted from the 1958 Convention on the High Seas. Article 2 of the 1958 High Seas Convention states, *“the high seas are open to all States, and no State may lawfully claim that any part of the high seas is under its sovereignty.”*¹⁶⁴ The provisions of this Article were later adopted in Article

¹⁶¹ Article 1 of High Seas Convention 1958

¹⁶² Article 86 of UNCLOS

¹⁶³ T. May Rudy. (2002). “Hukum Internasional 2”. Bandung: Refika Aditama. p. 19.

¹⁶⁴ Article 2 of High Seas Convention 1958

87 and Article 89 of UNCLOS 1982. Article 87 of the Convention provides that:¹⁶⁵

(1) *“The high seas are accessible to all nations, whether coastal or land-locked, and the freedom to navigate them is governed by the provisions of this Convention and other principles of international law. This freedom encompasses various rights for both coastal and land-locked States:*

a) Freedom of navigation; b) Freedom of overflight; c) Freedom to lay submarine cables and pipelines, subject to Part VI of the Convention; d) Freedom to construct artificial islands and other installations permitted under international law, subject to Part VI of the Convention; e) Freedom of fishing, subject to the conditions outlined in section 2 of the Convention; f) Freedom of scientific research, subject to the provisions of Parts VI and XIII of the Convention.

(2) *These freedoms must be exercised by all nations while respecting the interests of other nations in their utilization of the freedoms of the high seas, and also in accordance with the rights established under this Convention concerning activities in the Area.*

This article elaborates on the principles governing the high seas, affirming that they are accessible to all coastal and land-locked states, guaranteeing universally recognized freedoms.¹⁶⁶ The high seas remain open to all nations, and no single state can assert sovereignty over these international waters. Article 87 of the UNCLOS 1982 enumerates the freedoms of the high seas, which encompass.¹⁶⁷ Each of these freedoms must be exercised by every state with due regard for the interests of other states in the exercise of these rights, and in compliance with relevant provisions of

¹⁶⁵ Article 87 of UNCLOS 1982

¹⁶⁶ Anwar, Chairul. (1989). “Hukum Internasional Pengantar Hukum Bangsa-Bangsa”. Jakarta: Djambatan. p.62.

¹⁶⁷ Article 87 of UNCLOS 1982

international law. Article 89 of UNCLOS 1982 explicitly states that no state can claim sovereignty over any part of the high seas:

*“Furthermore, the utilization of the resources of the high seas, including fishing and scientific research, is mandated to be conducted solely for peaceful purposes. This principle underscores the importance of cooperation and mutual respect among states in their activities on the high seas, emphasizing the collective interest in the responsible and sustainable use of these international waters for the benefit of all nations.”*¹⁶⁸

As for the regulation of fisheries management in the High seas, Article 89 of UNCLOS 1982 regulates sovereignty in the high seas, which states that, *“No state may validly purport to subject any part of the high seas to its sovereignty.”*¹⁶⁹ The problems that arise are related to the utilization of natural resources in the high sea, especially fisheries resources. Although Article 89 states that no state has sovereignty in the high sea, it does not mean that the state may not carry out natural resource utilization activities regulated in Article 116 of UNCLOS 1982 regarding the right to take fish in the high sea.¹⁷⁰

“All States have the right for their nationals to engage in fishing on the high seas subject to:

- a. their treaty obligations;*
- b. the rights and duties as well as the interests of coastal States provided for, inter alia, in article 63, paragraph 2, and articles 64 to 67; and*
- c. the provisions of this section.”*

¹⁶⁸ Kendis Gabriela Runtuuwu. (2014). “Implementasi Pemanfaatan Laut Lepas Menurut Konvensi Hukum Laut 1982”. *Lex et Societatis*, Vol. II/No. 3. p. 62.

¹⁶⁹ Article 89 of UNCLOS 1982

¹⁷⁰ Article 116 of UNCLOS 1982

In this article, it does not mean that free countries can scramble to explore and exploit natural resources in the high sea, especially fishery resources.¹⁷¹ This is due to the obligation of countries to conserve fisheries resources.¹⁷²

“All states bear the responsibility to implement measures, either independently or through collaboration with other states, to protect and conserve the living resources of the high seas for the benefit of humanity. This duty reflects a collective commitment to sustainable management and conservation practices aimed at preserving the biodiversity and ecological balance of the oceans. Under international law, states are obligated to adopt regulations and policies that promote the conservation of marine living resources on the high seas. These measures include establishing and enforcing quotas for fishing activities, implementing monitoring and surveillance programs, and conducting scientific research to inform conservation effort .”

This raises the question of who will regulate the management of natural resources, especially biological resources in the high sea, while Article 89 of UNCLOS 1982 states that no country has sovereignty in the high sea. Article 118 of UNCLOS 1982 regulates the cooperation that should be carried out by countries in handling the conservation and management of biological natural resources:¹⁷³

“Cooperation among states is essential to address the transboundary nature of marine resources and ensure effective conservation outcomes. States must engage in information sharing, joint management initiatives, and enforcement of international agreements to combat illegal, unreported, and unregulated (IUU) fishing activities. Additionally, states are encouraged to support initiatives that enhance research and understanding of marine ecosystems, including the impacts of climate change and human activities. By fostering international

¹⁷¹ Melda Kamil Ariadno, Op. Cit, p. 504.

¹⁷² Article 117 of UNCLOS 1982

¹⁷³ Article 118 of UNCLOS 1982

cooperation and adopting responsible practices, states can fulfill their duty to conserve the living resources of the high seas and promote sustainable development for present and future generations.”

International agreements regulate the utilization of living resources in the high seas through a combination of legally-binding and non-binding instruments. The United Nations Convention on the Law of the Sea (UNCLOS) is the primary legal framework that governs the use of the high seas, including the conservation and management of living resources. The Convention establishes the EEZs for coastal states, which extend up to 200 nautical miles from the coastline, giving them jurisdiction over the exploration and use of marine resources within their EEZs.¹⁷⁴

The Biodiversity in Areas Beyond National Jurisdiction (hereinafter BBNJ Agreement), is a new agreement under UNCLOS that aims to allow for more effective management and protection of the high seas. The treaty focuses on four main areas: the conservation and sustainable use of biodiversity in areas beyond national jurisdiction, the establishment of a new international legally binding instrument, the role of existing sectoral and regional organizations, and the allocation of marine genetic resources.¹⁷⁵ These international agreements and organizations

¹⁷⁴ Fae Sapsford. (2022). “Ocean Exploration Facts: What Is High Seas Governance?”. Marine Research Fellow, Sargasso Sea Commission. Available at <https://oceanexplorer.noaa.gov/facts/high-seas-governance.html>

¹⁷⁵ Nurbintoro, Gulardi and Nugroho, Haryo Budi. (2016). "Biodiversity Beyond National Jurisdiction: Current Debate and Indonesia's Interest," Indonesia Law Review: Vol. 6: No. 3, Article 2. p. 297.

work together to ensure the sustainable use of living resources in the high seas, protect marine biodiversity, and prevent unregulated exploitation.

7. SEA-BED OR THE AREA

The term "Area" refers to the expansive realm encompassing the seabed, ocean floor, and underlying land that lie beyond the boundaries of national jurisdiction. The "seabed" pertains to the uppermost layer of the earth's surface in seas and oceans, often interchangeably referred to as the seafloor or ocean floor. Within this domain, a diverse range of geological and biological resources can be found, each playing a crucial role in global ecosystems and human activities.¹⁷⁶ Geological resources within the seabed include surface deposits like sand, gravel, and valuable deep-sea minerals, as well as subsurface reservoirs containing oil and gas. These resources hold significant economic and strategic importance, supporting industries ranging from construction to energy production.¹⁷⁷ In addition to geological wealth, the seabed is teeming with biological diversity. Sedentary organisms inhabit the seabed, contributing to the intricate marine ecosystem. These organisms are finely attuned to the specific environmental conditions dictated by the seabed's composition and

¹⁷⁶ Article 1 (1) of UNCLOS

¹⁷⁷ Catherine Banet. (2020). "The law of the Seabed: access, uses, and protection of seabed resources". Leiden, Boston: Brill Nijhoff. Series: Publications on ocean development, 0924–1922. Volume 90. p. 33.

associated geological processes.¹⁷⁸ The principle of Common Heritage of Mankind governs activities within this Area. This principle emphasizes the collective responsibility of nations to engage in exploration, research, and sustainable development activities in the seabed area. Every nation has the freedom to conduct exploration initiatives while adhering to international regulations aimed at safeguarding the environment and ensuring equitable access to resources. Furthermore, nations share a mutual obligation to monitor and protect this shared domain, promoting responsible stewardship and the preservation of biodiversity for future generations.¹⁷⁹ The development of the sea-bed regime began with the discovery of non-living natural resources in 1873.¹⁸⁰ The exploration and exploitation of such natural resources began to be seriously discussed in international forums in the 1960s and 1970s when there was opposition between states that were able to conduct sea-bed exploration and land-based exporters of minerals. If unlimited sea-bed mining was allowed, it would only benefit the sea-bed mining states and harm the land-based exporters.¹⁸¹ With the

¹⁷⁸ M. Ilham F. Putuhena. (2019). "Urgensi Pengaturan Mengenai Eksplorasi dan Eksploitasi Pertambangan di Area Dasar Laut Internasional". *Jurnal Rechtsvinding*, Vol. 8, No. 2, 2019, p. 174.

¹⁷⁹ G. Wright, J. Rochette, S. Unger, K. Gjerde and J. Ardron. (2014). "The scores at half time: An update on the international discussions on the governance of marine biodiversity in areas beyond national jurisdiction". Institute for Sustainable Development and International Relations (IDDRI) Issue Brief, No 2.

¹⁸⁰ Thompson, C.W.; Murray, J. Report on the Scientific Results of the Voyage of H.M.S. "Challenger" during the Years 1873–76 under the Command of Capt. George S. Nares, R.N., F.R.S., and Capt. F.T. Thomson, R.N. *Nature* 1884, 31, 165–166.

¹⁸¹ For further elaboration on the regime's historical development, See: Martti Koskenniemi and Marja Lehto, 'The Privilege of Universality: International Law, Economic Ideology and Seabed Resources' (1996) 65 *Nordic J Intl Law* 533, 536–552; Helmut Tuerk, 'The International Seabed Area' in Malgosia Fitzmaurice and Norman A Martinez Gutierrez (eds), *The IMLI Manual on International Maritime Law*, vol I (OUP 2014) 280–282.

commercialization of the sea-bed, it is argued that such activities will only benefit developed countries, as Churchill & Lowe put it as follows: *“it was recognized that as International Law then stood the main benefit of mining would accrue to a handful of developed state.”*¹⁸²

a. The History of Sea-Bed or The Area Regime

The permissibility of sea-bed exploration and exploitation has led to three different interpretations of sea-bed mining.¹⁸³ First, along with the development of sea-bed exploitation technology and exploitability criteria, it is argued that the coastal state boundary of a country is moving into deeper and deeper seas. It can be expected that with the commercialization of sea-bed mining, the ocean floor will be divided by coastal states. Secondly, the coastal state boundary should not be too far, but only limited to the area that is still associated with the geological shelf. Thus, the sea-bed will fall under the freedom of high seas regime and give the sea-bed the status of res-communis.¹⁸⁴ Its resources were thus open to all and could not be appropriated by anyone. The third interpretation gives the sea-bed the status of res-nullius.¹⁸⁵ According to an alternative view, the international seabed

¹⁸² Churchill & Lowe, Op. Cit, p. 224.

¹⁸³ Dhiana Puspitawati, Op. Cit, p. 133.

¹⁸⁴ Donald Rothwell and Tim Stephens. (2010). “The International Law of the Sea”. P. 120

¹⁸⁵ Robin Rolf Churchill and Alan Vaughan Lowe. (1999). “The Law of The Sea”. Manchester University Press ND. p. 225.

was *res nullius*, the effect of which was to allow claims to title over areas of the seabed based on occupation through use.¹⁸⁶ Indeed, concerns were expressed that the legal limits of the continental shelf could eventually be extended so far as to effectively divide up the entirety of the seafloor among coastal states. In particular, it was feared that the benefits of deep seabed mining would be reaped by the handful of industrialised states that possessed the capacity to make substantial investments to develop seabed mining technology. Developing states would thus be effectively excluded from enjoying the economic potential of seabed minerals. In addition, developing land-based mineral exporting states could be disadvantaged by a rise in global metal supply.¹⁸⁷

From here it can be seen that talking about the sea cannot be separated from the existence of a conflict of interest between developed and developing countries. With this conflict of interest,

Malta's ambassador, Dr. Arvid Pardo, submitted the sea-bed issue to the UN General Assembly in 1967. He proposed the immediate establishment of "Declaration and Treaty Concerning the Reservation Exclusively for peaceful purposes of the sea-bed and ocean floor underlying the seas beyond the present limits of national jurisdiction

¹⁸⁶ Barkenbus (n. 3), pages 30–32; Jon Van Dyke and Christopher Yuen, "Common Heritage" v. "Freedom Of The High Seas": Which Governs The Seabed? (1981) 19 San Diego Law Review 493–551, pages 514–519; Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of The Sea* (Manchester University Press ND, 1999), page 225.

¹⁸⁷ Churchill and Lowe, *Op. Cit.*, p.223.

and the use of their resources in the interest of mankind”¹⁸⁸ and recognising the international seabed and ocean floor as the ‘common heritage of mankind.’¹⁸⁹ According to Pardo, the requirements of this common heritage concept were that the international seabed ‘should be used and exploited for peaceful purposes and for the exclusive benefit of mankind as a whole’ and should not be subject to national appropriation in any manner whatsoever.¹⁹⁰ In order to give effect to the common heritage concept, he envisaged an ‘agency with adequate powers to administer in the interests of mankind the oceans and the ocean floor beyond national jurisdiction’ including ‘the power effectively to regulate the commercial exploitation of the ocean floor.’¹⁹¹ It is intended to prevent demilitarization of the sea-bed and prevent "land-grab" for mineral resources in the sea-bed or area. Developing countries in the debate report of the committee on UN General Assembly resolution 2574 stated the "Moratorium Resolution" which in principle contains the following:¹⁹²

“During this interim period, no entity or state shall assert or have their assertion acknowledged regarding any portion of this region or its resources. It is imperative that all parties adhere to this principle of restraint and abstain from actions that could compromise the integrity of this shared human

¹⁸⁸ Arvid Pardo’s speech, UNGA 22nd session, 1 November 1967, Agenda Item 92, full text available at https://www.un.org/depts/los/convention_agreements/texts/pardo_ga1967.pdf

¹⁸⁹ Prue Taylor and Lucy Stroud. (2013). “Common Heritage of Mankind: A Bibliography of Legal Writing”. LULU Press. p. xv–xxiv.

¹⁹⁰ UNGA, UN Doc A/C.1/PV.1516 (1 November 1967), paragraphs 10–15.

¹⁹¹ Ibid, paragraph 8-9

¹⁹² UN General Assembly “Moratorium Resolution” 2574. Available at https://legal.un.org/diplomaticconferences/1973_los/docs/english/res/a_res_2574_xxiv.pdf

heritage. This temporary prohibition underscores the necessity of establishing an effective international regulatory framework to govern and oversee activities in these expansive maritime areas. The creation of such a regime would provide the legal and institutional infrastructure required to supervise resource utilization equitably, sustainably, and in accordance with the principle of the common heritage of humankind. Until then, adherence to these principles is vital to prevent premature or unilateral exploitation that could endanger the health and long-term sustainability of these critical marine ecosystems.”

His proposal struck a chord with many delegates from developing states which, at the time, were eager to establish a more equitable international economic order.¹⁹³ This new order was to improve the terms of international trade for developing states, including addressing the inequalities of the international trade system that centred on the General Agreement on Tariffs and Trade (GATT).¹⁹⁴ In the end, UN General Assembly Resolution 2749 of 1970 produced a "Declaration of Principles Governing the Sea-bed and Ocean Floor and the Subsoil Thereof, beyond the Limits of National Jurisdiction" which regulates the following matters:¹⁹⁵

- 1. The seabed, ocean floor, and subsoil beyond national jurisdiction, collectively referred to as the Area, along with its resources, represent the common heritage of mankind—a vital*

¹⁹³ Nico Schrijver. (2008). "The Evolution of Sustainable Development in International Law: Inception, Meaning and Status". Martinus Nijhoff Publishers.

¹⁹⁴ General Agreement on Tariffs and Trade (adopted 30 October 1947, entered into force provisionally 1 January 1948) 55 UNTS 187.

¹⁹⁵ UN General Assembly "Declaration of Principles Governing the Sea-bed and Ocean Floor and the Subsoil Thereof, beyond the Limits of National Jurisdiction". Resolution 2749. Available at: https://legal.un.org/diplomaticconferences/1973_loa/docs/english/res/a_res_2749_xxv.pdf

global asset that must be managed responsibly and equitably for the benefit of present and future generations.

2. *It is imperative that the Area remains free from appropriation by any state or entity, whether natural or juridical. No state shall assert or exercise sovereignty or sovereign rights over any part of the Area, reaffirming the shared responsibility to preserve this common heritage for the common good.*
3. *States and entities, whether natural or juridical, are prohibited from claiming, exercising, or acquiring rights over the Area or its resources that contradict the forthcoming international regulatory framework and the fundamental principles outlined in this Declaration. This provision underscores the necessity of adhering to a unified approach to the governance and stewardship of this globally significant area.*
4. *All activities related to the exploration, exploitation, and utilization of resources within the Area, as well as associated endeavors, shall be subject to regulation and oversight by the international regime that will be established. This regime will ensure that such activities are conducted in a manner that upholds the principles of equity, sustainability, and respect for the common heritage of mankind.*

The declaration certainly invited various reactions from countries in accordance with their respective national interests.¹⁹⁶

Group 77 (comprising 120 developing countries) considered the resolution to be a binding treaty and interpreted sea-bed mining as an unlawful act.¹⁹⁷ Meanwhile, western countries consider that the resolution is not itself legally binding, and only consider the resolution as a political statement.¹⁹⁸ Resolution 2749 has been subject to many

¹⁹⁶ Nico Schrijver. (2008). "The Evolution of Sustainable Development in International Law: Inception, Meaning and Status". (Martinus Nijhoff Publishers, 2008); Friedheim (n. 8), pages 220–221; Lawrence Juda, 'UNCLOS III and the New International Economic Order' (1979) 7 Ocean Development & International Law 221–255.

¹⁹⁷ Donald Rothwell and Tim Stephens. (2010). The International Law of the Sea. Hart. p.133.

¹⁹⁸ Churchill and Lowe, Op. Cit, p. 227-228.

interpretations, as it supports open access to the sea-bed under the freedom of high seas principle, and unilateral development as a temporary sea-bed steward before the establishment of an international organization.¹⁹⁹ Group 77 considers that the establishment of an international sea-bed authority would in itself have the following powers

“To participate in sea-bed mining operations and oversee the activities of other licensees, the designated authority would have the responsibility to collect royalties from these operations. These royalties, combined with the authority's own profits derived from mining activities, would constitute a pool of resources that would be distributed among all states as the common heritage of mankind. This distribution mechanism ensures that the benefits derived from sea-bed mining are shared equitably among all nations, reflecting the principle of collective stewardship and mutual benefit inherent in the common heritage of mankind. By channeling revenues back to the international community, this approach promotes sustainable and responsible management of sea-bed resources while fostering international cooperation and solidarity.”²⁰⁰

Meanwhile, developing countries consider that

“The authority, envisioned as a custodian of the global commons, should not be limited to a passive registry of national claims but should instead be endowed with robust regulatory and oversight powers to ensure the responsible and sustainable exploitation of sea-bed mining resources. Rather than merely recording national claims, the authority should actively engage in setting and enforcing international standards for sea-bed mining activities. One critical aspect of the authority's role should involve establishing and implementing comprehensive regulatory frameworks to govern sea-bed mining operations. This would include developing environmental impact assessments, setting guidelines for safety and operational standards, and

¹⁹⁹ Jack N. Barkenbus. (1979). Deep Seabed Resources: Politics and Technology. The Free Press, 1979. p. 30

²⁰⁰ Churchill and Lowe, Op. Cit, p. 228

*monitoring compliance with international laws and agreements. By exercising strong regulatory oversight, the authority can mitigate potential environmental risks associated with sea-bed mining and promote sustainable practices.”*²⁰¹

Ultimately, the end of the debate or conflict is balanced through the provisions in Part XI of UNCLOS 1982. Chapter XI of UNCLOS 1982 was formulated to balance the accommodation of conflicting interests. In general, the sea-bed principle outlined in Chapter XI of UNCLOS 1982, as follows:²⁰²

- 1) The Area Regime governs all activities related to the exploration and exploitation of mineral resources in the Area.²⁰³
- 2) Area defined as: “sea-bed and ocean floor and subsoil thereof beyond national jurisdiction”²⁰⁴
- 3) National jurisdiction for this purpose extends to the outer edge of the continental margin or 200 miles from the baselines.
- 4) The area (60% of the entire sea-bed) and the resources contained therein (limited by Article 133 to mineral resources) constitute the "Common Heritage of Mankind".
- 5) All activities of exploration and exploitation of mineral resources in the area are carried out by the sea-bed authority with the assistance of "enterprises" and "commercial operators"

²⁰¹ Ibid

²⁰² Chapter XI of UNCLOS 1982

²⁰³ Article 134 paragraph (2) of UNCLOS 1982

²⁰⁴ Article 1 of UNCLOS 1982

whose proceeds are used for the benefit of mankind by considering developing countries.²⁰⁵

The consequence of these principles are that no single state has the right to establish sovereignty and ownership over natural resources in the international seabed area, and its use is managed under the international legal regime through an international organization, the International Seabed Authority (ISA).²⁰⁶ However, the object of natural resource management in this international seabed area only includes non-living resources, and thus biological resources are not included in the scope of UNCLOS regulation of the international seabed area.²⁰⁷ However, it would be wrong to say that the sea-bed is managed by the ISA, as there are many uses within the sea-bed that are not related to the exploitation of the sea-bed that do not require approval by the ISA itself, such as the laying of subsea cables and pipes and marine research activities.²⁰⁸ Today, the ISA is an authoritative body through which countries regulate and can control

²⁰⁵ Article 140 of UNCLOS 1982

²⁰⁶ Article 137 (2) of UNCLOS 1982

²⁰⁷ A.G. Siswandi, *Marine Bioprospecting: International Law, Indonesia, and Sustainable Development* (Ph.D. Thesis, The Australian National University, 2013), p. 208.

²⁰⁸ Dhiana Puspitawati, *Op. Cit*

all activities related to sea-bed minerals that are outside of a country's national jurisdiction.²⁰⁹

b. Coastal State Rights

The consequence of the Area's legal status as a common heritage of mankind is that states may not exercise their jurisdiction in the Area, international law subjects may not carry out activities in the Area without the consent of the authority.²¹⁰ With the enactment of the area as a common heritage of mankind, its management is taken care of by the ISA. This is regulated in Article 137 of UNCLOS 1982, which states that:²¹¹

1. *No state or entity shall assert or exercise any form of sovereignty or sovereign rights over any part of the Area or its resources, and no act of appropriation by any state or natural or legal person shall be acknowledged or accepted.*
2. *The rights to the resources of the Area are held collectively by humanity as a whole, with the Authority acting as its representative. These resources are indivisible and cannot be transferred to any individual or entity. However, minerals extracted from the Area may be transferred or disposed of only in accordance with the provisions outlined in this Part, as well as the regulations and procedures established by the Authority.*
3. *No state or natural or legal person shall claim, obtain, or exercise rights concerning minerals extracted from the Area unless such actions are conducted in strict accordance with the provisions specified in this Part. Any unauthorized claim,*

²⁰⁹ Council on the submissions to the draft regulations on exploitation of mineral resources in the Area, Advance Text, 21 February 2018, UN Doc. ISBA/24/C/CRP.1 at para. 17 and Annex II, para. 2.

²¹⁰ Michael W Lodge. (2002). 'International Seabed Authority's Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area'. 20 J Energy and Natural Resources. p. 270-271.

²¹¹ Article 137 of UNCLOS 1982

acquisition, or exercise of such rights shall not be recognized or validated.

Although the Area is a common heritage of mankind, coastal states have certain rights as stipulated in Article 142 of UNCLOS 1982, as follows:²¹²

1. *Activities conducted within the Area, particularly those pertaining to resource deposits extending beyond national jurisdictional boundaries, must be executed with due consideration for the rights and legitimate interests of any coastal state over whose jurisdiction these deposits traverse.*
2. *To uphold these rights and interests, ongoing consultations, including a system of prior notification, must be established and maintained with the concerned coastal state. These consultations are aimed at preventing any infringement of the coastal state's rights. Additionally, in scenarios where activities within the Area may lead to the exploitation of resources falling within a coastal state's jurisdiction, the prior consent of the respective coastal state is mandatory.*
3. *Furthermore, the provisions outlined in this Part, and the rights granted or exercised under these provisions, shall not impede the rights of coastal states to implement necessary measures consistent with the relevant provisions of Part XII. These measures may include actions to prevent, mitigate, or eliminate severe and imminent dangers posed to their coastline or related interests. Such dangers may arise from pollution, threats thereof, or other hazardous occurrences resulting from or caused by activities within the Area.*

The UN General Assembly finally issued UN Resolution No. 2574 dated December 15, 1969 on the area, which assigned the UN Secretary General to prepare the status, structure to regulate and supervise exploration and exploitation activities, functions, authority

²¹² Article 142 of UNCLOS 1982

of an international mechanism on the sources of wealth on the international seabed for the prosperity of mankind. From here, in its development, an authority for the management of marine resources in the area was established, called the ISA. As stated earlier that the management of the area is not a monopoly of industrialized countries, therefore ISA is also obliged to transfer technology as stipulated in Article 146 of UNCLOS 1982.²¹³ The purpose of the ISA is as a representative of the international community that oversees and regulates all activities related to the exploration and exploitation of natural resources in the Area of.²¹⁴ The ISA managing the proceeds of sea-bed exploitation applies a financial sharing especially to developing countries and coastal states closest to the exploitation site. However, in the distribution of financial benefits, UNCLOS does not specify how the profit-sharing mechanism is carried out but only regulates that the distribution of financial benefits from sea-bed management will be carried out in an "equitable" manner, this can be concluded from the regulation of Article 140 UNCLOS 1982 as follows:²¹⁵

1. *Activities in the Area, as outlined in this Part, are conducted with the overarching objective of benefiting humanity as a whole, irrespective of the geographical location of States, whether coastal or land-locked. This principle emphasizes the importance of considering the interests and needs of developing States, as well as populations that have not yet achieved full independence*

²¹³ Article 146 of UNCLOS 1982

²¹⁴ Article 137 (2), 140, 153, and 157 of UNCLOS 1982.

²¹⁵ Article 140 of UNCLOS 1982

or other recognized self-governing status in accordance with General Assembly resolution 1514 (XV) and related General Assembly resolutions.

2. *the Authority is mandated to ensure the equitable distribution of financial and other economic benefits arising from activities in the Area. This distribution is facilitated through appropriate mechanisms designed to operate on a non-discriminatory basis, aligning with the provisions of article 160, paragraph 2(f)(i). By implementing these measures, the Authority promotes fairness and inclusivity, aiming to address the specific needs and challenges faced by developing States and vulnerable populations in the context of sea-bed mining and related activities.”*

The exact division will be regulated separately by the ISA.

Sometimes this uncertainty is what is feared by developing countries and the closest coastal state to the location of the area in question. In order to achieve an equality and balance between developed and developing countries in the exploration and exploitation of resources in the Area, Article 144 of UNCLOS 1982 formulates a deep ocean seabed mining technology transfer program as follows:²¹⁶

1. *“The Authority, in accordance with this Convention, undertakes specific measures to address technology and scientific knowledge related to activities in the Area:*
 - (a) *Acquiring technology and scientific knowledge pertinent to sea-bed mining and associated activities*
 - (b) *Promoting and facilitating the transfer of such technology and scientific knowledge to developing States to ensure universal benefit among all States Parties.*
2. *In pursuit of these objectives, the Authority collaborates with States Parties to promote the effective transfer of technology and scientific knowledge related to activities in the Area, fostering mutual benefit for the Enterprise and all States Parties. This cooperation entails initiating and promoting:*

²¹⁶ Article 144 of UNCLOS 1982

- (a) *Technology transfer programs aimed at supporting the Enterprise and facilitating the access of developing States to relevant technology under equitable terms and conditions;*
- (b) *Advancement measures targeting the technology capabilities of the Enterprise and domestic technology in developing States. This includes providing opportunities for personnel from the Enterprise and developing States to receive training in marine science and technology, thereby enabling their full participation in activities within the Area.”*

Based on the above provisions, it is clear that the Authority should set requirements in accordance with the provisions of the Convention, namely to encourage the transfer of technology to the Enterprises and developing countries in order for them to acquire this marine technology, and to facilitate the acquisition of such technology. To this end, the Authority should have rules, regulations and requirements on fair and equitable technology transfer procedures. In addition, the Authority should establish clear requirements regarding training programs for workers from the Enterprise and developing countries according to their needs.

Countries are obliged to carry out international cooperation in conducting marine scientific research in the region.²¹⁷

“States Parties may carry out marine scientific research in the Area. States Parties shall promote international cooperation in marine scientific research in the Area by:

- (a) *participating in international programmes and encouraging cooperation in marine scientific research by personnel of different countries and of the Authority;*
- (b) *ensuring that programmes are developed through the Authority or other international organizations as*

²¹⁷ Article 143 paragraph (3) of UNCLOS 1982

- appropriate for the benefit of developing States and technologically less developed States with a view to:*
- i. strengthening their research capabilities;*
 - ii. training their personnel and the personnel of the Authority;*
 - iii. in the techniques and applications of research;*
 - iv. fostering the employment of their qualified personnel in*
 - v. research in the Area;*
- (c) effectively disseminating the results of research and analysis when available, through the Authority or other international channels when appropriate.”*

B. AREAS BEYOND NATIONAL JURISDICTION (ABNJ)

Covering nearly two-thirds of the world's oceans, Areas Beyond National Jurisdiction (hereinafter ABNJ) encompass distinct maritime zones defined within UNCLOS. These zones include the high seas, which denote the water column beyond national jurisdiction, constituting *"all parts of the sea that are not included in the exclusive economic zone, territorial sea, internal waters of a State, or archipelagic waters of an archipelagic State."* Conversely, the Area refers to the seabed, ocean floor, and subsoil located beyond national jurisdiction boundaries.²¹⁸ States have no authority over the sea beyond these delineated boundaries, known as the high seas. Areas Beyond National Jurisdiction, being beyond the exclusive economic zone and continental shelf, is not subject to sovereign claims by any state. As per Article 87 of UNCLOS, the high seas are open to all nations regardless of their geographic location. Consequently, no single nation possesses exclusive sovereignty or

²¹⁸ Article 1 (1) of UNCLOS 1982

accountability for managing and protecting ABNJ.²¹⁹ The governance of ABNJ presents complex challenges due to its vast expanse and shared jurisdiction. Unlike waters under national jurisdiction, ABNJ lacks a designated sovereign authority responsible for its comprehensive management and protection. The absence of exclusive national control necessitates international cooperation and concerted efforts among states to address issues such as marine biodiversity conservation, sustainable resource utilization, and environmental protection in ABNJ. This requires the development of international frameworks and mechanisms that promote collaboration, equitable access, and collective responsibility towards the stewardship of these critical marine areas on behalf of the global community.²²⁰

Both the water column and the deep seabed within ABNJ have emerged as focal points for research and development endeavors. Despite marine organisms in ABNJ being less documented compared to those within coastal states' EEZs, these vast ocean areas host a diverse array of complex ecosystems that present unique challenges and opportunities for scientific exploration. ABNJ harbors a multitude of ecosystems, including tropical and subtropical coral reefs, cold-water corals in deep-sea environments, free-floating seaweeds (macroalgae), seamounts, and sponge reefs. Many of these ecosystems and species are discovered primarily within ABNJ due to challenges in accessing these remote and often deep-sea locations. The exploration of ABNJ has

²¹⁹ Ibid

²²⁰ Article 87 of UNCLOS 1982

revealed the presence of novel ecosystems that support significant biodiversity and contribute to the ecological richness of adjacent waters. Advancements in scientific knowledge, methods, and technologies across various ocean-related research fields have enabled the identification, description, and exploration of marine substances in ABNJ more rapidly than before. These developments extend beyond national jurisdictional boundaries, facilitating the discovery and understanding of marine biodiversity, ecosystem dynamics, and chemical properties that influence global ocean health and sustainability. The exploration and research efforts in ABNJ underscore the importance of international cooperation and shared stewardship in conserving and managing these critical marine environments. Efforts to enhance scientific knowledge, promote sustainable resource utilization, and protect marine biodiversity in ABNJ require collaborative initiatives involving governments, scientific institutions, industry stakeholders, and international organizations. By leveraging innovative technologies and fostering inclusive partnerships, the global community can advance our understanding of ABNJ ecosystems and support informed decision-making to ensure the sustainable management of these vital ocean areas for future generations.

In addition, UNCLOS granted the International Seabed Authority (ISA) the mandate to oversee and manage the exploration and utilization of resources located in "the Area."²²¹ The primary role of the ISA is to organize and control

²²¹ Article 137 (2) of UNCLOS 1982

the exploration and exploitation of the mineral resources in the Area for the benefit of all mankind. This includes the regulation of mining and related activities, such as the issuance of permits and the monitoring of environmental impacts. The ISA also promotes research and innovation in deep-sea exploration and capacity development. In addition, ISA promotes the equitable sharing of the benefits of monetary benefits and non derived from seabed mining activities.²²² This includes revenue sharing arrangements to ensure that both developing and developed countries benefit from the exploitation of mineral resources. Unfortunately, the ISA does not regulate MGRs or living organisms in ABNJ.²²³ The ISA's mandate is focused on the regulation and control of mineral-resources-related activities in the Area, which is the part of the ocean beyond national jurisdiction.²²⁴ Thus, the object of natural resource management in this international seabed area only includes non-living resources, and thus biological resources are not included in the scope of UNCLOS regulation of the international seabed area.

However, there are discussions and negotiations under the UNCLOS to develop a treaty on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (hereinafter BBNJ

²²² Resumed Fifth Session of The Intergovernmental Conference. (2023). "Information Note by The Secretariat of The International Seabed Authority on The Relevance of The Role and Mandate of The Authority Under UNCLOS and The 1994 Agreement In The Context of The Revised Draft of An Implementing Agreement Under UNCLOS on The Conservation And Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction". p.7.

²²³ Ibid. Paragraph 12.

²²⁴ About the Authority of ISA. Available at <https://www.isa.org.jm/about-isa/>

Agreement).²²⁵ This treaty aims to address the legal definition of MGR and the scope of related benefit-sharing, as well as to address regional and global governance gaps in ABNJ.²²⁶ In summary, while the ISA does not regulate MGRs or living organisms in ABNJ, there are discussions and negotiations under UNCLOS to develop a treaty on the conservation and sustainable use of marine biological diversity in ABNJ, which may include the regulation of MGRs and living organisms in these areas. On the other hand, BBNJ Agreement also regulate several freedoms in High Sea including the rights and obligation of each state which include to conduct Marine Scientific Research, Environmental Impact Assessment, Fair and Equitable Benefit Sharing, Capacity Building, and Technology Transfer.²²⁷ However, enforcement in the future will depend on the willingness of nations to commit to the Agreement's principles, the development of effective monitoring mechanisms, various international institution, cooperation among states, and the establishment of robust governance structures to ensure effective implementation once the treaty becomes legally binding.²²⁸

²²⁵ Rabone M, Harden-Davies H, Collins JE, Zajderman S, Appeltans W, Droege G, Brandt A, Pardo-Lopez L, Dahlgren TG, Glover AG and Horton T. (2019). "Access to Marine Genetic Resources (MGR): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ)". *Front. Mar. Sci.* 6:520. doi: 10.3389/fmars.2019.00520

²²⁶ Ibid

²²⁷ UNGA A/RES/66/119 (30 June 2011) p. 2, para 1 (b).

²²⁸ Carlos M. Correa. (2017). 'Access to and Benefit Sharing of Marine Genetic Resources Beyond National Jurisdiction: Developing a new Legally Binding Instrument'. South Centre, Research Paper 79, p. 15.

C. THE CONCEPT OF MARINE GENETIC RESOURCES (MGR) IN AREAS BEYOND NATIONAL JURISDICTION (ABNJ)

1. The Discoveries of Marine Genetic Resources

Recent technological advances have provided scientists with more opportunities to explore the richness of marine life.²²⁹ Even though the wide, deep oceanic region that makes up ABNJ has not been thoroughly studied, scientific studies have already shown an abundance and diversity of species.²³⁰ Nearly two-thirds of it is beyond national jurisdiction along with its unique-rare species and ecosystems. This area is vital for marine biodiversity and have been increasingly subject to scientific research and commercial exploitation.²³¹ Therefore, the diversity of marine life presents a valuable wellspring of natural innovation, providing numerous potential advantages such as expanding our scientific understanding of ocean systems and addressing societal requirements by creating advancements in health, food security, and the preservation of robust ocean ecosystems.²³² One particular element of marine biodiversity that has sparked interest

²²⁹ J. Mark Cock and others. (2006). 'Marine Genomics and the Exploration of Marine Biodiversity', in Carlos M. Duarte (ed.), *The Exploration of Marine Biodiversity: Scientific and Technological Challenges* (Bilbao: Fundación BBVA, 2006), 117–139.

²³⁰ Lisa A Levin and Myriam Sibuet. (2012). 'Understanding Continental Margin Biodiversity: A New Imperative' 4(1) *Annual review of marine science* 79.

²³¹ *Ibid*

²³² E RamirezLlodra et al. (2010). 'Deep, diverse and definitely different: unique attributes of the world's largest ecosystem' 7(9). *Biogeosciences* 2851-2899.

within scientific circles is the utilization of marine genetic resources (MGRs).²³³

Marine plants, animals, fungi and microorganisms have evolved to occupy a variety of niches, being able to thrive in the extremes of heat, cold, water chemistry and darkness found in the ocean. The resulting adaptations are recorded in their genetic codes, enabling them to produce a wide variety of primary and secondary metabolites with significant biological activities that have attracted growing commercial interest from a range of industries.²³⁴ Applications include the development of industrial enzymes, pharmaceuticals, cosmeceuticals, nutraceuticals, antifoulants, adhesives and tools for research and conservation purposes.²³⁵ Over 34,000 marine natural products—naturally occurring molecules produced by marine organisms—have been discovered²³⁶, many with remarkable levels of bioactivity, resulting in rates of drug discovery from marine organisms that are up to 2.5 times the industry average.²³⁷ In addition to these commercial uses, a range of non-commercial applications based on

²³³ David Leary and others. (2009). 'Marine Genetic Resources: A Review of Scientific and Commercial Interest'. *Marine Policy* 183–194, at 184–188.

²³⁴ Arrieta, J.M., S. Arnaud-Haond and C.M. Duarte. 2010. "What Lies underneath: Conserving the Oceans' Genetic Resources." *Proceedings of the National Academy of Sciences* 107 (43): 18318–24.

²³⁵ Leary, D., M. Vierros, G. Hamon, S. Arico and C. Monagle. 2009. "Marine Genetic Resources: A Review of Scientific and Commercial Interest." *Marine Policy* 33 (2): 183–94.

²³⁶ MarinLit. 2020. "A Database of Marine Natural Products Literature." <http://pubs.rsc.org/marinlit/>

²³⁷ Carroll, A.R., B.R. Copp, R.A. Davis, R.A. Keyzers and M.R. Prinsep. 2019. "Marine Natural Products." *Natural Product Reports* 36: 122–73. See also Gerwick, W.H., and B.S. Moore. 2012. "Lessons from the Past and Charting the Future of Marine Natural Products Drug Discovery and Chemical Biology." *Chemistry & Biology* 19 (1): 85–98.

the ocean genome has also emerged. Through the use of genetic sequence data, a substantial and growing body of work has been done in the fields of evolution and ecology to inform our knowledge on taxonomy, connectivity, demography and evolution, while new techniques, such as the sampling of environmental DNA (eDNA), are enhancing our understanding of marine taxonomy and enabling non-invasive study methods.²³⁸

A recent research investigation highlighted the potential of marine genetic resources in biotechnology, revealing 18,000 natural products and 4,900 patents linked to genes found in marine organisms.²³⁹ MGRs in the ABNJ have garnered attention from the global community over the past ten years due to their high potential economic value and potential humanitarian benefits, as they can be used as raw materials for pharmaceutical products,²⁴⁰ cosmetics, and serious illnesses including cancer, Alzheimer's, and HIV.²⁴¹ Marine life offers several potential treatments for human diseases. antimicrobial, anti-inflammatory, and cancer treatments, for instance. Many are in use, such as the antiviral

²³⁸ Hansen, B.K., D. Bekkevold, L. Worsøe Clausen and E.E. Nielsen. 2018. "The Sceptical Optimist: Challenges and Perspectives for the Application of Environmental DNA in Marine Fisheries." *Fish and Fisheries* 19 (5): 751–68.

²³⁹ Sophie Arnaud-Haond, Jesus M. Arrieta, Cados M. Duarte, "Marine Biodiversity and Gene Patents", 331 *Science*.

²⁴⁰ Fernando de la Calle. (2009). "Marine Genetic Resources. A Source of New Drugs the Experience of the Biotechnology Sector", 24(2) *The International journal of Marine and Coastal Law*, p. 209-220.

²⁴¹ Mar Campins Eritja. (2017). "Bio-Prospecting in the Arctic: An Overview of the Interaction Between the Rights of Indigenous Peoples and Access and Benefit Sharing," *Boston College Environmental Affairs Law Review* 44, no. 2. p. 223.

vidarabine for treating herpes viruses, cytarabine for treating acute lymphocytic leukemia, and trastedin for treating metastatic cancer.²⁴²

The significant funding from the National Cancer Institute in the United States, combined with its dedication to worldwide collection of MGRs, emphasized a concentration on cancer treatment. This primarily involved compounds gathered from shallow tropical reefs and sourced from marine invertebrates.²⁴³ Consequently, among the eight clinically sanctioned medications originating from MGRs, five are specifically made for cancer treatment. The remaining three target neuropathic pain, Herpes simplex virus, and hypertriglyceridemia. Of these, seven are derived from marine invertebrates, while one comes from an oily fish.²⁴⁴ Additionally, the European Medicines Agency has authorized certain over-the-counter remedies developed from MGRs, including Carragelose, an effective antiviral medication widely applicable in treating respiratory viruses like the common cold.²⁴⁵ Out of the over 33,000 recorded marine natural compounds, 28 items derived from the sea are presently undergoing

²⁴² Kelly Macnamara. (2023). "Drugs from the deep: scientists explore ocean frontiers". <https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>

²⁴³ Thornburg, C.C., J.R. Britt, J.R. Evans, R.K. Akee, J.A. Whitt, S.K. Trinh, M.J. Harris, et al. (2018). "NCI Program for Natural Product Discovery: A Publicly-Accessible Library of Natural Product Fractions for HighThroughput Screening." ACS Chemical Biology 13 (9): 2484–97. <https://doi.org/10.1021/acscchembio.8b00389>.

²⁴⁴ Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et al. (2020). "The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources". Washington, DC: World Resources Institute. p. 13.

²⁴⁵ Alves, C., J. Silva, S. Pinteus, H. Gaspar, M.C. Alpoim, L.M. Botana and R. Pedrosa. (2018). "From Marine Origin to Therapeutics: The Antitumor Potential of Marine Algae-Derived Compounds." Frontiers in Pharmacology 9. <https://doi.org/10.3389/fphar.2018.00777>.

clinical trials, while another 250 are undergoing preclinical research.²⁴⁶ This is an astounding success rate when compared with terrestrial natural products.

Starting in 1969, research began on reef creatures like sponges, sea squirts, and soft corals. Then, in the early 1990s, scientists shifted their focus to studying marine bacteria found in marine sediments, which were easier and more cost-effective to gather.²⁴⁷ Anti-inflammatory and antibacterial medications, as well as cancer treatments, have all been developed using sea sponges. Up to 30% of all active marine metabolites are produced by sea sponges, which presents business prospects for the biomaterials and pharmaceutical industries.²⁴⁸ The first marine natural products were from marine sponges, and the first antiviral medication, Ara-A (Vidarabine®), was created in the 1950s with the discovery of nucleoside spongouridine.²⁴⁹ Spongouridine's antiviral activity was initially reported in 1964, and subsequent research demonstrated its clinical efficacy in treating Herpes infections in immunocompromised patients and neonates.²⁵⁰

²⁴⁶ MarinLit. (2020). "A Database of Marine Natural Products Literature." <http://pubs.rsc.org/marinlit/>.

²⁴⁷ Midwestern University, 'Clinical Pipeline: Marine Pharmacology: Approved Marine Drugs' <https://www.midwestern.edu/departments/marinepharmacology/clinical-pipeline.xml>

²⁴⁸ T. Kodadek. (2011). 'The rise, fall and reinvention of combinatorial chemistry' 55 *Chemical Communications* 47, 9757–9763.

²⁴⁹ W. Bergmann and R. J. Feeney, *J. Org. Chem.* (1951). "Contributions to the Study of Marine Products". XXXII. The Nucleosides of Sponges. I. 16, 981–98.

²⁵⁰ De Clercq E, Field HJ. (2006). "Antiviral prodrugs - the development of successful prodrug strategies for antiviral chemotherapy". *Br J Pharmacol.* 147(1):1-11. doi: 10.1038/sj.bjp.0706446

Figure 2.2



Figure 2.3



Figure 2.2 Vira-A Ophthalmic Ointment No. 1677²⁵¹

Figure 2.3 Sea Sponge: *Tectitethya crypta*²⁵²

Even if more recent antiviral medications have replaced it, vidarabine is the most ancient antiviral medication still in use. The richest primary source of recognized marine natural products has been found in sponges.²⁵³ From this, it can be concluded that knowledge of MGR is very important due to its potential high economic value and considering its many benefits, especially in the field of health. However, only a handful

²⁵¹ Museum Health Care at Kingston: Vira-A Ophthalmic Ointment No. 1677. Available at <https://mhc.andornot.com/en/permalink/artifact4290>

²⁵² The Sponge Guide: A Picture Guide to Caribbean Sponge. Available at: <https://spongeguide.org/> ; *Tectitethya crypta* (formerly known as *Cryptotheca crypta*) is a large, shallow-water sponge found in the Caribbean. It was first studied for medical purposes in the 1950s when few scientists or doctors thought to look for medicines in the ocean. But in the sponge, scientists isolated two chemicals—aptly named spongothymidine and spongouridine—which were used as models for the development of a number of anti-viral and anti-cancer drugs. These include the HIV drug AZT, a breakthrough in AIDS treatment in the late 1980s, anti-viral drugs to treat herpes, and an anti-leukemia drug. The latter was approved in 1969 and was the first marine-drug approved for cancer treatment.

²⁵³ Sagar S, Kaur M, Minneman KP. (2010). “Antiviral lead compounds from marine sponges”. *Mar Drugs*. 8(10):2619-38. doi: 10.3390/md8102619

of countries in the world have the necessary financial and scientific capabilities for MGR research, which is a very challenging domain.

Another discovery of the active pharmaceutical ingredient in Yondelis, Ecteinascidin-743, from the Caribbean ascidian (seasquirt) *Ecteinascidia turbinata*, was first reported by two research groups in 1990. It was shown to have antineoplastic activity in cell-based and animal models, being particularly effective against soft tissue sarcoma, for which no good treatment options existed at that time. It was shown to have a unique mechanism of action, interfering with DNA (deoxyribonucleic acid) transcription by binding to the minor groove of DNA, which together with the new structure offered a strong commercial outlook. It was licensed to the Spanish company PharmaMar, which started the development process in the early 1990s. Initially, material was produced by aquaculture, but this avenue was abandoned due to variability in production coupled with low yields, contamination issues and the high cost of infrastructure, among other reasons. Nevertheless, much of the clinical data were obtained using this aquaculture-derived material. To ensure a continuity of supply as well as quality of material, a semi-synthetic process was developed, modifying the fermentation product cyanosafracin-B to produce Yondelis economically. In 2007, the European Medicines Agency approved the use of Yondelis for advanced soft tissue sarcoma, but it took a further eight years for the U.S. Food and Drug Administration to follow

suit. A combination treatment of Yondelis/Doxil is also being investigated as a second- and third-line treatment for ovarian cancer.

Figure 2.4



Figure 2.5



Figure 2.4 Trabectedin Yondelis 1mg Injection²⁵⁴

Figure 2.5 The Caribbean ascidian (seasquirt) *Ecteinascidia turbinata* in aquaculture²⁵⁵

2. History of Marine Genetic Resources Regime

Historically, when formulating the draft of the UNCLOS in the 1980s, lawmakers might have been unable to foresee the importance of understanding the biological and economical values of MGRs due to the

²⁵⁴ Trabectedin Yondelis 1mg Injection (PharmaMar) <https://www.yondelis.com/hcp/dosing-admin.html>

²⁵⁵ PharmaMar: Yondelis® is a synthetic compound derived from the colonial sea squirt *ecteinascidia turbinata*. Available at <https://pharmamar.com/en/products/yondelis/>

lack of the technological capacity and scientific knowledge.²⁵⁶ The world was largely unaware that there were living resources in the ABNJ, especially in the Area, during the time that UNCLOS was being negotiated. At first, it was thought that photosynthesis was impossible on the ocean floor due to a lack of sunshine.²⁵⁷ Due to their lack of knowledge at that time, the UNCLOS's drafters only included mining operations and mineral resources while ignoring life resources. When experts formed UNCLOS, they did not consider genetic resources found in water columns or on the seabed. Furthermore, they remained oblivious to the enormous worth of genetic resources even after the hydrothermal vent was found in 1977.²⁵⁸ Suppositionally, legislators involving in the construction of UNCLOS draft in 1980s basically concentrated on the utilization of minerals in the seabed as the single purpose of exploiting the feasibility as the only economically profitable resources in ABNJ. The high seas' living resources were only managed to address fisheries concerns, especially for highly migratory species and straddling stocks. The potential benefits of these resources, especially those for medicinal applications, have become more apparent with the advancement of modern technology; yet, there is currently no comprehensive regulation in place. Consequently, there is a

²⁵⁶ Jesús M. Arrieta, Sophie Arnaud-Haond and Carlos M. Duarte, 'What lies underneath: Conserving the oceans' genetic resources', *PNAS*, vol. 107, no. 43, (2010), p. 18322.

²⁵⁷ Fernanda Millicay. (2007). "A Legal Regime for the Biodiversity of the Area" in *Law, Science, and Ocean Management*, Myron H. Nordquist et. al. ed. (Leiden: Martinus Nijhoff, p. 745.

²⁵⁸ Friederike Lehmann. (2007). "The Legal Status of Genetic Resources of the Deep Seabed," *New Zealand Journal of International Law* 11, no. 33, p. 39.

legal gap in UNCLOS that governs the definition of marine genetic resources and the regulation of marine scientific research to use and commercialize Marine Genetic Resources (hereinafter MGRs) in the ABNJ.

The world's scientific ignorance during the process of constructing the treaty resulted in the regulatory gap concerning the exploitation of MGRs in ABNJ. Article 133 point (a) of the UNCLOS, declares that *“Resources means all solid, liquid or gaseous mineral resources in situ access in the Area at or beneath the seabed, including polymetallic nodules”*.²⁵⁹ Thus, it defines only the economical values of mineral resources in the seabed without covering the novel values of MGRs. Similarly, the management and exploitation of MGRs in ABNJ are apparently ignored. Reaching significant milestones in space science and technology, humans have recently invested enormous efforts to make scientific advancements in the exploration of biotechnology and marine biology.²⁶⁰ Recognizing the increasing necessity of the central management regime among nations relating to ABNJ to exploit MGRs together, almost States together with the principal role of the United Nations (UN) have urged to initiate a new international legally binding instrument (hereinafter ILBI) in order to collaboratively regulate MGRs in

²⁵⁹ Article 133 (a) of UNCLOS 1982

²⁶⁰ Smith, D., and J. Jabour. 2018. “MPAs in ABNJ: Lessons from Two High Seas Regimes.” *ICES Journal of Marine Science* 75 (1): 417–25

ABNJ.²⁶¹ While international law and literature lack a universal definition of MGRs, there is growing interest among States in MGRs, which can be depicted by the ongoing negotiations on an international legally binding instrument on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) under the auspices of the 1982 United Nations Convention on the Law of the Sea (UNCLOS).²⁶² It is pivotal to examine the implications of divergences in meanings of MGRs, as a universal definition of that term might also be of potential importance to several existing regimes.²⁶³

3. Definition and Current Legal Framework of Marine Genetic Resources

Neither law nor literature provides a definition of the term ‘MGRs’. What might appear surprising to some is that the UNCLOS, which has often been referred to as ‘a constitution for the oceans’ does not define MGRs itself. Also, the object of natural resource management in this international seabed area only includes non-living resources, and thus genetic resources are not included in the scope of UNCLOS regulation of the international seabed area. The 1992 Convention on Biological Diversity (hereinafter CBD) and the 2010 Nagoya Protocol on Access to

²⁶¹ Tullio Scovazzi, *Op. Cit.*

²⁶² Intergovernmental Conference on marine biological diversity of areas beyond national jurisdiction available at: www.un.org/bbnj/

²⁶³ Convention on Biological Diversity, Rio de Janeiro, 22 May 1992, in force 29 December 1993, 1760 UNTS 69; Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 3 March 1973, in force 1 July 1975, 993 UNTS 243.

Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity (hereinafter Nagoya Protocol) both contain regulations governing the management of genetic resources. Under Article 2 of CBD, marine genetic resources are defined as ‘genetic material of actual or potential value’, in which ‘genetic material’ contains ‘any material of plant, animal, microbial or other origin containing functional units of heredity’.²⁶⁴ The term ‘genetic resources’ was not commonly used as a legal concept prior to adoption of the CBD.²⁶⁵ However, after its inclusion in the operative text of that regime, the term has been invoked in a few international treaties, debates, negotiations and documents.²⁶⁶ It should be stressed that the CBD is one of the most widely ratified treaties in international law (i.e., as of 2022, the CBD has 196 members and 168 signatories). The work of its Committee of Parties and subsidiary bodies has contributed significantly to the understanding of marine biodiversity.²⁶⁷

However, the definition of genetic resources included in Article 2 of the CBD raises some concerns about its legal clarity and legal certainty as the elements of that definition are not explained in the text of the

²⁶⁴ Article 2 of CBD

²⁶⁵ Fridtjof Nansen Institute. (2010). ‘The Concept of “Genetic Resources” in the Convention on Biological Diversity and How It Relates to a Functional International Regime on Access and Benefit-Sharing’ UNEP/CBD/WG-ABS/9/INF/1 (19 March 2010), p. 6.

²⁶⁶ Intergovernmental Commission on Genetic Resources, Traditional Knowledge and Folklore, available at www.wipo.int/tk/en/igc/

²⁶⁷ the ‘Jakarta Mandate’ agreed to by the Parties to the Convention on Biological Diversity at their Second Conference in Jakarta in November 1995. UNEP/CBD/COP/2/19 (30 November 1995).

CBD.²⁶⁸ Thus, various actors might act in different ways in response to an ambiguous law, which hinders the normative effect of the law. For example, there may be confusion regarding the access and benefit sharing (ABS) provisions embedded in the CBD. Users (e.g., industry researchers including agriculture, cosmetic and pharmaceutical industries, or research institutes) and providers (i.e., States with sovereign rights over natural resources under their jurisdiction) of natural resources might have different interpretations of elements of the definition of genetic resources, which are not clearly elaborated. The drafting history of the CBD does not provide further clarification of the definition of genetic resources provided by Article 2 of the CBD.²⁶⁹ Against this backdrop, it is necessary to untangle elements of definitions included in Article 2 of the CBD. While some terms used in the definition of genetic resources in Article 2 of the CBD are self-explanatory, that is, plant (e.g., floating and rooted plants), animal (e.g., mammals, birds, fish, reptiles, amphibians), microbial (e.g., bacteria, yeasts) or other origin (e.g., fungi), other terms need further elaboration.²⁷⁰ Three separate elements that should be analysed are; ‘functional units of heredity’, ‘of actual or potential value’ and ‘material’.²⁷¹ Examining these

²⁶⁸ Morten Walløe Tvedt and Tomme Young. (2007). “Beyond Access: Exploring Implementation of the Fair and Equitable Sharing Commitment in the CBD ABS”. ABS Series No. 2, IUCN Environmental Policy and Law Paper No. 67/2 (2007), p. 54.

²⁶⁹ Lyle Glowka Françoise Burhenne-Guilmin and Hugh Synge in collaboration with Jeffrey A. McNeely and Lothar Gündling, (1994). “A Guide to the Convention on Biological Diversity”. Environmental Policy and Law Paper No. 30, IUCN-ELC.

²⁷⁰ Tvedt and Young (n 14), 53–57.

²⁷¹ Peter Johan Schei and Morten Walløe Tvedt. (2010). ‘Genetic Resources’ in the CBD. The Wording, the Past, the Present and the Future, Fridtjof Nansen Institute Report 4/(n 11).

building blocks of the definition of genetic resources is worthwhile, as they have significant implications on defining MGRs. All three terms will be discussed in the next section under the material scope of the definition of MGRs.

a. Material Scope of Marine Genetic Resources

The CBD does not define the term ‘material’. According to its ordinary meaning, the term ‘material’ should be defined as something physical or tangible (i.e., samples which physically contain genetic material).²⁷² The question then becomes: should Digital Sequence Information (hereinafter DSI) be included within the MGR definition? Consensus among experts is lacking on whether the definition of genetic resources under Article 2 of the CBD includes DSI. For example, the Commission on Intellectual Property of the International Chamber of Commerce argues that ‘material’ within the definition of ‘genetic resources’ refers to tangible or physical material, and given that DSI is intangible by nature it is not covered by that definition.²⁷³ The Global Genome Biodiversity Network points out ‘the CBD and Nagoya Protocol explicitly cover genetic material, not information about this

²⁷² Tade M. Spranger, Expert opinion on the applicability of the Convention on Biological Diversity and the Nagoya Protocol to digital sequence information, submitted on behalf of the German Federal Ministry of Education and Research, Berlin 2017, at 16; International Chamber of Commerce (ICC) Commission on Intellectual Property, Report on Digital Sequence Information, 2017, 1 ICC Commission on Intellectual Property, Report on Digital Sequence Information, 2017, available at <https://iccwbo.org/content/uploads/sites/3/2017/05/ICC-IP-positionpaper-on-digital-sequence-information.pdf> accessed on 25 february 2024

²⁷³ ICC, Report on Digital Sequence Information, 1, available at <https://iccwbo.org/content/uploads/sites/3/2017/05/ICC-IP-position-paper-on-digital-sequence-information.pdf> accessed on 25 february 2024

material'.²⁷⁴ Others claim DSI comes under the scope of the definition of genetic resources and point to the words 'or other origin' and 'value' in Article 2 of the CBD.²⁷⁵ Further, parties to the CBD and 2010 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (Nagoya Protocol) also appear to disagree as to whether DSI comes under the scope of these instruments.²⁷⁶ The challenges of defining what exactly constitutes DSI go beyond the regimes on biodiversity, as indicated by similar discussions within various other UN processes and such regimes as the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture (hereinafter ITPGRFA), the Pandemic Influenza Preparedness Framework and the BBNJ negotiations.²⁷⁷

Most policy processes that have addressed DSI have struggled to provide a clear definition and scope of the term.²⁷⁸ DSI is a

²⁷⁴ Global Genome Biodiversity Network, Letter to the CBD on Digital Sequence Information (7 September 2017), 1, available at www.cbd.int/abs/DSI-views/GGBN-DSI.pdf accessed on 25 february 2024

²⁷⁵ India's submission on Digital Sequence Information on Genetic Resources in response to CBD notification 2019-012 dated 5 February 2019 pursuant to decisions 14/20 and NP-3/12, available at www.cbd.int/abs/DSI-views/2019/India-DSI.pdf accessed on 25 february 2024

²⁷⁶ Submissions of views and information on Digital Sequence Information on Genetic Resources on Digital Sequence Information on Genetic Resources in response to CBD notification 2019-012 dated 5 February 2019 pursuant to decisions 14/20 and NP-3/12, available at www.cbd.int/dsi-gr/2019-2020/submissions/ accessed on 25 february 2024

²⁷⁷ Elisa Morgera. (2018). 'Fair and Equitable Benefit-Sharing in a New Treaty on Marine Biodiversity: A Principled Approach towards Partnership Building?'. *Maritime Safety and Security Law Journal* 48–77 at 60, 66, available at Morgera_MSSLJ_2018_Fair_and_equitable_benefit_sharing_in_a_new_treaty_on_marine.pdf (strath.ac.uk)

²⁷⁸ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources' CBD/DSI/AHTEG/2020/1/7 (20 March 2020), 66.

placeholder term, which lacks a globally accepted definition.²⁷⁹ The Ad Hoc Technical Expert Group (hereinafter AHTEG) report on Digital Sequence Information on Genetic Resources, established under the CBD and its Nagoya Protocol, provides a list of potential forms of DSI.²⁸⁰ For example, these could include: ‘the nucleic acid sequence reads’, ‘amino acid sequences’ or ‘cellular metabolites’.²⁸¹ Analysis of ongoing policy processes on DSI (i.e., the ITPGRFA, the CBD and Nagoya Protocol) demonstrates the existence of a growing practice of relying on DSI in bio-based research, and DSI has ‘potential for generating high-value products, and thus monetary and non-monetary benefits, with the increasing use of synthetic biology technologies in the future’.²⁸² On the other hand, it is difficult to identify the provenance of DSI and assess its value and contributions.²⁸³ There is also a growing concern that few countries worldwide have the capacity and funds to

²⁷⁹ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, ‘Digital Sequence Information on Genetic Resources: Concept, Scope and Current Use’ CBD/DSI/AHTEG/2020/1/3 (29 January 2020).

²⁸⁰ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, ‘Report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources’ 9.

²⁸¹ Jakub Ciesielczuk and Elizabeth A. Kirk. (2021). ‘Sustainable Use of Marine Genetic Resources’, in W. Leal Filho, A. M. Azul, L. Brandli, A. Lange Salvia and T. Wall (eds.), *Life below Water. Encyclopedia of the UN Sustainable Development Goals* (Cham: Springer 2021) 4–5.

²⁸² Eric W. Welch, Margo Bagley, Todd Kuiken and Sélim Louafi. (2017). ‘Potential Implications of New Synthetic Biology and Genomic Research Trajectories on the International Treaty for Plant Genetic Resources for Food and Agriculture’ (2017) FAO, vi.

²⁸³ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, ‘Fact-Finding and Scoping Study on Digital Sequence Information on Genetic Resources in the Context of the Convention on Biological Diversity and the Nagoya Protocol’ CBD/DSI/AHTEG/2018/1/3 (12 January 2018), 14.

maintain databases of DSI and derive benefits from it.²⁸⁴ Consequently, the potential exclusion of DSI from the definition of MGRs could trigger inequalities in the form of biotechnology companies profiting from DSI without sharing benefits with less developed States, which have reduced technological capacity.²⁸⁵ Given the far-reaching implications of DSI for the ABS framework in the future BBNJ treaty, and the growing reliance on DSI in bio-based research and its potential in developing new products, DSI should be captured by the working definition of MGRs. However, the precise scope and definition of that term require further research.²⁸⁶

b. The ‘Potential Value’ of Marine Genetic Resources

Another building block of the definition of genetic resources is the term ‘of actual or potential value’. As with ‘material’ and ‘functional units of heredity’ the CBD is silent on what is meant by ‘of actual or potential value’. However, it is evident from the definitions provided by Article 2 of the CBD that genetic resources are a subset of genetic material.²⁸⁷ Consequently, what turns genetic material into

²⁸⁴ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, ‘Synthesis of views and information on the potential implications of the use of digital sequence information on genetic resources for the three objectives of the Convention and the objective of the Nagoya Protocol’ CBD/DSI/AHTEG/2018/1/2 (9 January 2018), 13; Welch, ‘Potential Implications’ (n 29).

²⁸⁵ Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, ‘Fact-Finding and Scoping Study’, 46.

²⁸⁶ Ibid

²⁸⁷ Lyle Glowka, Françoise Burhenne-Guilmin, Hugh Synge, Jeffrey A. McNeely, Lothar Gündling, ‘A Guide to the Convention on Biological Diversity’ International Union for Conservation of Nature, IUCN 1994, 22; Fridtjof Nansen Institute, ‘The Concept of “Genetic Resources”’ (n 11), 13.

genetic resources is actual or potential value. This value must be linked to the inherited genetic components of a species.²⁸⁸ The decision to incorporate the words ‘actual’ and ‘potential’ in determining the value of genetic resources could be interpreted as a reflection of current and future scientific knowledge and technological advancement.²⁸⁹ The word ‘actual’ might refer to the value of genetic resources that can be determined using techniques and knowledge currently available. The word ‘potential’ might relate to the future value of genetic resources, which could be determined alongside available technological and genetic developments.²⁹⁰ A simple scenario illustrates the practical application of this interpretation: marine species collected from the ocean in 2021 may be stored in a research centre for 50 years.²⁹¹ That scenario raises questions concerning the length of time a species is considered to have ‘potential value’ and how its genetic material is identified as being potentially valuable. In addition, Blasiak, et.al.²⁹² for example, confirmed that marine genetic resources have extraordinary diversity and are able to adapt to extreme environmental conditions, especially the types found in deep seabed areas. These unique

²⁸⁸ Tvedt and Young (n 14), at 55.

²⁸⁹ Fridtjof Nansen Institute, ‘The Concept of “Genetic Resources”’ (n 11), 8.

²⁹⁰ Ibid

²⁹¹ Fridtjof Nansen Institute. (2010). ‘The Concept of “Genetic Resources” in the Convention on Biological Diversity and How It Relates to a Functional International Regime on Access and Benefit-Sharing’ UNEP/CBD/WG-ABS/9/INF/1. p. 8.

²⁹² Blasiak, R. et al. (2010). “The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources”. (High Level Panel for a Sustainable Ocean Economy, 2020).

characteristics make marine genetic resources have high potential to produce various inventions in the field of marine biotechnology that can be protected by patents, especially the development of pharmaceutical products. The commercial value of the marine biotechnology industry is projected to reach US\$6.4 billion by 2025.²⁹³ In recent years, there has been a trend towards research interest in the potential of marine genetic resources outside of national jurisdiction.

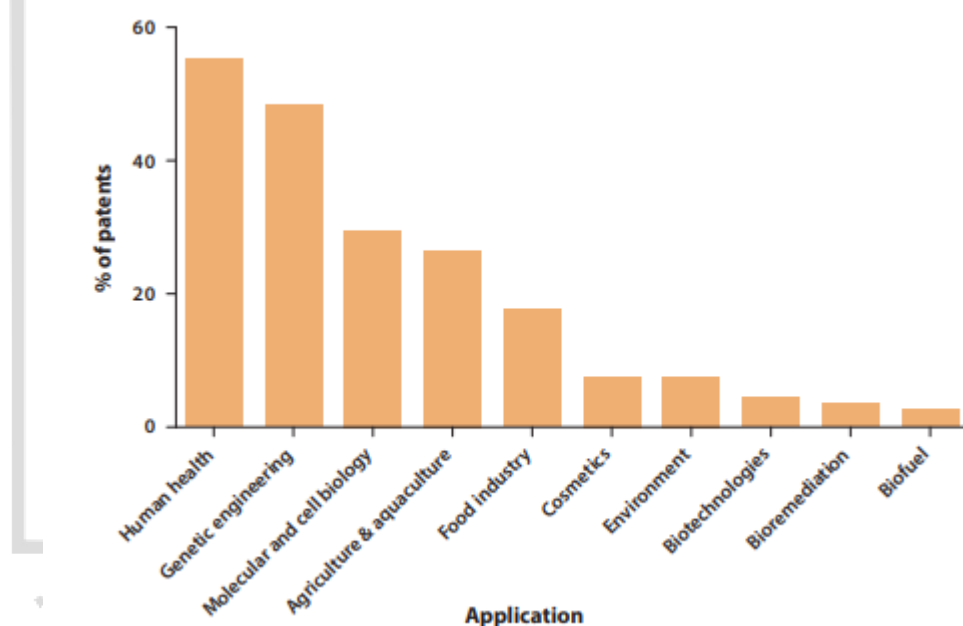


Figure 2.6 Synthesis of the uses proposed in the claims or description of 460 patents deposited at the International Patent Office and associated with genes isolated in marine organisms.²⁹⁴

²⁹³ Hurst D., Børresen T., Almesjö L., De Raedemaeker F., Bergseth S. (2016). “Marine Biotechnology Strategic Research and Innovation Roadmap: Insights to the Future Direction of European Marine Biotechnology. Marine Biotechnology”. ERA-NET; Oostende, Belgium.

²⁹⁴ Arrieta, J.M., Arnaud-Haond, S. and Duarte, C.M. (2010). “What lies underneath: conserving the oceans’ genetic resources”. PNAS 107(43), 18318-18324

Figure 2.6 The synthesis of uses proposed in the claims of 460 patents underscores the diverse applications within the pharmaceutical and biotechnology industries. These patents highlight a broad spectrum of applications ranging from the development of anti-cancer drugs to advancements in ecotoxicology, bioremediation, anti-fouling technologies, and biofuel production. In particular, the pharmaceutical and biotechnology sectors demonstrate a strong emphasis on utilizing microalgae for various applications, including the large-scale production of polyunsaturated fatty acids for incorporation into dietary supplements. This focus on microalgae extends to biomedical applications, where innovations include the development of fluorescent proteins, bone fillers, and bioceramic coatings derived from these versatile organisms. Moreover, polysaccharides sourced from algae are identified as key ingredients with significant potential in the food and health sectors. These polysaccharides offer valuable properties that can enhance food products and contribute to health-related applications, highlighting the versatility and commercial importance of algae-derived compounds. Overall, the synthesis of patent claims showcases the substantial impact of pharmaceutical and biotechnological innovations, particularly in harnessing the capabilities of microalgae and algae-derived compounds for diverse industrial applications. The breadth of these patents underscores ongoing efforts to explore and optimize natural resources for sustainable and innovative solutions in healthcare,

environmental remediation, and beyond.²⁹⁵ and use of “extremozymes” in industrial applications.²⁹⁶ Figure 3.5 provides some examples of the types of marine natural products used in the pharmaceutical, food supplement, and personal care markets; the organisms they are extracted from; and the status of their development. The considerable costs involved in marine bioprospecting research, alongside the advanced technologies and expertise required, have meant that most exploration has been undertaken by developed countries, notably, the United States of America, United Kingdom, Australia, Canada, Japan, Germany and Russia – but with the sampling often conducted in developing, tropical countries.²⁹⁷

Based on the CBD, each country has sovereign rights over its natural resources, so the government has the authority to regulate access to genetic resources through national legislation. This provision is emphasized in the Nagoya Protocol which applies to genetic resources within the scope of Article 15 of the CBD and the sharing of benefits from their utilization, including traditional knowledge associated with genetic resources. Article 15 of CBD states “*Recognizing the sovereign*

²⁹⁵ Molinsky, T.F., Dalisay, D.S., Lievens, S.L. and Saludes, J.P. (2009). “Drug development from marine natural products”. *Nat.Rev. Drug Discov.* 8(1), 69-85

²⁹⁶ Laird, S. (2013). “Bioscience at a Crossroads: Access and Benefit Sharing in a Time of Scientific, Technological and Industry Change: The Pharmaceutical Industry”. Secretariat of the CBD, Toronto.

²⁹⁷ Oldham, P., Hall, S. and Barnes, C. (2013). “Marine genetic resources in patent data”. United Nations University and One World Analytics, www.un.org/depts/los/biodiversityworkinggroup/workshop1_oldham.pdf

*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”.*²⁹⁸ Thus, Article 15 of CBD clearly only regulates the access of genetic resources which is exclusively in the national jurisdiction of states. The jurisdiction owned by the state in exercising sovereign rights and authority over genetic resources as a component of biodiversity is only limited within the national jurisdiction.

Recognizing the urgent need to address gaps and fragmentation in the legal framework governing ABNJ, states have initiated the development of a new international legally-binding instrument (hereinafter ILBI) under the UNCLOS to promote the conservation and sustainable use of marine biological diversity in ABNJ. BBNJ Agreement which was adopted in March 2022, represents a significant milestone in global ocean governance.²⁹⁹ The primary objective of the BBNJ Agreement is to regulate access to and benefit-sharing of MGRs in ABNJ. MGRs encompass any material of marine origin, including plants, animals, microbes, or other organisms, containing functional units of heredity with actual or potential value. These genetic resources have emerged as

²⁹⁸ Article 15 of CBD

²⁹⁹ United Nations General Assembly, Resolution Adopted by the General Assembly, ‘International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction’, GA Res 72/249, 72nd sess, Agenda Item 77, A/Res/72/249 (24 December 2017) para 1. For a discussion of the ILBI see Section 1.2.1 of this Chapter.

essential components of the economic potential associated with marine resources, contributing significantly to the concept of "blue growth" and sustainable development.³⁰⁰ The BBNJ Agreement is pivotal in ensuring legal certainty and promoting responsible stewardship of MGRs in ABNJ. By establishing clear guidelines for the management, conservation, and sustainable use of marine biological diversity beyond national jurisdiction, the agreement aims to foster equitable and inclusive practices that benefit all states, particularly developing countries and those without full self-governing status recognized by the United.

D. CONCEPT OF MARINE SCIENTIFIC RESEARCH (MSR)

1. Application of the Marine Scientific Research Regime

Advances in technology have allowed deep sea expeditions involving geologist and other scientists to unearth new ecosystem of potential wealth to humankind. Sophisticated data collection devices allow for observations and even geological and biological sampling from the ocean depths. The core general principles of law applicable to scientific research are reflected in Part XIII of the UNCLOS. There is no internationally agreed definition of MSR and none in the UNCLOS. Nevertheless, there is a common understanding of what constitutes

³⁰⁰ Sri Wartini. (2022). "The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction". *Varia Justicia*: Vol. 18 No. 1, p. 53.

scientific research in the marine environment. So-called “pure scientific research” involves a search for knowledge about the marine environment and its resources for the purpose of understanding the physical environment, marine biodiversity, and marine ecosystems and their functioning. The primary value of MSR lies in its ability to enhance our understanding of marine organisms and ecosystems, which is essential for devising effective conservation and management strategies. Although the UNCLOS and other conventions do not provide a specific legal definition of 'marine scientific research,' a natural interpretation of 'scientific research' implies a systematic study and examination of sources or materials using accepted scientific procedures and methods. The term 'marine' indicates that the research must directly relate to the oceans, making MSR a specialized category within scientific research. Legal scholars have suggested a definition of MSR as "any form of scientific investigation, fundamental or applied, concerned with the marine environment, i.e., having the marine environment as its object." This definition encompasses a broad range of activities aimed at exploring and understanding the oceans, emphasizing that the focus of the research is on marine environments. MSR encompasses diverse activities, including fundamental and applied research, that contribute to advancing knowledge of marine ecosystems, biodiversity, and ocean dynamics. This research is crucial for addressing pressing environmental challenges, such as climate change, ocean acidification, and biodiversity loss. By studying marine

organisms and ecosystems, researchers can identify threats and develop science-based conservation measures to protect marine resources. Furthermore, the inclusion of applied research in the definition of MSR highlights the practical applications of scientific knowledge in addressing societal needs and challenges related to ocean sustainability. Applied MSR aims to develop technologies, tools, and strategies for sustainable resource management, marine spatial planning, and ecosystem-based management. In summary, Marine Scientific Research plays a vital role in advancing our knowledge of the marine environment and promoting sustainable ocean governance. By supporting interdisciplinary research and collaboration, MSR contributes to global efforts to conserve and sustainably use marine biological diversity and resources for present and future generations. There is no clear answer as to whether MSR in ABNJ applies to both applied and pure research. For that reason, the further question depends on whether the convention regulates MSR that are for commercial purposes or not.

An additional regime that potentially could regulate States' right to access and utilize MGRs is the regulations of MSR, outlined in Part XIII of the UNCLOS. MSR is one of the freedoms of the high seas, and States are allowed to undertake scientific research in the Area. Article 256 UNCLOS regulates marine science research in the Area which provides

legal basis for states to carry out marine scientific research in the Area that presently is called ABNJ,³⁰¹

“All States, irrespective of their geographical location, and competent international organizations have the right, in conformity with the provisions of Part XI, to conduct marine scientific research in the Area”.

Thus, it is recognized that every single state has the right to carry out the research in the ABNJ. However, when the research is conducted in the Area this kind of research will be applied the regime of CHM.³⁰² Thus, the result of the research and the benefits of the research has to be shared for the sake of humankind. Furthermore, states are obligatory to promote the flow of scientific data and information and the transfer of knowledge resulting from this research, especially to developing states. Research conducted in the Seabed Area as the ABNJ falls under the CHM regime.³⁰³ According to the CHM regime, when conducting scientific research, states have to share the results of the research both economically and non-economically with other states. However, research conducted in seabed areas based on Chapter XIII UNCLOS is only limited to mining materials and does not include genetic sources. Principally, the scientific research carried out in the Seabed Area is intended for the benefit of all mankind.³⁰⁴

³⁰¹ Article 256 of UNCLOS

³⁰² Buckingham Shum et al. (2006). “Hypermedia Support for Argumentation-Based Rationale: 15 Years on from GIBIS and QOC,” PaechComputer Science Edi-Torial.

³⁰³ Waseem Ahmad Qureshi. (2019). “Protecting the Common Heritage of Mankind beyond National Jurisdiction,” Arizona Journal of International and Comparative Law 36, no. 1 (2019): 79–110.

³⁰⁴ Abhaya Ganashree, “Who Owns Ocean Biodiversity? The Legal Status and Role of Patents as a Means to Achieve Equitable Distribution of Benefits,” Case W. Res. J. Int’l L 53, p. 204. <https://doi.org/10.2139/ssrn.3740038>.

This indicates the need for international cooperation in scientific research in the Seabed Area and the transfer of technology, especially to developing countries. Meanwhile, UNCLOS as the Constitution of the Law of the Sea bestows opportunities for the formation of new international agreements to implement and fill the legal lacunae that have not been regulated by UNCLOS, such as conservation, sustainable use of MGRs and the benefit sharing.³⁰⁵

In exercising the right to conduct MSR in the Area beyond national jurisdiction, states are required to engage in cooperation with other States and the ISA or other relevant international organizations across various domains. This cooperation includes the dissemination of research results and the development of programs aimed at benefiting developing countries. According to Article 238 of UNCLOS, both "All States" and "competent international organizations" are entitled to conduct MSR in compliance with the conditions stipulated in the convention.³⁰⁶ Furthermore, since MSR is considered a freedom of the high seas, it must be undertaken with due regard to the interests of other states and the principles of the convention. Article 143(1) of UNCLOS underscores that

³⁰⁵ Aksenova Marina and Burke Ciarán. (2017). "The Chagos Islands Award: Exploring the Renewed Role of The Law of The Sea in The Post-Colonial Context," *Wis. Int'l LJ* 35, no. Fall (2017): 1–38.

³⁰⁶ Article 143 (3) of UNCLOS. In this regard reference may be made to the general responsibility of the ISA to promote and encourage the conduct of research in the Area, and to coordinate and to disseminate the results of such research and analysis, when available. Article 143 (2) of UNCLOS authorizes the ISA to enter into contracts for the purpose of carrying out scientific research concerning the Area and its resources.

"marine scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole." Importantly, this obligation extends beyond mineral resources to encompass "the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction."³⁰⁷ Therefore, any MSR activities conducted in the Area must contribute to the benefit of humankind in a holistic manner, focusing on advancing scientific knowledge, promoting international cooperation, and supporting sustainable development goals. Although Part XI of UNCLOS does not establish a comprehensive regime specifically for MSR in the Area, this does not diminish the legal nature of the general obligation imposed on states and international organizations.³⁰⁸ The promotion of peaceful purposes and the global benefit of MSR underscores the shared responsibility to safeguard and preserve the marine environment and its resources for present and future generations. By adhering to these principles and fostering cooperation, states can harness the potential of marine scientific research to address pressing challenges, promote sustainable development, and advance the common interests of humankind in the global ocean commons.

However, all MSR must be conducted in compliance with the rules for the protection and preservation of the marine environment.³⁰⁹ In addition, Article 263 provides for responsibility and liability for any

³⁰⁷ Article 87(2) of UNCLOS 1982

³⁰⁸ Article 1 (1) of UNCLOS, definition of the Area.

³⁰⁹ Article 240 of UNCLOS 1982

damage to the marine environment arising out of MSR. UNCLOS requires regulations to be adopted for the protection of the marine environment, including marine biodiversity, from MSR, and by extension, bioprospecting in the marine environment. States and competent international organizations involved in MSR, whether undertaken by them or on their behalf, are responsible for ensuring compliance and may be held liable for their actions and those of their nationals or juridical persons and called upon to pay compensation for any consequential damage.³¹⁰

Examining the convention's object and purpose in relation to MSR could help determine the closer content of MSR. The provisions in Part XIII, including article 143 applicable to the Area, appear to mainly address the pure or basic types of scientific research, which has the intention, for instance to increase knowledge of and understand the marine environment for the benefit of all mankind. MSR shall also be conducted for peaceful purposes on the high seas.³¹¹ Article 246 (3) of the UNCLOS addresses MSR that seeks *"to increase scientific knowledge of the marine environment for the benefit of all mankind"*,³¹² whereas Article 246(5)(a) is concerned with MSR which stated *"of direct significance for the exploration and exploitation of natural resources, whether living or non-living"*.³¹³ In this respect, scientific research on MGRs of direct

³¹⁰ Article 263 of UNCLOS 1982

³¹¹ Article 240 (a) of UNCLOS 1982

³¹² Article 246 (3) of UNCLOS 1982

³¹³ Article 246(5)(a) of UNCLOS 1982

commercial significance falls within the scope of UNCLOS regime for MSR. Indeed, to suggest otherwise would be to propose an impracticable distinction. Research designed purely to increase knowledge of the rich ecosystems of the oceans may well result in commercially significant findings on MGRs.

In the CBD convention also regulates the rights to conduct MSR, which stipulated in the Article 4 of the CBD.³¹⁴

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:

(...) (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.

Thus, the CBD applies to activities to beyond national jurisdiction where States are required to pay due diligence to, and are internationally accountable for the activities of their nationals and juridical persons. This is true of the right to conduct MSR, as above noted.³¹⁵

2. Defining MSR and Bioprospecting

³¹⁴ Article 4 of CBD

³¹⁵ The recommendation of the Subsidiary Body on Scientific, Technical and Technological Advice of the CBD (SBSTTA) as recalled by Decision VIII/21 of the Eighth CBD Conference of the parties, "Marine and coastal biological diversity: conservation and sustainable use of deep seabed genetic resources beyond the limits of national jurisdiction" "3. Concerned about the threats to genetic resources in the deep seabed beyond national jurisdiction, requests Parties and urges other States, having identified activities and processes under their jurisdiction and control which may have significant adverse impacts on deep seabed ecosystems and species in these areas, as requested in paragraph 56 of decision VII/5, to take measures to urgently manage such practices in vulnerable deep seabed ecosystems with a view to the conservation and sustainable use of resources, and report on measures taken as part of the national reporting process".

As noted above, the UNCLOS recognises that in addition to “pure” research, there is “applied” MSR for the purpose of acquiring knowledge that would lead to the subsequent exploitation of marine living and non-living resources. This latter is now called bioprospecting, which the CBD defines as “the exploration of biodiversity for commercially valuable genetic and biochemical resources”. Bioprospecting understood as the search for commercially valuable genetic resources whether found in the deep seabed and ocean floor or superjacent waters, is a form of MSR and should be treated as such in determining the appropriate regulatory framework for MGRs. Presently, the bioprospecting conducted by developed countries to utilize MGRs in the ABNJ are for economic reason and humanity, because the MGRs in the volume of water in deep sea can be used to create new pharmaceutical products to secure deadly disease, such as Cancer, Alzheimer, etc. This is also shown by the many bioprospecting activities during Covid-19. Where developed countries conduct research and bioprospecting on MGRs in ABNJ in making medicines and vaccines.

It has often been pointed out that any distinction between MSR and bioprospecting would be artificial. The bioprospecting objective of the “exploration of biodiversity” in the marine environment is similar to the objectives of MSR, but with the difference of a commercial purpose. In fact, up to the point of the development of a product, only the purpose and intention are different. The practical process of pure scientific research in

the ocean is exactly the same as bioprospecting. The activities on and under the ocean are the same. The equipment used is the same, the observations and measurements are the same and the samples taken are the same. Indeed, exactly the same expeditions, investigations, analyses and outcomes may be used for both academic and commercial purposes, since, due to the high cost, scientific expeditions are frequently collaborations among academic scientists, governments and private companies.

The differences between MSR and bioprospecting arise only at a later stage, after the biological material is examined in the laboratory to determine whether it might have any commercial value. For this reason, some States have argued that the process of bioprospecting should fall under the regime for MSR in the UNCLOS Part XIII. Indeed, the provisions concerning MSR could all be made applicable to bioprospecting. However, the requirement in the UNCLOS for the dissemination of information is incompatible with a commercial purpose, and the principle of benefits for all mankind is incompatible with the profits and benefits of bioprospecting being reserved for a single company. Part XIII contains a number of generally applicable principles for the conduct of MSR in all areas of the sea, plus special rules for areas within national jurisdiction and provisions for ABNJ. Most importantly, Part XIII requires States and international organisations to facilitate and promote MSR, to cooperate in creating favourable conditions, to publish and disseminate information and knowledge obtained through such research,

especially to developing countries. UNCLOS Part XIV supplements Part XIII, with provisions on the development and transfer of marine technology, in particular to developing countries.

While all States have the right to conduct MSR in the high seas and the Area, they also have the obligation to make available information and knowledge gained through such research through publication and other means of dissemination. Furthermore, States must promote the flow of scientific data and information and the transfer of knowledge resulting from MSR, especially to developing States. They must also strengthen the MSR capabilities of developing countries through programmes to provide adequate education and training of their technical and scientific personnel. Importantly, one of the fundamental principles established in Part XIII is that MSR activities do not constitute the legal basis for any claim to any part of the marine environment or to its resources.³¹⁶ This principle, together with the requirements to disseminate knowledge and information and to assist developing countries in creating their own scientific capacity, would seem to be incompatible with uncontrolled and unregulated bioprospecting, which would involve the confidentiality of the results of research and the patenting of any discoveries.

As to MSR in the Area, MSR must be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole, in accordance

³¹⁶ Article 241 of UNCLOS 1982

with Part XIII.³¹⁷ The ISA may carry out MSR in the Area and may enter into contracts for that purpose. It must promote and encourage the conduct of MSR in the Area and coordinate and disseminate the results of such research and analysis when available. States parties may conduct MSR in the Area. They must promote international cooperation in MSR by:

- a) participating in international programmes and encouraging cooperation by scientists from different countries and the ISA;
- b) ensuring that programmes are developed through the ISA or other organisations for the benefit of developing countries and technologically less developed States, with a view to – strengthening their research capabilities; – training their personnel and the personnel of the ISA in the techniques and applications of research; – fostering the employment of qualified persons from developing countries in research in the Area.
- c) effectively disseminating the results of research and analysis when available, through the ISA or other international channels when appropriate.³¹⁸

The key obligations for both the ISA and States with respect to MSR in the Area are: to promote MSR, to promote international cooperation, to disseminate the results of research and to assist developing

³¹⁷ Article 143 of UNCLOS 1982

³¹⁸ Article 143 of UNCLOS 1982

countries to develop their scientific capabilities. These obligations would be incompatible with the confidentiality and commercial purpose of bioprospecting and with benefits only being enjoyed by the company that patented a product. However, they would be appropriate in relation to bioprospecting with a public purpose under the CHM to ensure that benefits are provided to all mankind and to developing countries in particular. If bioprospecting were to be regulated under an international regime, some means would have to be devised to ensure that the benefits derived from bioprospecting for MGR were shared by all mankind. These benefits could be both financial and non-financial. Non-financial benefits could be obtained even before any profits have accrued. This would involve applying all the requirements in Parts XIII and XI for cooperation, sharing of information, and training and development relating to MSR to include research for product development and biotechnology, as well as pure scientific research. This human resource development and technical cooperation would be a non-financial shared benefit for developing countries. As to financial benefits, these could be secured by requiring a fee for a licence for access to biological resources and by requiring companies that commercialised a product from MGR in the Area to pay royalties to a trust fund, such as the Endowment Fund established by the ISA, to support research and bioprospecting by scientists from developing countries in the Area.

E. THE PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW

1. Common Heritage of Mankind (CHM)

a. The Development of Common Heritage of Mankind Principle

The international community has made progress in the practice of law regarding the regime that regulates the use of natural resources, one of which is the Common Heritage of Mankind (CHM).³¹⁹ This general heritage is a regime of international law that represents the idea that natural elements globally consider usefulness for mankind as a whole form and not unilaterally exploited for the sake of a particular state or company's interest, or an entity that exploits the natural resources of mankind heritage under the rules of the international legal regime. Specific natural resources provided for in international law are designated as common property, i.e., those in the international sea, space resources, and the moon and other celestial bodies.³²⁰ The idea that there are one or more global spaces should be considered a 'Common Heritage of Mankind', and not a novelty. The concept of the common heritage of mankind is a new concept that has emerged since the late 1960s. This concept must be distinguished from the two concepts that have existed before, namely the concept of the res nullius and the res communis. Res nullius means that certain objects

³¹⁹ Konrad J. Marciniak. (2017). 'Marine Genetic Resources: Do They Form Part of the Common Heritage of Mankind Principle?', JurisNet, LLC, Chapter 16, pp. 373-405, p. 380.

³²⁰ Ibid

or things that according to the traditional legal system, which includes wild animals and plants, are not owned by anyone and can be freely used and taken by everyone.³²¹ The concept of *res communis* has implications in international law where some parts of the earth's surface, such as the high seas and areas of space, cannot be owned since they are owned by a particular community. However, the resources can be used by everyone.³²² Meanwhile, the concept of the common heritage of mankind is broader than *res communis*. The underlying idea is that humanity in general should be afforded protection by a legal regime that specifically applies to designated areas and sites: areas of the seabed and subsoil, Antarctica, the moon, geostationary orbit, as well as areas, sites and monuments that can be considered an important part of the cultural heritage of all humanity.³²³

In 1967, Maltese Ambassador to the United Nations (UN), Arvid Pardo, submitted his proposal to the First Committee of the UN General Assembly calling for a deep seabed outside of national jurisdiction and the resources contained therein to be declared a common heritage of mankind. Seeing the situation, at a session of the United Nations General Assembly held on 17 August 1967, Ambassador Arvid Pardo, Malta's permanent representative at the United Nations, submitted a proposal to the Assembly to make rules

³²¹ Alexandre Kiss, *Op. Cit*, p. 104.

³²² *Ibid*

³²³ *Ibid*

on exploration and exploitation on the deep seabed. As a reason and consideration, Arvid Pardo states as follows:³²⁴

- a. *Given the rapid development of technology, there is a possibility that the seabed outside the Continental Shelf could become a national target of state demands. If this happens, the Seabed and Deep-Sea Floor, which mankind capabilities may achieve, will soon become a military competition arena with a specific deployment of weapons. Moreover, developed countries with the latest technological capabilities will soon exploit their abundant natural resources to increase their profits.*
- b. *Therefore, it is considered that it is time to immediately issue a declaration stating that the Seabed of the Deep Ocean is a “common heritage of mankind”. To this end, an international treaty is proposed to immediately prepare to regulate legal principles on point a. The seabed and deep seabed outside the boundaries of national jurisdiction are not subjected to national demands;*
- c. *Regional exploration shall be carried out consistent with the principles and objectives of the UN charter;*
- d. *The utilization of the area and its exploitation of wealth is carried out to secure the interests of poor countries in a particular area; and 4. The area should be used only for peaceful purposes.*

Subsequently, in the session, the UN Secretary-General proposed a stance,

“Declarations and icons of treaties on reservations are exclusive if, for peaceful purposes on the seabed, the underlying at sea beyond its limits constitutes national jurisdiction, and it uses their resources for the benefit of the common people.”

³²⁴ Arvid Pardo. (1975). ‘The Common Heritage: Selected Papers on Oceans and world order 1967-1974, Malta University Press (1975), pp. 549. See also Statement by Arvid Pardo, International Ocean Institute, before the third United Nations Conference on the Law of the Sea, 9 April 1976.

Based on Malta's proposal, in December 1968, the General Assembly established a Committee on the Peaceful Uses of the Seabed and Seabed Beyond the Limits of National Jurisdiction, abbreviated as the UN Seabed Committee, to formulate recommendations related to the problems currently at hand. The UN 1969, through the General Assembly, adopted a Resolution known as the "Moratorium Resolution," which stated that before the establishment of an international regulatory arrangement (International Regime) on the seabed and the land beneath it and all its natural wealth, beyond the boundaries of national jurisdiction, it would not be recognized. International Seabed Authority, as an organization that oversees the activities of utilizing sea-based natural resources, has so far agreed to 27 exploration contracts.³²⁵ The contractor in the utilization of natural resources as determined has an applicability of 15 years and can be extended for five years. The scope is that contracts for the exploration of polymetallic nodules cover 75.000 km², Seabed/Seafloor Massive Sulphides cover 10.000 km², and cobalt-rich ferromagnetic crusts cover a maximum of 20 km². Discussions on the exploration and use of natural resources based on the sea need to be carried out in a transparent manner by actors as managers. The Principle on Common Heritage is currently only regarding the 1967 Law Conference

³²⁵ Tullio Scovazzi. (2007). 'The Concept of Common Heritage of Mankind and the Genetic Resources of the Seabed beyond the Limits of National Jurisdiction', *Agenda Internacional* 25, p. 11-12

regarding the rule regarding the high seas as a ‘common heritage of mankind’. It states that the seabed must be subject to the UN regarding jurisdiction and the regulation of international law.

Under international law, the state is a subject of international law with a sea boundary from the coastline as far as two hundred miles towards the outer sea. Outside of the two-hundred-mile boundary, there are marine resources that are based on the high seas and are accessible areas as shared property (*res communis*).³²⁶ On the high seabed, it is regulated and controlled by the International Seabed Authority (ISA) under UN regulations. Like other organizations, the ISA generally regulates the obligations attached to its members. ISA also developed regulations related to exploiting mineral resources in the Area in 2014. The resources scattered throughout the region are huge enrichments officially known as minerals, namely polymetallic nodules, consisting of layers of ore formed around marine debris. It is thought that, collectively, nodules at the bottom of the ocean contain more cobalt, nickel, and earth metals than on land, and contain tellurium found abundant in some areas of the oceanic basin, one of which is in the Clarion-Clipperton Zone (CCZ), on a sizeable abyssal plain the width of the United States of America located 4.000 to 6.000 meters below the surface of the Eastern Pacific Ocean. Space, moons,

³²⁶ Jean Buttigieg. (2012). ‘The Common Heritage of Mankind – From the Law of the Sea to the Human Genome and Cyberspace’, University of Malta. p. 17.

and asteroids also contain a rich diversity of minerals, gases, and water that can be used to provide raw materials, energy, and even food sources to sustain mankind life and allow further exploration into Space.³²⁷

As a result of the application of the principle of common heritage, i.e., peaceful use, the principle of non-exclusive use and international management, exploration and exploitation of resources in the space area and seabed is not only fully economically oriented. But it must also pay attention to the norms of togetherness so that its use is fully utilized for the benefit of mankind. The Principle of Common Heritage is presented as an answer to the limitations of the applicable legal framework and as an innovative and fair basis for addressing territories outside the national jurisdiction. Furthermore, on the principle of Common Heritage, the seabed and Space and its resources will become common property that countries beyond a specific limit cannot have.³²⁸

b. Definition and Concept of Common Heritage of Mankind

At the outset, it is necessary to give the phrase, common heritage of mankind, a specific literal meaning. Common heritage of mankind is a principle of international law which holds that defined

³²⁷ Kemal Baslar. (1998). 'The Concept of the Common Heritage of Mankind in International Law', Martinus Nijhoff Publishers, Kluwer Law International, pp. 420.

³²⁸ Kemal Baslar, Op. Cit.

territorial areas and elements of humanity's common heritage (cultural and natural) should be held in trust for future generations and be protected from exploitation by individual nation states or corporations. The word 'common' suggests a thing shared in respect to title, use or enjoyment, without apportionment or division into individual parts. The word heritage suggests property or interests which are reserved to a person by reason of birth, something handed down from one's ancestors or the past. In defining mankind, it is necessary to make a distinction between mankind and man. Mankind refers to the collective group, whereas man refers to individual men and women. Thus, human rights are those which individuals are entitled to by virtue of their membership in the human race, whereas the rights of mankind relate to the collective entity. Mankind is not yet unified under one world government. Therefore, the collective entity of mankind is represented by the various nations of the world. Thus, the exercise of rights to the common heritage of mankind appertains to nations, representing mankind, and not individuals. The use of the phrase common heritage of mankind implies or prescribes worldwide common ownership of the seabed and its resources beyond the limits of national jurisdiction.

The principle of the common heritage of mankind states that all countries have equal rights to certain resources, such as resources in outer space and both biological and non-biological resources on the

seabed. Since the seabed and its resources can be considered *a res communes humanitates*, the property of all mankind, for a disposition of such property consent ought to be obtained from all mankind as expressed through the states as representative of mankind. Viewed from this perspective, the phrase common heritage of mankind could be said to create a legal rule of joint property in the seabed and its resources, which would require that without the prior agreement of all joint owners, the states of the world, no individual state could exercise its individual right to the property held jointly with the other states of the world.³²⁹ Instead, countries should cooperate in managing and using these resources sustainably and the economic or financial benefits of exploiting these resources should be shared equitably.³³⁰ This concept is based on the fact that there are certain parts of the earth's surface, such as the high sea and international waters, under the seabed, the Antarctic continent, the stratosphere, the outer space region, and even the moon are parts that are not under the sovereignty of a particular country or known as "common property". In the past, the right of capture or principle of the first touch applied to the resources in these areas, which states that the main principle for

³²⁹ Vito De Lucia. (2018). 'The Concept of Commons and Marine Genetic in Areas Beyond National Jurisdiction', in *Maritime Safety and Security Law Journal*, pp. 24, p. 1, on file with author. For more views of the public influence in certain areas of international law, see for instance also Jutta Brunnée, 'Common Areas, Common Heritage and Common Concern', *The Oxford Handbook of International Environmental Law*, Oxford University Press.

³³⁰ Chris World, *Op. Cit*, p. 23-24.

obtaining private property rights is the requirement of ownership.

Ownership is the first way to obtain property rights.³³¹

With the enactment of the "right of capture" principle, it is unfair for countries whose technological capabilities are less advanced or countries that do not have sea territory so they do not have access to these areas. To overcome these problems, a new approach was developed which states that the territories, places and resources cannot be owned by individual countries but are owned by all humanity together.³³² The concept of the common heritage of mankind can be applied to the management of the Antarctic continent, outer space and the moon. Although countries with advanced technology are exploiting these areas, they must be designated as exploitation activities jointly by all humanity.³³³

The concept of CHM is contained in the provisions of Article 136 of UNCLOS which states that the high seas and the resources contained therein are the common heritage of mankind. Article 136 states: "*the area and its resources are the common heritage of mankind.*"³³⁴ Then Article 137 stated that:³³⁵

1. *No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, nor shall*

³³¹ Elizabeth Pierson and Stephanie Ratté, 'The Common Concern of Humankind: A Potential Framework for a New International Legally Binding Instrument on the Conservation and Sustainable Use of Marine Biological Diversity in the High Seas, pp. 15, p. 11

³³² Ibid

³³³ Vito de Lucia, Op. Cit.

³³⁴ Article 136 of UNCLOS 1982

³³⁵ Article 137 of UNCLOS 1982

any State or natural or juridical person appropriate any part thereof. This principle underscores the common heritage of mankind, emphasizing that the resources of the Area beyond national jurisdiction are not subject to unilateral claims or assertions of sovereignty or control by any state or entity. Such claims or exercises of rights over the Area or its resources are not recognized under international law.

2. *All rights in the resources of the Area are vested in mankind as a whole, and the Authority established under UNCLOS shall act on behalf of humanity to govern these resources. This collective ownership emphasizes the global interest in the sustainable management and utilization of marine resources in the Area. While the resources themselves cannot be alienated, the minerals recovered from the Area may be subject to specific regulations governing their extraction, use, and distribution, as determined by the Authority and in accordance with international agreements.*
3. *No State or natural or juridical person shall claim, acquire, or exercise rights with respect to the minerals recovered from the Area except as permitted under the provisions of UNCLOS. This ensures that the governance and utilization of mineral resources in the Area are conducted in accordance with established international law and regulations. Any claims or attempts to assert rights over these resources outside the framework provided by UNCLOS and related agreements are not legally recognized or valid. This underscores the importance of adherence to international norms and regulations in the management of marine resources for the benefit of all humankind.*

Also, in the Article 140 UNCLOS, stated as follows:³³⁶

1. *Activities in the Area shall, as specifically provided for in this Part, be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States and of peoples who have not attained full independence or other self-governing status recognized by the United*

³³⁶ Article 140 of UNCLOS 1982

Nations in accordance with General Assembly resolution 1514 (XV) and other relevant General Assembly resolutions.

2. *The Authority shall provide for the equitable sharing of financial and other economic benefits derived from activities in the Area through any appropriate mechanism, on a non-discriminatory basis, in accordance with article 160, paragraph 2(f)(i).*

The Preamble to the UNESCO Convention for the Protection of the World Cultural and Natural Heritage states:³³⁷

“Considering that deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world”,

“Considering that parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole.”

The principles in CHM have 6 (six) interrelated principles, such as:³³⁸

- 1) The use of areas outside the boundaries of national jurisdiction is prohibited from falling into the category of sovereignty/principle of non-exclusive use;
- 2) Users of areas outside the boundaries of national jurisdiction shall use it only for peaceful purposes/principles of peaceful use (preventing military uses).
- 3) protection of the natural environment;

³³⁷ Preamble UNESCO Convention for the Protection of World Cultural and Natural Heritage

³³⁸ Siavash Mirzaee. (2017). “The Conceptual Foundations of the Common Heritage of Mankind,” Eurasian Law Journal, no.10, p. 50.

- 4) The need for regional use, such as for the exploration and exploitation of natural resources, must be carried out with the aim of the common benefit of all mankind/the principle of mutual benefit of mankind;
- 5) an equitable sharing of benefits associated with the exploitation of the resources in question, paying particular attention to the interests and needs of developing states; and;
- 6) The use of several types of management internationally is necessary to regulate and supervise in the context of the use of the area and natural resources contained therein/principles of international management.

The first prohibition on sovereignty, is not unique to a CHM regime. For example, it has long been accepted that no state may exercise sovereignty over the high seas. The notion that rights vest in humankind as a whole does, however, radically diverge from the concept of high seas freedoms, which permits individual acquisition of fish or other resources.³³⁹ They can be used but not owned, as they are a part of the international heritage (patrimony) and therefore belong to all humankind.³⁴⁰ This protects the international commons from expanding jurisdictional claims. When CHM applies to areas and

³³⁹ Siavash Mirzaee, Op. Cit, p. 27.

³⁴⁰ Ibid

resources within national jurisdiction, exercise of sovereignty is subject to certain responsibilities to protect the common good. As can be seen from Art. 145 of the UNCLOS 1982 will be one of the main functions of the Sea-Bed Authority to take care of this objective. The controversies on the utilization system centred, upon the question of how to make sure that deep sea-bed mining should benefit all mankind.³⁴¹

Two basically different schools of thoughts existed on how to achieve this purpose. At the beginning both acknowledged that, owing to the financial and technical implications of deep sea-bed mining, not all States could participate therein. The share of those not directly involved in deep sea-bed activities was seen accordingly in the receipt revenues to be used for the economic development of the respective States. The corresponding obligation of deep sea-bed mining States to contribute to the revenues sharing system was dogmatically justified on two grounds, both of which as key elements have influenced the final structure of the law of the sea regime. First it was argued, breaking down the various statements made during the negotiations to their dogmatic content, that, as the use of the resources of the sea-bed was open to all States and was supposed to be carried out for the benefit of all mankind, the receipt of revenues formed the equivalent

³⁴¹ Article 145 of UNCLOS

of direct participation in deep sea-bed activities. Thus, the receipt of revenues was to be regarded as a form of indirect participation in deep sea-bed mining or, in other words, a sort of compensation which - as all States enjoyed equal rights with respect to the sea-bed - constituted a right of the respective non-mining State. The second justification for the obligation to provide for revenue sharing was seen in the demand that resources from the sea-bed should be used to foster the economic development of the developing countries - the original preferential treatment aspect.

Some formulations of the CHM principle explicitly provide that protection of the environment entails a sharing of burdens as well as benefits, and note that such protection involves an obligation to take into account the interests of future generations. Because non-peaceful uses of an area could destroy its resources, the peaceful purposes prong may also encompass concern with future generations (protection of ecological integrity and inter-generational equity between present and future generations of humans). The International Law Association, in its 1986 Seoul Declaration concerning the CHM principle, does not list "peaceful purposes" among the utilization features of a common heritage regime. Commentators have noted that "peaceful purposes" could stand apart from the CHM concept as a separate principle.

The existence and formulation of an environmental protection element of the CHM principle, according to Professor R. St. J. McDonald³⁴² does not consider environmental protection an element. He finds that environmental preservation is linked to "an obligation to leave a particular area in as good a condition as the present generation received it," and believes that "obligations on intergenerational rights and on environmental and natural preservation" must await "a more mature" formulation of the CH principle. By contrast, Judge Rudiger Wolfrum³⁴³ finds that "the interests of future generations have to be respected in making use of the international commons," approaches environmental protection through the lens of sustainable development, and considers *"the concept of sustainable development [to be] one of the important elements of the common heritage principle."*³⁴⁴

2. Equitable Access and Benefit-Sharing (ABS)

a. History of Access and Benefit-Sharing (ABS) Principle

Benefit-sharing has first made its appearance in international human rights law. The 1946 Universal Declaration of Human Rights

³⁴² John E. Noyes. (2011). "The Common Heritage of Mankind: Past, Present, and Future". 40 Denv. J. Int'l L. & Pol'y 447. p. 452.

³⁴³ Rudiger Wolfrum. (2010). "The Common Heritage of Mankind". Max Planck Encyclopedia of Public International Law. p. 22-23.

³⁴⁴ Alex G. Oude Elferink. (2007). 'The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas', The International Journal of Marine and Coastal Law, Vol 22, No 1, pp. 143-176

referred to everyone's right to share in the benefits of scientific advancement³⁴⁵ and the 1986 UN Declaration on the Right to Development referred to States' duty to ensure the 'active, free and meaningful participation in the fair distribution of the benefits resulting' from national development for their entire population and all individuals.³⁴⁶

Benefit-sharing developed in international law first under the umbrella of the New International Economic Order (NIEO) and its legacy for the global sustainable development agenda and, more recently, under the discourse on ecosystem services. The NIEO can be described as newly independent developing countries' attempt in the 1970s at radically restructuring the global economic system by prioritizing the objective of development as part of the decolonization process.³⁴⁷ The NIEO provided the context for the development of the

concept of national sovereignty over natural resources to support the self-determination of states and of peoples to decide about the economic, social, and cultural aspects of human development.³⁴⁸ In

both cases, the NIEO called for international cooperation on the basis

³⁴⁵ Universal Declaration on Human Rights, UN Doc. A/810 (1948) Article 27(1)

³⁴⁶ UN Declaration on the Right to Development, GA Res 41/128, 4 December 1986, Article 2(3)

³⁴⁷ Declaration on the Establishment of a New International Economic Order, GA Res 3201, 1 May 1974; Programme of Action for the Establishment of a New International Economic Order, GA Res. 3202, 1 May 1974.

³⁴⁸ Salmon. (2013). 'From NIEO to Now and the Unfinishable Story of Economic Justice', 62 ICLQ 31.

of need and for shifting away from legal techniques that serve to perpetrate economic domination by a minority of states.³⁴⁹ Against this background, benefit sharing has been linked to the still controversial notion of a human right to development³⁵⁰ and to the rights of indigenous and tribal peoples to their lands and natural resources.³⁵¹ In addition, it has been encapsulated in the innovative construct of the common heritage of mankind with regard to the moon³⁵² and deep seabed minerals,³⁵³ to prevent a few states from appropriating resources beyond the reach of those with fewer technological and financial capacities.

Since then, the NIEO has formally disappeared from the international agenda, its project of overhauling the international economic order having been abandoned following the creation of the World Trade Organization.³⁵⁴ However, the discourses on equitable globalization and the principle of sustainable development have been seen as ‘direct reminders’ of the NIEO’s call for equity among states³⁵⁵ and for a rights-based approach to development.³⁵⁶ To a still

³⁴⁹ C. Rossi. (1993). “Equity and International Law: A Legal Realist Approach to International Decision-Making”. p.200–201.

³⁵⁰ UN Declaration on the Right to Development, GA Res 41/128, 4 December 1986, Art. 2.3.

³⁵¹ ILO Convention no. 169, supra note 14, Art. 15.2.

³⁵² Agreement Governing the Activities of States on the Moon and Other Celestial Bodies 1979, 1363 UNTS 21, Art. 11 (7).

³⁵³ UNCLOS, supra note 6, Art. 140.

³⁵⁴ Francioni, ‘Equity’, in Wolfrum, supra note 20, 632, para. 21

³⁵⁵ E. Tourme-Jouannet. (2013). “What Is a Fair International Society? International Law between Development and Recognition”. at 37, p. 86–87.

³⁵⁶ Salmon, supra note 38, at 49.

significant extent, the NIEO has thus evolved into a general approach to the making of international environmental law aimed at solidarity and cooperation to the benefit of the least-favoured countries.³⁵⁷ And it has been enriched by the recognition of cultural diversity among and within states, resulting in the protection of the rights of marginalized individuals and communities over natural resources in order to protect their cultural identity and livelihoods.³⁵⁸ As a result, national sovereignty over natural resources has been progressively qualified by duties and responsibilities towards other states and towards communities (including communities outside states' own borders)³⁵⁹ and redefined as a commitment to cooperate for the good of the international community at large in terms of equity and sustainability.³⁶⁰

In the context of international law of the sea, early benefit-sharing obligations can also be found. The 1982 UN Convention on the Law of the Sea (UNCLOS) created a complex international machinery for the 'equitable sharing of financial and other economic benefits derived from' mining activities in the deep seabed (the

³⁵⁷ Maljean-Dubois. (2012). 'Justice et société internationale: l'équité dans le droit international de l'environnement', in A. Michelot (ed.), *Equité et environnement*. 355, at 358–359.

³⁵⁸ Tourme-Jouannet, *supra* note 45, at 121, 149.

³⁵⁹ Benvenisti. (2013). 'Sovereigns as Trustees of Humanity: On the Accountability of State to Foreign Stakeholders', 107 *American Journal of International Law (AJIL)* (2013) 295.

³⁶⁰ P. Birnie, A. Boyle and C. Redgwell. (2009). "International Law and the Environment". at 192.

Area)³⁶¹, as part of the regime on the common heritage of humankind.³⁶² UNCLOS also includes another benefit-sharing obligation concerning areas within national jurisdiction:³⁶³ it mandates States to share, through the multilateral benefit-sharing mechanism of the Area, revenues deriving from mining activities in the outer continental shelf.³⁶⁴ Precise rules and procedures on benefit-sharing in both contexts remain to be developed,³⁶⁵ although the International Seabed Authority has already engaged in nonmonetary benefit-sharing in relation to exploration in the Area.³⁶⁶

As anticipated above, more substantial developments on fair and equitable benefit-sharing have occurred in the 1992 Convention of Biological Diversity (CBD)³⁶⁷ includes benefit-sharing obligations, which have been spelt out in a series of consensus-based, soft-law decisions adopted by 196 Parties and in the legally binding Nagoya Protocol on Access to Genetic Resources and Benefit-Sharing

³⁶¹ United Nations Convention on the Law of the Sea (UNCLOS) 1982, 21 ILM 1261 (UNCLOS) Article 140(1).

³⁶² UNCLOS Articles 136-141

³⁶³ UNCLOS Article 82(1) and (4)

³⁶⁴ Chircop, A., 'Commentary on Article 82' in A Prölss (ed), *The United Nations Convention on the Law of the Sea - A Commentary*.

³⁶⁵ ISA, 'Towards the development of a regulatory framework for polymetallic nodule exploitation in the Area' (2013) UN Doc ISBA/19/C/5; and Issues Associated with the Implementation of Article 82 of the United Nations Convention on the Law of the Sea, International Seabed Authority Technical Study No. 4 (2009).

³⁶⁶ Harrison, J. (2015). 'Who benefits from the exploitation of non-living resources on the seabed?

Operationalizing the benefit-sharing provisions in the UN Convention on the Law of the Sea'.

³⁶⁷ Convention on Biological Diversity (CBD) 1992, 1760 UNTS 79.

(Nagoya Protocol).³⁶⁸ Most attention has focused on fair and equitable benefit-sharing in relation to bioprospecting, for instance transnational bio-based research and development (R&D). This has relied, in the context of the CBD and its Nagoya Protocol, on bilateral contractual arrangements for sharing with the country providing genetic resources, and with the indigenous peoples and local communities providing genetic resources held by them and associated traditional knowledge, benefits arising from R&D conducted in another country.³⁶⁹ Furthermore, multilateral benefit-sharing approaches in relation to bioprospecting have emerged in more specialized areas. The International Treaty on Plant Genetic Resources for Food and Agriculture embodies the most sophisticated elaboration of benefit-sharing as a multilateral system for listed crops of global importance for food security (such as rice, potato and maize).³⁷⁰ At the crossroads of biodiversity and health, the World Health Organization (WHO) 2011 Pandemic Influenza Preparedness Framework (PIP Framework) embodies a multilateral system for sharing samples of pandemic influenza viruses and benefits arising from it, most notably the sharing of vaccines produced from research

³⁶⁸Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization 2014, CBD Decision X/1 (2010) Annex I.

³⁶⁹ Morgera, Tsioumani and Buck (2014), at 197-208.

³⁷⁰ International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) 2001, 2400 UNTS 303.

on the viruses.³⁷¹ Another multilateral benefit-sharing mechanism related to bioprospecting in marine areas beyond national jurisdiction is likely to emerge from current negotiations under the UN General Assembly.³⁷²

In addition, benefit-sharing has also emerged under the CBD as a component of the ecosystem approach,³⁷³ in conjunction with the benefit-sharing arising from the use of indigenous peoples' and local communities' traditional knowledge.³⁷⁴ This is in recognition of the relationship between the stewardship of traditionally occupied or used natural resources and the production and dissemination of traditional knowledge,³⁷⁵ which embodies traditional lifestyles (a communal way of life)³⁷⁶ based on the link between communities' shared cultural identity, the biological resources that they use,³⁷⁷ and their customary rules about traditional knowledge and natural resource management. In this connection, benefit-sharing serves as recognition and reward for the use of traditional knowledge and customary sustainable management and conservation of natural resources. Along similar

³⁷¹ World Health Organization (WHO), Pandemic Influenza Preparedness Framework for the Sharing of Influenza Viruses and Access to Vaccines and Other Benefits, WHO Doc. WHA64.5, 24 May 2011.

³⁷² UN General Assembly Resolution 66/231 of 2011, para 167 and Resolution 69/292 of 2015.

³⁷³ Principles of the Ecosystem Approach, CBD Decision V/6 (2000), para 9.

³⁷⁴ Bonn Guidelines on Access and Benefit-sharing, CBD Decision VI/24 (2002) Annex, para 48.

³⁷⁵ Gibson (2011), at 434-435

³⁷⁶ CBD Secretariat, How tasks 7, 10 and 12 could best contribute to work under the Convention and to the Nagoya Protocol, UN Doc. UNEP/CBD/WG8J/8/4/Rev.2, para. 23 (2012).

³⁷⁷ Article 8 of CBD

lines but based on different premises (right to property and right to culture), benefit-sharing has been increasingly recognised by international human rights judicial and quasi-judicial bodies as an implicit component of indigenous peoples' rights to their lands, territories and natural resources.³⁷⁸ In the human rights context, however, benefit-sharing is mainly seen to protect communities against third parties' natural resource development (mining and logging) or conservation measures that can negatively affect communities' way of life.³⁷⁹ The extent to which these developments at the crossroads of international biodiversity and human rights law may also explain the emergence of benefit-sharing in a variety of international legal developments in the areas of water, fisheries, climate change, land and food, and corporate accountability, remains a matter for further investigation.³⁸⁰

This brief historical overview indicates that international benefit-sharing obligations have arisen at different points in time in a variety of contexts, and are currently characterized by different levels of sophistication. There are four triggers for international benefit-sharing obligations, namely:

³⁷⁸ UNDRIP Articles 25-26: see Report of the UN Special Rapporteur on Indigenous Peoples Rights, UN Doc. A/HRC/15/37 (2010), paras. 76-77.

³⁷⁹E. Morgera, *Op. Cit.*

³⁸⁰ *Ibid*

- a. bioprospecting (whether of a transnational character, which is currently the most developed and studied area of international law, or in areas beyond national jurisdiction, which is an area of international law under development)³⁸¹;
- b. natural resource use, broadly conceived (be that beyond areas of national jurisdiction, such as deep-seabed mining, or within national jurisdiction, such as logging and terrestrial mining, with the latter being insufficiently studied by international lawyers);
- c. conservation measures that are proposed or put in place in indigenous peoples' territories³⁸² which are receiving increasing attention in international policy debates;³⁸³ and
- d. the production and use of knowledge: this not only the traditional knowledge of indigenous peoples and local communities (although this is the area that has attracted the lion's share of international law-making and scholarly attention), but also other forms of knowledge in the context of the human right to science (extending, for instance, to inter-State obligations of technology transfer).³⁸⁴

³⁸¹ Kamau and Winter (2009)

³⁸² CBD Work Programme on Protected Areas, CBD Decision VII/28 (2004), Annex; Inter-American Court, *Kaliña and Lokono*; and African Commission, *Endorois*.

³⁸³ UN Special Rapporteur on Indigenous Peoples' Rights, Victoria Tauli-Corpuz, Report to the General Assembly, UN Doc. A/71/229 (2016).

³⁸⁴ Morgera, *Op. Cit.*

b. Legal Regime of Equitable Access and Benefit-Sharing (ABS)

This principle ensures that benefits are shared between users and providers of biodiversity. In relation with the utilization of MGR, ABS refers to the way in which genetic resources may be accessed, and how the benefits that result from their use are shared between the people or countries using the resources (users) and the people or countries that provide them (providers). In some cases, this also includes valuable traditional knowledge associated with genetic resources that comes from Indigenous Peoples and Local Communities. The benefits to be shared can be monetary, such as sharing royalties when the resources are used to create a commercial product, or non-monetary, such as the development of research skills and knowledge.³⁸⁵ Valuable genetic resources are often found in developing countries, whereas bio-discovery labs are mostly located in developed countries. Because of this, benefit-sharing calls for the benefits derived from commercial discoveries to be shared between the countries where the researchers are based and the countries where the genetic resources originated.³⁸⁶ Thus, ABS regulation is important

³⁸⁵ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services: Definition of Access and Benefit-Sharing. Available at <https://www.ipbes.net/glossary-tag/access-and-benefit-sharing>

³⁸⁶ Elisa Morgera. Benefit-sharing as a tool for equitable change. European Research Council. Available at <https://erc.europa.eu/projects-statistics/science-stories/benefit-sharing-tool-equitable-change>

to create equality between developed and developing countries in the management and utilization of genetic resources. Benefit-sharing is derivative principle and applied to a variety of resources that are differently qualified internationally: common heritage of mankind, shared resources, and resources the protection of which is considered a common concern of humankind. In addition, benefit-sharing applies to a variety of relationships that are differently impacted by international law:

- 1) relations among countries (inter-State benefit-sharing) that are characterized by sovereign equality and, in key areas, by the controversial principle of common but differentiated responsibility;
- 2) relations between a government and a community (intra-State benefit-sharing) within its territory, whose relationship is characterized by the State's sovereign powers and international obligations over natural resources and the relevance, to different extents, of international human rights law;
- 3) relations between communities and private companies that may be protected by international investment law and that, even when that is not the case, are increasingly understood in the light of business responsibility to respect human rights (benefit-sharing as part of companies' due diligence); and

4) relations within communities (intra-community benefit sharing), which raises questions of the interaction among communities' customary laws, and national and international law.

The concept of Access Sharing Benefit (ABS) in relation to Marine Genetic Resources (MGR) is not specifically regulated in UNCLOS. However, provisions on benefit sharing especially in mining utilization are regulated in Part XI of UNCLOS, which states as follows:

- 1) Exploration and exploitation of resources in the Area for the benefit of all humanity;³⁸⁷
- 2) The International Seabed Authority (ISA) provides a fair share of financial and economic benefits;³⁸⁸
- 3) Promotion and encouragement of related technology transfer so that all countries benefit.³⁸⁹

Unfortunately, however, Part XI of UNCLOS limits this provision in accordance with the provisions of Article 133(a), which is limited to³⁹⁰

- 1) Mineral resources, which do not include MGR because MGR are not mineral resources;

³⁸⁷ Article 137 paragraph (2) and Article 140 paragraph (1) of UNCLOS 1982

³⁸⁸ Article 137 paragraph (2) and Article 140 paragraph (2).

³⁸⁹ Article 144 paragraph (1) of UNCLOS 1982

³⁹⁰ Article 133 (a) of UNCLOS 1982

- 2) Resources located on or below the seabed, which does not include resources in the water column.

Similarly, with the provisions of Part VII governing the High Sea, there are no ABS provisions in the High Sea. Specifically related to Marine Scientific Research (MSR), a different provision applies, namely Part XIII of UNCLOS. Part XIII states that there is ABS for Marine Scientific Research in the pelagic zone. What is meant by Marine Scientific Research includes information and knowledge from research programs, data and knowledge transfer, and international cooperation in the field of research.³⁹¹ Finally, ABS in the area, as set out in Section XI. This section covers Marine Scientific Research whose nature is to provide to all mankind.³⁹²

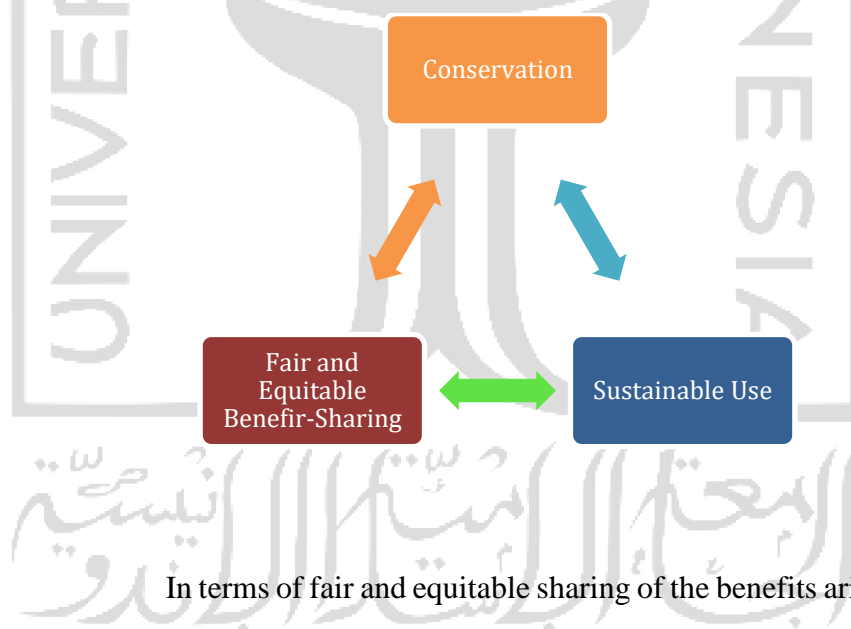
In addition to the provisions in UNCLOS, there are several provisions governing ABS. The first is the CBD. The principle of access and benefit sharing (ABS) is one of the principles in the CBD. The ABS principle is one of the CBD targets recommended by biodiversity provider countries because biodiversity is used commercially. The fair and equitable sharing of benefits arising from the use of genetic resources is one of the three objectives of the

³⁹¹ Article 244 paragraph (1) and (2) of UNCLOS 1982; See also Article 242 of UNCLOS 1982.

³⁹² Article 143 paragraph (1) and (3) of UNCLOS 1982

Convention on Biological Diversity.³⁹³ This concept emerged during the development of the Convention itself. The main reasons are due to increased consideration of the sustainable use of biodiversity and the need to ensure that bioprospecting and resource exploitation would not cause harm to conservation and communities. Delegates in the negotiations took into consideration the need to share costs and benefits between developed and developing countries, as well as “ways and means to support innovation by local people”.

Figure 2.7 Three Objectives of the Convention on Biological Diversity.



In terms of fair and equitable sharing of the benefits arising out of the utilization, refers to 2 (two) issues. First, the objective is to ensure the sharing of benefits arising out of the utilization of biodiversity. Second, the goal is to enable indigenous peoples or their

³⁹³ Article 1 of CBD

rights holders to share the benefits of the commercial use of biodiversity. Both issues are commitments that must be fulfilled to ensure access to biodiversity. The third objective of the Convention, access to genetic resources and the fair and equitable sharing of benefits arising from their use, is of particular importance to developing countries.³⁹⁴ They hold most of the world's biological diversity but feel that, in general, do not obtain a fair share of the benefits derived from the use of their resources for the development of products such as high-yielding crop varieties, pharmaceuticals and cosmetics Including access to genetic resources and the sharing of benefits arising from their use as one of the objectives of the Convention was intended to increase the incentive for the world's biologically richer but economically poorer countries to conserve and sustainably use their resources for the ultimate benefit of mankind.³⁹⁵

As such, it provides a transparent legal framework for the effective implementation of one of the CBD's three objectives, namely the fair and equitable sharing of benefits arising from the utilization of genetic resources.

³⁹⁴ United Nations Information Portal on Multilateral Environmental Agreements: Introductory Course to the Convention on Biological Diversity (CBD). Unit 3 - Access to Genetic Resources and Benefit Sharing. Available at <https://globalpact.informea.org/pdf.js/web/viewer.html?file=/sites/default/files/documents/Unit%2003%20-%20Access%20to%20Genetic%20Resources%20and%20Benefit%20Sharing.pdf#page=3>

³⁹⁵ Ibid

The ABS principle in the 1992 CBD Convention is still general. The CBD also does not specify the manner and scope of benefit-sharing arrangements for biodiversity access. Therefore, the Nagoya Protocol was implemented to address the issue of ABS which is still too general and less specific or more specialized. The Nagoya Protocol on Access to Genetic Resources and Benefit-sharing was adopted in 2010 for the effective implementation of the third objective of the Convention. It provides greater legal certainty to both providers and users of genetic resources by establishing a framework that ensure transparent conditions for accessing genetic resources and the fair sharing of benefits. It sets out core obligations to take measures in relation to access to genetic resources, benefit-sharing and compliance. It applies to genetic resource and traditional knowledge associated with genetic resources that are covered by the CBD and the benefits arising from their utilization. The Nagoya Protocol is expected to create greater legal certainty and transparency for providers and users of genetic resources with:³⁹⁶

- 1) Establishes predictable conditions for access to genetic resources.
- 2) Helps ensure benefit sharing when genetic resources leave the country to provide genetic resources.

³⁹⁶ About the Nagoya Protocol: Why is the Nagoya Protocol is important (<https://www.cbd.int/abs/about/default.shtml/>).

By helping to ensure benefit sharing, the Nagoya Protocol creates incentives to conserve and sustainably use genetic resources, and therefore increases the contribution of biodiversity to development and human well-being. Thus, it can be concluded that Access Benefits Sharing as referred to in the Nagoya Protocol refers to 2 (two) main points, namely Access and Benefits-Sharing. Access refers to access to genetic resources, while Benefits Sharing refers to the sharing of benefits arising from the utilization of genetic resources. In addition, the interpretation of justice and equality in access and benefit-sharing is also needed in order to obtain a comprehensive understanding of the distribution of MGR utilization.

1) Access

Access to genetic resources means that in the utilization of genetic resources, the accessor must obtain permission from the genetic resource provider, “*Access to genetic resources shall be subject to prior informed consent of the Contracting Party*

providing such resources, unless otherwise determined by that Party”.³⁹⁷ According to Miranda Risang, et al Prior Informed

Consent (hereinafter PIC) is a notification from the applicant for access to the provider of traditional knowledge related to genetic resources about all information in the context of access activities

³⁹⁷ Article 15 of CBD

used by the provider as a consideration in granting access approval to its genetic resources. Meanwhile, the Nagoya Protocol on access to genetic resources explains the actions that must be taken by the government in relation to the PIC.³⁹⁸ The measures referred to are legislative, administrative or policy measures necessary to:

- a) Legal Certainty, Clarity, and Transparency: States should develop clear and transparent domestic regulations governing access to genetic resources, ensuring that stakeholders understand their rights and obligations under the ABS regime.
- b) Fair and Non-Arbitrary Access Rules: Access procedures should be fair and non-discriminatory, ensuring equitable opportunities for all parties seeking access to genetic resources.
- c) Informed Consent Application Process: States should provide detailed information on how interested parties can apply for informed consent from relevant authorities or stakeholders, outlining the necessary steps and requirements.

³⁹⁸ Article 6 paragraph (3) of Nagoya Protocol

- d) **Transparent Decision-Making:** Competent national authorities should issue clear and transparent written decisions regarding ABS applications in a timely and cost-effective manner, providing applicants with legal certainty.
- e) **Documentation of Informed Consent and Terms:** Upon access approval, states should issue licenses or equivalent evidence of informed consent and mutually agreed terms. Notification of these decisions should be provided to relevant clearinghouses.
- f) **Involvement of Indigenous Peoples and Local Communities:** Where applicable and subject to domestic laws, ABS regimes should establish criteria and processes for obtaining the informed consent of indigenous peoples and local communities, ensuring their meaningful participation in decision-making.
- g) **Establishment of Clear Rules and Procedures:** ABS agreements should include specific provisions, such as dispute resolution mechanisms, profit-sharing arrangements (including intellectual property rights), conditions on third-party use, and change-of-purpose clauses. These terms should be documented in writing to ensure clarity and enforceability.

PIC as explained above can be concluded as an important basis in relation to the implementation of access to genetic resources. In other words, the extent of the success of providing access to genetic resources can be seen from the PIC.

2) **Benefit Sharing**

In principle, Benefits Sharing is based on the logic of thinking that if genetic resources obtained from one party are then utilized commercially and profitably by another party, it is appropriate if the user who benefits is willing to share the benefits with the owner of the genetic resources that provide them to the user who benefits. Profit sharing of genetic resources is regulated in the CBD related to access to and transfer of technology that makes use of genetic resources.³⁹⁹ In addition, it is also regulated in Article 5 of the Nagoya Protocol, the contents of which are:⁴⁰⁰

"Each party shall take legislative, administrative or policy measures to:

- 1) *The sharing of monetary and non-monetary benefits from the utilization of genetic resources based on mutually agreed terms (MAT);*
- 2) *Ensure that benefits arising from the utilization of genetic resources owned by indigenous peoples and local communities, in accordance with national laws regarding the rights that indigenous peoples and local communities have established regarding these genetic resources;*
- 3) *Ensure that benefits arising from the utilization of traditional knowledge related to genetic resources are*

³⁹⁹ Article 16 (3) of CBD

⁴⁰⁰ Article 5 of Nagoya Protocol

shared fairly and equitably with indigenous peoples and local communities possessing such knowledge.

MAT (Mutually Agreed Terms) or mutual agreement as referred to in the Nagoya Protocol is a written agreement containing terms and conditions agreed between the access provider and applicant based on the principle of freedom of contract. ABS is a mechanism for providing access to the utilization of SDGs based on PIC and MAT followed by fair and balanced benefit sharing of the results of SDG utilization in the form of information exchange, technology transfer, capacity building, or commercial profit sharing. The real purpose of ABS is to encourage the country of origin of SDGs to increase its capacity for sustainable utilization of SDGs.

ABS regulation in the CBD points to funding and technology transfer, as well as to the sharing of biotechnology. Furthermore, the Nagoya Protocol contains the most elaborate list of benefits in an annex that distinguishes monetary and non-monetary benefits. The latter include sharing of research and development results, collaboration in scientific research and development, participation in product development, admittance to ex situ facilities and databases, as well as capacity building and training. The former encompasses joint ventures with foreign researchers and joint ownership of relevant intellectual property

rights (IPR), profits reaching the provider country in the form of access fees, up-front or milestone payments, royalties and license fees, but also financial resources to contribute to conservation efforts (such as special fees to be paid to conservation trust funds).

3) Fairness and Equitable

Benefit-sharing is accompanied by the qualification "equitable"⁴⁰¹ or "fair and equitable"⁴⁰² under all the treaties referring to it, with the exception of the ILO Convention No. 169.⁴⁰³ Benefit-sharing should be counted among the specific principles deriving from equity as a general principle of international law, that serve to balance competing rights and interests⁴⁰⁴ with a view to integrating ideas of justice into a relationship regulated by international law.⁴⁰⁵ The value of benefit-sharing should therefore be assessed by the same token

used for other equitable principles - their capacity in providing 'new perspectives and potentially fresh solutions to tricky legal problems' to the benefit of all, not just to the advantage of the powerful.⁴⁰⁶ International treaties, however, leave the specific

⁴⁰¹ UNCLOS Article 140; CBD Article 8(j)

⁴⁰² CBD Arts. 1 and 15(7); ITPGR Arts. 1, 10(2) and 11(1); and Nagoya Protocol Arts. 1 and 5.

⁴⁰³ International Labour Organization's (ILO) Convention no. 169 Concerning Indigenous and Tribal Peoples in Independent Countries 1989, 28 ILM 1382, Art. 15(2); ITPGRFA, Art. 9.

⁴⁰⁴ C. Burke. (2014). "An Equitable Framework for Humanitarian Intervention". p. 197-198

⁴⁰⁵ Roland Klager. (2013). "Fair and Equitable Treatment in International Investment Law". Cambridge University Press. p. 130

⁴⁰⁶ Burke, Op. Cit, p. 250-251.

determination of what is fair and equitable to successive multilateral negotiations (in the context of multilateral benefit-sharing mechanisms), or to contractual negotiations (in the context of bilateral inter-State benefit-sharing and of intra-State benefit-sharing).⁴⁰⁷ Nagoya Protocol throughout its breadth and length elaborates procedures for achieving a fair and equitable benefits sharing mechanism from the utilization of genetic resources as well as on the subsequent applications and commercialization.⁴⁰⁸ Principle of fairness and justice demands that those who conserve the biological resources should benefit from its utilization.⁴⁰⁹ What constitutes a fair and equitable benefit sharing has to be determined by the criteria developed. Some of the points suggested include:⁴¹⁰

- a. The South-North imbalance in resource allocation and exploitation;
- b. Protecting the cultural identity of traditional communities;
- c. A shared interest in food security;
- d. The need to conserve biodiversity.⁴¹¹

⁴⁰⁷ Martin et al. (2014). 'Just Conservation? On the Fairness of Sharing Benefits', in T. Sikor (ed.), *The Justices and Injustices of Ecosystem Services*. Routledge.

⁴⁰⁸ Article 5 (1) of Nagoya Protocols

⁴⁰⁹ Article 5 (4) of Nagoya Protocols

⁴¹⁰ B. De Jonge. (2011). "What is Fair and Equitable Benefit-sharing". *Journal of Agricultural and Environmental Ethics*. Vol. 24. pp 127–146.

⁴¹¹ Ibid

Benefits must be shared “in a fair and equitable way.”

Again, this is the same terminology as in Article 15 of the CBD.⁴¹²

As in the CBD, the concept of “fair and equitable” is not defined.

Arguably, there could not be a single definition of what is “fair and equitable”, given that the substantive content of these

concepts depends on the particular situation or specific case. As

stated by the Bonn Guidelines on Access to Genetic Resources

and Fair and Equitable Sharing of the Benefits Arising out of their

Utilization, what is regarded as fair and equitable in the types of

benefits and the benefit-sharing obligations and procedures varies

“in light of the circumstances”.⁴¹³ Nevertheless, as other

international instruments have agreed on factors to assess fairness

and equity, similar criteria could be found in the ABS context.

For example, the Bonn Guidelines declare that benefits should be

shared “with all those who have been identified as having

contributed to the resources management, scientific and/or

commercial process”.⁴¹⁴ Fairness and equity would thus entail

reflecting, in the distribution of benefits, the various proportionate

contributions – be it knowledge, innovation, or value addition –

made by individuals, communities, or organizations to the

⁴¹² Article 15 of CBD

⁴¹³ Secretariat of the Convention on Biological Diversity (2002). Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization. Montreal: Secretariat of the Convention on Biological Diversity. Para. 45.

⁴¹⁴ Ibid, para. 48.

research, development, or commercialization process that generated these benefits. Another approach, which could also find basis in the Bonn Guidelines, would be to say that it is the fairness and equity of the process that defines that of the result. Accurate information on the intended uses, how the research and development will take place, third-party involvement, and potential benefits – all listed by the Bonn Guidelines as information that may be required in applications for access – would thus be factors that allow Parties and other stakeholders to effectively determine what is fair and equitable in the specific circumstances.⁴¹⁵

4) Forms of Benefit Sharing

There are two forms of benefit-sharing, monetary and non-monetary.⁴¹⁶ The Annex of the Nagoya Protocol itself has divided the forms of benefit-sharing into these two categories:⁴¹⁷

Monetary Benefits	Non-monetary Benefits
Monetary benefits may include, but not be limited to: (a) Access fees/fee per sample collected or otherwise acquired;	Non-monetary benefits may include, but not be limited to: (a) Sharing of research and development results;

⁴¹⁵ Ibid, para 51.

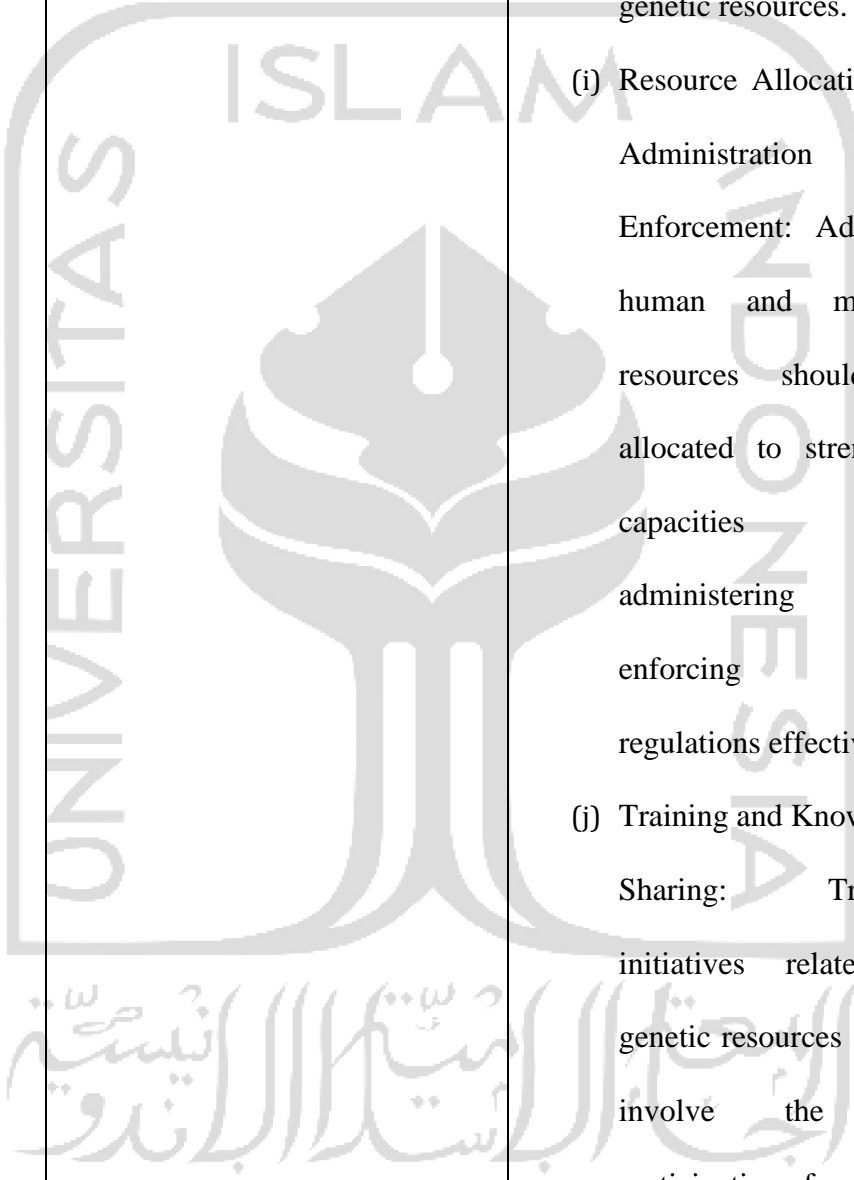
⁴¹⁶ Article 5 of Nagoya Protocols

⁴¹⁷ Annex of Nagoya protocols

<p>(b) Up-front payments;</p> <p>(c) Milestone payments;</p> <p>(d) Payment of royalties;</p> <p>(e) Licence fees in case of commercialization;</p> <p>(f) Special fees to be paid to trust funds supporting conservation and sustainable use of biodiversity;</p> <p>(g) Salaries and preferential terms where mutually agreed;</p> <p>(h) Research funding;</p> <p>(i) Joint ventures;</p> <p>(j) Joint ownership of relevant intellectual property rights.</p>	<p>(b) Collaboration, cooperation and contribution in scientific research and development programmes, particularly biotechnological research activities, where possible in the Party providing genetic resources;</p> <p>(c) Participation in Product Development: Providers of genetic resources should have the opportunity to participate in product development processes, ensuring that they benefit from commercial applications.</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>(d) Collaboration and Cooperation in Education and Training: ABS agreements should promote collaboration and knowledge-sharing in education and training programs related to genetic resources, enhancing capacity-building efforts.</p> <p>(e) Access to Ex Situ Facilities and Databases: Providers should have access to ex situ facilities containing genetic resources and related databases to support research and development activities.</p> <p>(f) Transfer of Knowledge and Technology: Users of genetic resources</p>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>should transfer knowledge and technology to providers under fair and favorable terms, including concessional or preferential arrangements where agreed upon.</p> <p>(g) Capacity Strengthening for Technology Transfer: ABS agreements should support the strengthening of capacities for technology transfer, ensuring that benefits extend to local communities and stakeholders.</p> <p>(h) Institutional Capacity-Building: Efforts should be made to enhance institutional capacity for</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>administering and enforcing access regulations related to genetic resources.</p> <p>(i) Resource Allocation for Administration and Enforcement: Adequate human and material resources should be allocated to strengthen capacities for administering and enforcing access regulations effectively.</p> <p>(j) Training and Knowledge Sharing: Training initiatives related to genetic resources should involve the full participation of countries providing genetic resources, fostering</p>
-------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>collaboration and expertise exchange.</p> <p>(k) Access to Scientific Information: ABS agreements should facilitate access to scientific information relevant to the conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies.</p> <p>(l) Contributions to Local Economies: ABS arrangements should contribute to the local economy, supporting economic development and livelihoods linked to genetic resource utilization.</p>
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>(m) Research Directed towards Priority Needs: Research efforts should prioritize health and food security needs, taking into account domestic uses of genetic resources by provider countries.</p> <p>(n) Institutional and Professional Relationships: ABS agreements should promote the development of institutional and professional relationships that can arise from access and benefit-sharing arrangements, fostering long-term collaboration and mutual benefits.;</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	(o) Food and livelihood security benefits;
	(p) Social recognition;
	(q) Joint ownership of relevant intellectual property rights.

Monetary benefits are generally royalties, licences or other fees or profits from successful commercialisation whereas non-monetary benefits are generally some other kind of advantage.⁴¹⁸ Monetary benefits are generally financial or economic outcomes such as payments (including up-front, milestone or royalty payments), fees (access, license or special), funding research or other related activity or joint intellectual property rights ownership.⁴¹⁹

Currently there are few examples of commercial exploitation of deep-sea genetic resources, such as fuelzyme, a biofuels enzyme,⁴²⁰ and a cosmetic, Deep sane, marketed as

⁴¹⁸ Schroeder, D. (2007). "Benefit sharing: it's time for a definition". *Journal of Medical Ethics* 33, p. 205-209.

⁴¹⁹ Ibid

⁴²⁰ Fuelzyme was developed from *Thermococcus* sp., which was isolated from a deep-sea hydrothermal vent, and is used in biofuel production. See G. Z. L. Dalmaso et al, "Marine Extremophiles: A Source of Hydrolases for Biotechnological Applications," *Mar Drugs*. 2015 Apr; 13(4): 1925–1965.

Abyssine.⁴²¹ Commercialization is at the end of a long chain of discovery, research and development, where uncertainties include technical, commercial and other obstacles.⁴²² Estimates, for instance, of potential anti-cancer and other drugs from MGRs in the order of hundreds of millions to trillions of dollars are based on the potential economic values do not take these factors and uncertainties into account.⁴²³ Commonly cited non-monetary benefits include access to samples, data and knowledge, the publication and sharing of scientific knowledge, collaboration and international cooperation in scientific research, capacity building and technology transfer, scientific training and access to resources such as research infrastructure and technology, and research directed to health and food security. Non-monetary benefits, which typically may accrue prior to commercialization, and particularly including during the research phase, stimulate knowledge, capacity, technology advances, cooperation and industrial development.⁴²⁴

⁴²¹ Le Costaouëc et al, "Structural data on a bacterial exopolysaccharide produced by a deep-sea *Alteromonas macleodii* strain," *Carbohydr Polym.* 2012 Sep 1,90(1):49-59.

⁴²² Juniper, S.K., 2013. "Technological, Environmental, Social and Economic Aspects". Information Paper 3. IUCN Information Papers for the Intersessional Workshop on Marine Genetic Resources 2-3 May 2013, United Nations General Assembly Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction. IUCN Environmental Law Centre, Bonn, pp. 15-22

⁴²³ Erwin, P.M., Lopez-Legentil, S., Schuhmann, P.W., 2010. "The pharmaceutical value of marine biodiversity for anti-cancer drug discovery". *Ecological Economics* 70, 445-451.

⁴²⁴ Lallier, L.E., et al. 2014. "Access to and use of marine genetic resources: understanding the legal framework". *Natural Product Reports* 31, 612-616; Oldham, P., Hall, S., Barnes, C., Oldham, C., Cutter, M., Burns, N., Kindness, L., 2014. *Valuing the Deep: Marine Genetic Resources*

The implementation of ABS on the utilization of marine SDGs involves various authorities held by various agencies. The Nagoya Protocol itself mandates that member countries appoint a Competent National Authority⁴²⁵ and National Focal Point⁴²⁶ to facilitate cooperation between countries while assisting the implementation of ABS at the national level. In addition, the Nagoya Protocol implicitly mandates that countries have a database system for inventorying research results (both publications and physical materials) and monitoring ABS activities that are connected to the Clearing House at the Protocol secretariat.⁴²⁷

3. Sustainable Development Goals (SDGs)

The concept of sustainable development was first presented through the international agenda of the Stockholm Conference on Human Environment in 1972. This concept comes from the concerns of the world community about the conditions of poverty, social inequality, environmental problems, handling needs and also the availability of

in Areas Beyond National Jurisdiction, Defra Contract MB0128 – A review of current knowledge regarding marine genetic resources and their current and projected economic value to the UK economy. Final Report Version One. One World Analytics, London

⁴²⁵ Competent National Authority (CNA) is a body that has authority related to ABS. One country may have more than one CAN. See Article 13 of Nagoya Protocols

⁴²⁶ National Focal Point (NFP) is a national body that acts as a liaison between the CNA and the Secretariat of the Nagoya Protocol and/or the CBD. See Article 13 of Nagoya Protocol

⁴²⁷ The Clearing House is a medium for exchanging information related to the implementation of ABS established by the Nagoya Protocol. See Article 14 of the Nagoya Protocol.

natural resources that are limited in number.⁴²⁸ Through the Stocklohm Conference on Human Environment, an international organization was formed, namely the United Nations Environment Program or abbreviated to UNEP. The Stockholm Conference was also the beginning of the rise of Modern Environmental Law. Then in 1983 through the 38th UN General Assembly, the UN established the World Commission on Environment and Development or WCED as an independent commission.⁴²⁹

WCED managed to get a fairly representative picture to see the challenges of world problems. The concept of sustainable development was agreed upon in 1987 by The Brundtland Commission of the United Nations. In its report entitled “Our Common Future” the world's concern about environmental degradation due to development is expressed as follows:⁴³⁰

“Today's development trends have resulted in more poor people, more disease, and more damage to the environment. How can such development serve a world in the next century with twice the population and still rely on the same environment?”

Awareness of these global environmental problems led to the formulation of the concept of sustainable development. The following is the definition of sustainable development. Sustainable Development is development that meets the needs of the present without compromising the

⁴²⁸ Dr. Ir. Nurlita Pertiwi, M.T. (2017). “Implementasi Sustainable Development di Indonesia”. Bandung: Pustaka Ramadan, Cetakan I. p. 7.

⁴²⁹ Nurlita Pertiwi, Op. Cit.

⁴³⁰ WCED (World Commission on Environment and Development).1987. Our Common Future. Oxford University Press. New York.

ability of future generations to meet their own needs". Sustainable development is expected to be able to meet the needs of people in the present without reducing the ability of future generations to continue to meet their needs. Sustainable Development is also a process of change starting from the exploitation of natural resources, the direction of investment, the direction of technological development and changes in institutions that are built in order to be in line with current needs and also future needs.⁴³¹ Sustainable development means ensuring dignified living conditions related to human rights by creating and maintaining a wide range or alternative access in planning life patterns. The principle of equity between present and future generations must be taken into consideration in the use of environmental, economic and social resources. Comprehensive protection efforts on biodiversity and genetic diversity should also be considered. The above definition explains that sustainable development is based on meeting current needs without impacting future needs.

Sustainable development efforts that continue to be echoed and developed also for the first time on the agenda, precisely in September 2000, 189 heads of state were present at UN headquarters to sign the Millennium Declaration. These 189 countries committed and agreed to achieve 8 global development goals with the aim of halving poverty and

⁴³¹ Keiner, Marco. (2001). "History, Definition(s) and Models of "Sustainable Development". ICSU, 2015. Review of Targets for the Sustainable Development Goals. p. 45.

extreme hunger, promoting gender equality and reducing child mortality. These global development goals are then called the Millennium Development Goals or MDGs. The MDGs are an unprecedented agreement that aims to address issues of security, peace, human rights, fundamental freedoms and development. Each goal contained in the MDGs has several targets and indicators and has a deadline where the MDGs themselves are targeted to run from 2000 to 2015. The MDGs themselves are implemented by developing and least developed countries while developed countries are tasked with supporting these efforts.⁴³²

In September 2015, 193 heads of state attended the 70th UN General Assembly in New York, USA, with the aim of agreeing on a new global development agenda entitled Transforming Our World: the 2030 Agenda for Sustainable Development.⁴³³ This agenda contains 17 goals and 169 targets that apply from 2016 to 2030 with the aim of ending poverty, reducing inequality and protecting the environment (Sustainable Development Goals). The document that contains 17 goals and 169 targets is then known as the Sustainable Development Goals or abbreviated as SDGs.⁴³⁴ The goals of the SDGs are:

- 1) No poverty, i.e. no poverty of any kind in all parts of the world.

⁴³² Alisjahbana, Armida Salsiah, & Murniningtyas, E. (2018). Tujuan pembangunan berkelanjutan di Indonesia : konsep, target dan strategi implementasi (2nd ed.). Bandung: Unpad Press.

⁴³³ Ibid

⁴³⁴ Panuluh, S., & Fitri, M. R. (2016). "Perkembangan Pelaksanaan Sustainable Development Goals (SDGs) di Indonesia". International NGO Forum on Indonesian Development. Briefing Paper 2. p. 15.

- 2) Zero hunger, which means no more hunger, achieving food security, improving nutrition, and promoting sustainable agriculture.
- 3) Good health and well-being, which ensures a healthy life and promotes well-being for all people at all ages.
- 4) Quality education, which ensures quality equity and enhances learning opportunities for all, ensures inclusive and equitable education and promotes lifelong learning opportunities for all.
- 5) Gender equality, namely achieving gender equality and empowering mothers and women.
- 6) Clean water and sanitation, namely ensuring the availability of clean water and sustainable sanitation for all people.
- 7) Affordable and clean energy by ensuring access to affordable, reliable, sustainable and modern energy sources for all.
- 8) Decent work and Economic Growth: supporting sustainable and inclusive economic development, full and productive employment, and decent work for all.
- 9) Industry, innovation and infrastructure: building quality infrastructure, promoting inclusive and sustainable industrial upgrading and fostering innovation.
- 10) Reducing inequality: reducing inequalities both within countries and between countries.
- 11) Sustainable cities and communities - building inclusive, quality, safe, resilient and sustainable cities and neighborhoods.

- 12) Responsible consumption and production: ensuring sustainable consumption and production patterns.
- 13) Climate action: acting quickly to combat climate change and its impacts.
- 14) Life Below Water: conserving and safeguarding the ocean and living marine resources for sustainable development.
- 15) Life on land: protecting, restoring and enhancing the sustainable use of terrestrial ecosystems, sustainably managing forests, reducing barren land and land swaps, combating desertification, halting and reversing land degradation, and halting biodiversity loss.
- 16) Peace, Justice, and Strong Institution: promoting peace including communities for sustainable development, providing access to justice for all including institutions and accountability for all, and building effective, accountable and inclusive institutions at all levels.
- 17) Partnerships for the Goals: strengthening the implementation and reinvigorating the global partnership for sustainable development.

The SDGs themselves are a continuation of the MDGs which ended in 2015, but both in substance and in the drafting process have differences. The MDGs were more bureaucratic without involving the role of non-governmental stakeholders, civil society organizations (CSOs) and other parties, and the MDGs were technocratic while the SDGs were more inclusive by involving many parties (Wahyuningsih, 2017). The SDGs are

designed to involve all aspects of development, including government, civil society, the private sector, organizations, academics, 8.5 million citizen voices around the world, and others to contribute to the goals and targets of the SDGs. Indirectly, SDGs are designed with greater responsibility because they accommodate development issues more comprehensively both qualitatively by accommodating development issues that did not exist before in the MDGs and quantitatively by targeting a complete solution to each goal by involving all countries, both developed, developing and less developed countries, to be able to fully contribute to sustainable development. In determining its goals, SDGs also conducted a survey through My World Survey. The results of this survey were then used as one of the considerations in determining the 17 goals in the SDGs. In its implementation, SDGs has a main principle, namely Leave No One Behind, this principle answers two things in SDGs, the first is procedural justice where SDGs sees the extent to which all parties who have been left behind can be involved in the overall development process and the second is substantial justice which sees the extent to which development policies and programs can be or are able to answer community problems, especially for disadvantaged groups.⁴³⁵ Therefore, in its implementation, the SDGs apply to all countries universally, so this makes all countries in the world without exception, both developed and

⁴³⁵ Shi, Longyu, Linwei Han, Fengmei Yang, and Lijie Gao. (2019). "The Evolution of Sustainable Development Theory: Types, Goals, and Research Prospects" *Sustainability* 11, no. 24: 7158.

developing countries have an obligation to be able to achieve the goals and targets contained in the SDGs. In addition, SDGs itself has 5 basic principles known as 5Ps including: 1. People; 2. Earth (Planet); 3. Prosperity; 4. Peace; 5. Partnership. These 5Ps then overshadow the 17 goals and 169 targets in the SDGs. In addition to the 5Ps, the 17 goals in the SDGs are also grouped into 4 pillars, namely the social development pillar, the economic development pillar, the environmental development pillar and also the legal and governance development pillar.⁴³⁶

The concept of sustainable development is a concept that links economic development, environmental quality and social equality. Three pillars of sustainable development namely:⁴³⁷

- a. Economic, which maximizes income by maintaining or increasing capital reserves.
- b. Ecology, which is maintaining and preserving physical and biological systems
- c. Socio-cultural, i.e. maintaining the stability of social and cultural systems.

Sustainable development basically covers three dimensions: economic, social and environmental. In the economic dimension, there are several goals to be achieved, including efforts to increase economic

⁴³⁶ Panuluh, S. Op. Cit. p. 18.

⁴³⁷ Rogers, P.P., K. Jalal dan J. A. Boyd. (2008). "An Introduction to Sustainable Development". Published by Glen Educational Foundation, Inc. Earthscan. UK, USA.

growth, fight poverty, and change production and consumption in a balanced direction. The social dimension relates to solving population problems, improving community services, improving the quality of education, and others. The environmental dimension has goals such as reducing and preventing pollution, managing waste and conserving natural resources. Thus the objectives of sustainable development focus on the three dimensions above, namely the sustainability of a high rate of economic growth, the sustainability of fair and equitable social welfare (social progress), and ecological sustainability in a harmonious and balanced way of life (ecological balance).⁴³⁸ The same thing is described in Keiner (2001) that the three pillars of sustainable development are environmental (conservation), economic (growth), and social (Equity).⁴³⁹ The World Bank in 1994 developed a capital stock model. The capital is divided into ecological capital, economic capital and social capital. Ecological capital includes biodiversity, landscape, mineral resources, clean air and healthy water. Economic capital includes material and financial capital while social capital includes health insurance, social security, social cohesion, freedom, justice, equal opportunity, and peace. Sustainable Development Capital is an amalgamation of these three capitals. A country cannot implement the concept of sustainable

⁴³⁸ Silalahi, Daud. (2003). "Pembangunan Berkelanjutan Dalam Pengelolaan Sumberdaya Alam Yang Berbasis Pembangunan Sosial Dan Ekonomi". Seminar Pembangunan Hukum Nasional VIII . Badan Pembinaan Hukum Nasional. Departemen Kehakiman Dan Hak Asasi Manusia RI. Denpasar.

⁴³⁹ Keiner, Op. Cit.

development if one of the three capitals does not support it. The government must strive to maintain the quality of these capitals. In the development of industrial areas, the government and investors should not only prioritize economic profit considerations, but should also be able to predict the impact of ecological damage that will occur such as the decline in clean water quality and biodiversity. Similarly, in the social aspect, it must be considered that the development of the area does not damage the good social order or can cause social conflict.⁴⁴⁰

As outlined above, the SDGs are a shared global vision that represents the interests of all. In addition, countries attending the UN Sustainable Development Summit agreed that the SDGs are a shared journey to 2030 and pledged that no country will be left behind. This is the second pillar of the SDGs called no one is left behind. This second pillar further shows that the SDGs must be understood as a shared vision, not an ambitious vision that only benefits certain parties. Holistically integrated sustainable development targets are the last pillar of the SDGs. The SDGs that have been compiled with 17 goals pay close attention to the aspects of interconnectedness between goals. This is different from the MDGs, which paid little attention to the interconnectedness of the goals. In other words, efforts to achieve one goal have a close relationship with efforts to achieve other goals.

⁴⁴⁰ Niamh Guiry. (2024). "International Law & the Sustainable Development Goals". The Boolean: Snapshots of Doctoral Research at University College Cork, 10.33178/boolean.2024.1.1, (1-5).

4. Principle of Cooperation

In principle, every sovereign state is free to determine its own will based on consideration of its own interests. Likewise, when a country faces certain problems or issues, each country has the freedom to solve it on its own without interference from other parties. There is no obligation for the state to cooperate with other countries in solving the problems it faces.⁴⁴¹ However, not every problem can be solved by one country alone without involving or cooperating with other countries. An example of an issue that cannot be resolved by a country without cooperation with other countries is environmental issues. Environmental issues are complex and global in nature or no longer recognize the boundaries of state territory so it is impossible not to need cooperation between countries to solve them.⁴⁴² In addition to the nature of the problem that must be resolved on the basis of the principle of cooperation between states, the principle of cooperation between states has also become an obligation in modern international law.

Alexander Kiss states

*“albeit each sovereign state is free to conduct its external relations according to what it considers to be its interest, modern international law has developed a general obligation to cooperate with others in order to resolve problems which concern the international community.”*⁴⁴³

⁴⁴¹ Dr. Suparto Wijoyo, Dr. Aan Efendi. (2022). “Hukum Lingkungan Internasional”. Jakarta: Sinar Grafika. p. 114

⁴⁴² Ibid

⁴⁴³ Alexandre Kiss, Op. Cit, p.72.

The obligation of states to cooperate with other states is a central feature of international law in general. Many international treaties are based on the recognition of the need for cooperation between states at different levels, whether bilateral, regional or global. The establishment of a number of international institutions also sheds light on the importance of cooperation between states. These international institutions aim to strengthen and accelerate cooperation among their member states.⁴⁴⁴

In the field of environmental protection, international cooperation is very important to preserve the environment as a whole, whether it is the environment within the jurisdiction of countries or the environment outside the jurisdiction of countries, such as the high sea, Antarctica, or space. The principle of cooperation is rooted in customary international obligation and is one of the integral principles of the current international law. This principle is based on the fact that the environment does not have borders. However, environmental pollutions and degradations are transboundary. Therefore, protecting the environment and dealing with environmental challenges is beyond one or more states' power and requires the cooperation of the international community.⁴⁴⁵ Unlike public international law, environmental law does not rely on principles and rules based on mutual relations. The root of this principle is in customary law and *Erga Omnes* regulations. It emerged as one of the binding principles

⁴⁴⁴ Ibid

⁴⁴⁵ Abbas Poorhashemi. (2023). "Principle of International Environmental Law". *CIFILE Journal of International Law*, Vol. 4, No. 7, 80-106. p. 84.

of general international law, especially after the First and Second World Wars. As a result, States decided to engage in international cooperation instead of hostilities and rivalities.⁴⁴⁶ Based on this principle, states must cooperate in good faith to protect the environment in all circumstances.⁴⁴⁷ Cooperation between countries in environmental protection efforts is often seen in the cooperation carried out by international organizations, be it existing international organizations or those created to deal with certain environmental issues. Many environmental problems cannot be solved by creating simple regulations, but require cooperation between the countries concerned.⁴⁴⁸

The principle of cooperation is in various fields, including information exchange, technology transfer, financial resources, training courses, and conferences.⁴⁴⁹ Since international cooperation is a critical principle in environmental protection, this principle is included in several global or regional environmental treaties. Moreover, this principle is the source of obligations in many conventions. For instance, Article 197 of the 1982 Convention on the Law of the Sea emphasizes that States protect the marine environment globally and, if necessary, regionally, directly or

⁴⁴⁶ Ibid

⁴⁴⁷ S.A.Poorhashemi, B.Khoshmaneshzadeh, M.- Soltanieh & D.H.Bavand, Analyzing the individual and social rights condition of climate refugees from the international environmental law perspective, *International Journal of Environmental Science and Technology*, ISSN 1735-1472, Int. J. Environ. Sci. Technol, DOI 10.1007/s13762-011-0017-3, January 2012, Volume 9, Issue1, P.57-67.

⁴⁴⁸ Dr. Suparto Wijoyo, Dr. Aan Efendi, Op. Cit, p.115.

⁴⁴⁹ Abbas Poorhashemi, Loc. Cit.

through competent organizations. Therefore, States and international organizations will cooperate to establish and compile the rules, standards and recommended international methods and procedures following this convention or considering the region's characteristics.⁴⁵⁰ According to Article 5 of the Convention on Biological Diversity, Rio de Janeiro, 1992, under the title of "cooperation" each member State should cooperate to preserve and protect biodiversity.⁴⁵¹ This Convention obligates contracting parties to cooperate with the international community to ensure the improvement of a global environment for implementing the convention's provisions. All persons have an interest in biodiversity, but individuals cannot regulate it in isolation.⁴⁵² Thus

The principle of cooperation is enshrined in various international legal instruments as follows

Article 7 of Rio Declaration

“States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.”⁴⁵³

⁴⁵⁰ Article 197 of UNCLOS 1982

⁴⁵¹ Article 5 of CBD

⁴⁵² R. Barnes, 'Fisheries and Biodiversity' in M. Fitzmaurice, D. Ong and P. Merkouris (eds.), *Research Handbook on International Environmental Law* (Edward Elgar, Cheltenham, 2010), 542–63.

⁴⁵³ Article 7 of Rio Declaration

UNCLOS provides that all States have the duty to cooperate with other States in conserving the living resources of the high seas and in developing rules for the protection and preservation of the marine environment. Cooperation between States for the conservation of biodiversity, by States in their work in international organizations, and between those international organizations, should be enhanced by the new instrument.⁴⁵⁴

Article 118

“management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall, as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.”⁴⁵⁵

Article 143

“States parties may conduct MSR in the Area. They must promote international cooperation in MSR by:⁴⁵⁶

- a) Participating in international programmes and encouraging cooperation by scientists from different countries and the ISA;*
- b) Ensuring that programmes are developed through the ISA or other organisations for the benefit of developing countries and technologically less developed States, with a view to*
 - strengthening their research capabilities;*
 - training their personnel and the personnel of the ISA in the techniques and applications of research;*
 - fostering the employment of qualified persons from developing countries in research in the Area.*

⁴⁵⁴ High Seas Alliance: Ten Governance Principles for an International Legally Binding Instrument on Marine Biodiversity in Areas Beyond National Jurisdiction. Available at <https://highseasalliance.org/ten-governance-principles-for-an-international-legally-binding-instrument-on-marine-biodiversity-in-areas-beyond-national-jurisdiction/>

⁴⁵⁵ Article 118 of UNCLOS 1982

⁴⁵⁶ Article 143 of UNCLOS 1982

- c) *Effectively disseminating the results of research and analysis when available, through the ISA or other international channels when appropriate.*”

Article 197

“States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.”⁴⁵⁷

Article 18 (1) the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources

“The Contracting Parties shall cooperate together and with the competent international organization with a view to co-ordinating their activities in the field of conservation of nature and management of natural resources and assisting each other in fulfilling their obligations under this agreement.”⁴⁵⁸

The principle of cooperation was also affirmed in the verdict of the Manufacture Mixed (MOX) Plant case between Ireland and the United Kingdom which was settled through the International Tribunal for Law of the Sea (ITLOS) in 2003. The ITLOS decision in its consideration stated as follows.

“... that duty to cooperate is a fundamental principle in the prevention of the pollution of the marine environment under part XII of the Convention and general international law and that rights

⁴⁵⁷ Article 197 of UNCLOS 1982

⁴⁵⁸ Article 18 (1) the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources

*arise there from which the Tribunal may consider appropriate to preserve under article 290 of the UNCLOS.*⁴⁵⁹

The duty to cooperate is a key principle in the prevention of pollution of the marine environment under Part XII of UNCLOS and international law in general. In a dissenting opinion, even Judge Rudiger Wolfrum stated that the obligation to cooperate with other states whose interests will be involved in the protection of the environment is a *Grundnorm* that is not only found in Part XII of UNCLOS but also in customary international law.⁴⁶⁰

As mentioned above, UNCLOS provides that all States have the duty to cooperate with other States in conserving the living resources of the high seas and in developing rules for the protection and preservation of the marine environment. Cooperation between States for the conservation of biodiversity, by States in their work in international organizations, and between those international organizations, should be enhanced by the new instrument.⁴⁶¹ Also, the BBNJ legal instrument, which has not yet come into force, contains the principle of cooperation between countries in order to create fair and equal benefit-sharing. Since the environment has no boundaries and all States have a shared

⁴⁵⁹ Mox Plant case (ITLOS: UK v. Ireland), Request for Provisional Measures, ITLOS Reports 2001, 82.

⁴⁶⁰ Chintaka Mendis, Op. Cit, p.25.

⁴⁶¹ High Seas Alliance: Ten Governance Principles for an International Legally Binding Instrument on Marine Biodiversity in Areas Beyond National Jurisdiction. Available at <https://highseasalliance.org/ten-governance-principles-for-an-international-legally-binding-instrument-on-marine-biodiversity-in-areas-beyond-national-jurisdiction/>

responsibility to protect the global environment, the commitment to international cooperation includes a wide range of cooperation, from providing the necessary resources and technology and holding training courses to exchanging information and consultation, helping during environmental emergencies. Because dealing with ecological problems is beyond one or more states' power and requires international cooperation to care for, prevent, reduce and eliminate the harmful effects of environmental pollution and destruction.⁴⁶²

5. Common but Differentiated Responsibilities Principle and Respective Capabilities (CBDR-RC)

In solving environmental problems, especially climate change with its transboundary nature, cooperation from all countries is needed. In the process, this cannot be achieved easily because countries have their own sovereignty. Although there are international obligations written in a treaty, its binding force is only based on the voluntary state of the members of the treaty.⁴⁶³ These countries in fact have several distinguishing factors such as differences in wealth, power, and influence between countries as well as the geographically varying nature of environmental problems, all

⁴⁶² La Résolution 2997 (XXVII) du 15 décembre 1972 sur « Dispositions institutionnelles et financières oncernant la coopération internationale dans le domaine de l'environnement », doc. NU, A/8730, 1973, P.47. Reproduit in: L. Boisson de Chazournes, R. Desgagné et C. Romano, Protection internationale de l'environnement, Recueil d'instruments juridiques Paris, Pedone, 1998, P.53 et s.

⁴⁶³ Robert Jennings, Arthur Watts, ed., Oppenheim's International Law (New York: Longman, 1996).

of which determine whether the problem will give rise to an effective international regime on the international agenda.⁴⁶⁴ With this difference, the scope of international law is known as the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), whose history consists of two different elements, namely "Common Responsibility" and "Differentiated Responsibilities".

a. **Common Responsibility**, It stems from the simple principle of state cooperation where states integrate together to achieve a common goal.⁴⁶⁵ According to Philippe Sands, this element is based on common pool resources or resources that are not specifically owned by a country and can be used by any party, so cooperation is needed to preserve the sustainability of these resources.⁴⁶⁶ Common Responsibility argues that the environment is a shared responsibility between countries, especially in protecting against transboundary environmental pollution.

b. **Differentiated Responsibilities**, Based on the impetus to consider different circumstances when it comes to environmental issues, there are differences in the contribution of each country in its ability to

⁴⁶⁴ Farhana Yamin dan Joanna Depledge. (2004). "The International Climate Change Regime: A Guide to Rules, Institutions and Procedures". (Cambridge: Cambridge University Press, 2004).

⁴⁶⁵ Edith Brown Weiss, "Environmental Equity: The Imperative for the Twenty-first Century," in Sustainable Development and International Law, ed. W. Lang (London: Martinus Nijhoff Publishers, 1995).

⁴⁶⁶ Philippe Sands. (2003). Principles of International Environmental Law, 2nd ed. Cambridge: Cambridge University Press. p. 286

prevent, mitigate and control environmental threats.⁴⁶⁷ Differentiated Responsibilities is based on the fact that each country has a different contribution to climate change, while each country also has different capabilities in making efforts to deal with it.⁴⁶⁸ Differentiated responsibilities, therefore, explicitly refer to differences in economic progress and/or growth between developed and developing countries. This manifests itself in the lower demands placed on developing countries in the development of environmental standards and the opportunity to waive all environmental standards in the interest of catching up with economic development.⁴⁶⁹

CBDR principle of international environmental law establishing that all states are responsible for addressing global environmental destruction yet not equally responsible. The principle of balances, on the one hand, the need for all states to take responsibility for global environmental problems and, on the other hand, the need to recognize the wide differences in levels of economic development between states. These differences in turn are linked to the states' contributions to, as well as their abilities to address, these problems. CBDR was formalized in international law at the 1992 United Nations Conference on Environment and

⁴⁶⁷ Philippe Sands, *Op. Cit.*, p. 287

⁴⁶⁸ L. Rajamani. "The Nature, Promise, and Limits of Differential Treatment in the Climate Regime", in Ole Kristian Fauchald & Jacob Werksman (Eds.), *Year Book of International Environmental Law*, (London: Oxford University Press 2005), vol. 16, p. 82.

⁴⁶⁹ David Hunter, James Salzman, Durwood Zaelke, (1998), *International Environmental Law and Policy*, Foundation Press, New York, p. 358.

Development (UNCED) in Rio de Janeiro. The principle of common but differentiated responsibilities is contained in principle 7 of the Rio Declaration which states as follows:⁴⁷⁰

“States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.”

Article 7 of the Rio Declaration states that countries have an equal obligation to cooperate in conserving, protecting and restoring the Earth's ecosystems while taking into account the different contributions of developed and developing countries. According to Alexandre Kiss, the concept of "shared responsibility" is easy to understand, whereas the concept of "differentiated liability" requires further explanation. Likewise, Christopher D. Stone argues that the concept of "differentiated liability" is problematic, but can be interpreted as follows:

“ ‘Common’ suggests that certain risks affect and are affected by every nation on earth. These include not only the climate and ozone shield, but all risks related global public goods, including peace, public health, and terrorism. In reducing the mutual risks, all nations should cooperate in a spirit of a global partnership. Responsibilities are said to be “differentiated”, however, in that not all countries should contribute equally. Common but differentiated responsibility charger some nations, ordinarily the Rich, with carrying a greater share of the burden than others, ordinarily the Poor.”⁴⁷¹

⁴⁷⁰ Article 7 of Rio Declaration

⁴⁷¹ Christopher D. Stone. “Common but Differentiated Responsibilities in International Law”. The American Journal of International Law. Vol. 98:276. p. 277.

The concept of "shared responsibility" suggests that certain risks are affected by every nation on earth, including not only climate and ozone protection, but also all risks related to public goods, including peace, public health, and terrorism. To reduce these risks, all nations must "work together in a spirit of global togetherness".⁴⁷² The responsibility is said to be "differentiated" because not all countries have the same contribution to these risks. The concept of common but differentiated responsibilities according to some countries, usually for rich countries, bears a heavier burden than other countries, usually poor countries. What distinguishes the concept of 'common responsibility' from the concept of 'differentiated liability' is that the concept of 'liability' is more moral and political than legal and 'liability' is one of the consequences of harm done by someone or a violation of the law.⁴⁷³

According to the Third World Network, what is meant by common but differentiated responsibilities is that the destruction of the earth and environmental degradation is our common responsibility, both northern nations and southern nations, but in terms of the obligation to help heal and preserve it, because the degree of contribution to damage is different (with Industrialization the northern nations have more sins), northern nations are obliged to contribute technology and income much more.⁴⁷⁴

⁴⁷² Suparto Wijoyo, Aan Efendi, Op. Cit. p. 112.

⁴⁷³ Alexandre Kiss, Op. Cit, p. 106.

⁴⁷⁴ Third World Network. (2005). *Pengelolaan Lingkungan Internasional dari Sudut Pandang Negara Sedang Berkembang*. Yogyakarta: Cinderalas Pustaka Rakyat Cerdas. p. vi-vii.

CBDR resolves a tension between two older notions of environmental governance. On the one hand, the idea of a “common responsibility” spoke directly to the notion of “common heritage of mankind,” acknowledged by a 1967 UN resolution that had first emerged as an expression of concern for the loss of natural resources belonging to all (especially maritime, such as whales and tuna).⁴⁷⁵ The 1992 UN negotiations were organized around the four key themes of climate change, deforestation, desertification, and biodiversity degradation—environmental problems whose global repercussions brought home the need for a collective response, which needed in turn to be grounded in a common responsibility. In legal terms, CBDR describes the shared obligation of two or more states toward the protection of a particular environmental resource.⁴⁷⁶ On the other hand, the need to establish variegated levels at which different states can effectively enter into a collective response, according to both their capacities and their levels of contribution to the problem, had been recognized since the first UN conference on the environment 1972 which was featured explicitly in the Stockholm Declaration).⁴⁷⁷

At the practical level, CBDR emerged at the 1992 conference as a compromise between the positions of developed and developing countries with regard to environmental protection. It aims at bringing about the

⁴⁷⁵ Epstein, Charlotte. "common but differentiated responsibilities". Encyclopedia Britannica, 20 Mar. 2023, <https://www.britannica.com/topic/common-but-differentiated-responsibilities>. Accessed 25 March 2024.

⁴⁷⁶ Ibid

⁴⁷⁷ Ibid

conditions of environmental governance that, to be effective, need to be as inclusive as possible. At the ethical level, it is an expression of general principles of equity in international law.⁴⁷⁸ It recognizes the historical correlation between higher levels of development and a greater contribution to the degradation of global environmental resources, such as water and air, and enables the sharing of responsibility accordingly.⁴⁷⁹ It establishes that developed countries, which had been able to develop for longer times unimpeded by environmental restrictions, now need to take a greater share of responsibility.⁴⁸⁰

When adopting the CBD, international policy-makers recognised that biodiversity requires an international effort for protection and took first steps to acknowledge the private benefits of biodiversity with the concept of access and benefit-sharing (ABS). This specifically envisions a market-based system for regulating the conservation and the use of genetic resources. The ABS concept formally establishes a market for biodiversity by acknowledging its value for research and development and by requiring fair and equitable benefit-sharing.⁴⁸¹ The CBD's preamble stipulates that the conservation of biodiversity is a common concern of humankind, but

⁴⁷⁸ Abeyasinghe, A. C., & Arias, G. (2013). "CBDR as a principle of inspiring actions rather than justifying inaction in the global climate change regime". In O. Ruppel, C. Roschmann, & K. Ruppel-Schlichting (Eds.), "Climate change: International law and global governance". Nomos Verlagsgesellschaft Baden-Baden, Germany.

⁴⁷⁹ Ibid

⁴⁸⁰ Charlotte Epstein, Loc. Cit.

⁴⁸¹ Rosendal, K. / P. J. Schei (2012). "Convention on Biological Diversity: from national conservation to global responsibility", in: S. Andresen / E. L. Boasson / G. Honneland (eds.), International environmental agreements: an introduction, London: Routledge, 119–133

it also reaffirms states' sovereign rights over their own biological resources.⁴⁸² When it comes to differentiated responsibilities, the CBD draws a simple picture. Developing countries have to protect biodiversity, but developed countries have to pay for it.

Apart from the financing issues, the CBDR logic can also be found in the establishment of a fair and equitable ABS system. ABS is a market-based approach that tries to allocate an economic value to biodiversity based on its genetic properties and to facilitate the participation of developing countries in the benefits that arise from the commercial utilisation of biodiversity and genetic resources from their territory. For instance, pharmaceutical products based on plant genetic material. According to the CBD, monetary and nonmonetary benefits, for instance joint research, technology transfer should be shared with developing countries.⁴⁸³ With the greatest threat to biodiversity being human-induced destruction of habitats for the purpose of converting forest into agricultural land. Developing countries usually lack the capacity and financial resources to protect biodiversity. At the same time, most of these resources are being used and processed in the northern hemisphere, in industrialised countries, which have already lost much of their biodiversity. The

⁴⁸² Kellersmann, B. (2000): Die gemeinsame, aber differenzierte Verantwortlichkeit von Industriestaaten und Entwicklungsländern für den Schutz der globalen Umwelt, Beiträge zum ausländischen öffentlichen Recht und Völkerrecht, vol. 143, Berlin: Springer

⁴⁸³ Pieter Pauw, Steffen Bauer, et al. (2014). "Different Perspectives on Differentiated Responsibilities: A State-Of-The-Art Review of The Notion of Common but Differentiated Responsibilities in International Negotiations". Discussion Paper. Bonn: German Development Institute. p. 32.

historical responsibility to finance biodiversity protection is with the industrialised countries, and so is the responsibility to share the benefits arising from its utilisation.⁴⁸⁴ According to the CBD, countries that still have biodiversity should go “*as far as possible and as appropriate*” and “*in accordance with particular conditions and capabilities*” to protect biodiversity.⁴⁸⁵ Developed countries have to support developing countries in their endeavours.

6. Precautionary Principle

The origins of the precautionary principle are found in Germany, where it is one of the basic forms of environmental policy principles, along with the principle of cooperation and the polluter pays principle.⁴⁸⁶ The precautionary principle originated in German law as the *Vorsorgeprinzip* (which can also be translated as the 'foresight principle') during the preparation of legislation on air pollution in the 1970s. Since then, it has been adopted by other levels of governance and its application has been extended from environmental protection to other areas. It spread to Europe in the 1980s and became one of the core principles of environmental law and policy in the European Union.⁴⁸⁷ The precautionary principle was first

⁴⁸⁴ Ibid, p. 31.

⁴⁸⁵ Article 5-9 of CBD

⁴⁸⁶ Wybe Th. Douma, “The Precautionary Principle”, T.M.C. Asser Institute, The Hague, The Netherlands.

⁴⁸⁷ Liu Hong, “Comparing the Precautionary Principle in the United States and China, Shanghai Municipal Disease Control and Prevention”, P.R. China, p.1.

explicitly stipulated by the Vienna Convention for the Protection of the Ozone Layer which was adopted in 1985 to protect human health and the environment against the adverse-affect of ozone depletion.² The first explicit endorsement of the principle in an international agreement came in November 1987 in the London Declaration of the Second International Conference on the Protection of the North Sea. Definite precautionary principles as follow.⁴⁸⁸

*“Principle of precautionary action when there is reason to assume that certain damage or harmful effects on the living resources of the sea are likely to be caused by such substances, even where there is no scientific evidence to prove a causal link between emissions and effects”.*⁴⁸⁹

The principle has been advanced most successfully at the international level in relation to marine pollution but has also been applied to many other areas including fisheries management, hazardous wastes, climate change, ozone depletion, biodiversity, and general environmental management at the national and international level. Rio Declaration seeks to balance the different interests of various economic and social groups from all over the world. These interests make a balance between environmental protection and development more complex, thereby requiring that the threshold for the precautionary principle be set higher to facilitate its acceptance and implementation in the face of criticism that the

⁴⁸⁸ London Declaration of the Second International Conference on the Protection of the North Sea 1987.

⁴⁸⁹ Ibid

principle would limit human development (Garcia 1994; Burke 1993).

Principle 15 of the Rio Declaration stated:⁴⁹⁰

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

Rio Declaration covers not only global environmental problems but also any kind of environmental damage within national territorial boundaries, despite its nonbinding status. Proponents of the precautionary principle believe that it provides the best opportunity to reduce uncertainty about environmental cause and effect, and this development has had broad-reaching effects, not only for international environmental law but also for the law of the sea, such as fishery law.

The fact that the precautionary approach is not explicitly contained in the UNCLOS does not mean that the principle is irrelevant in the context of the Convention. Customary international law is relevant to interpreting the rights and obligations of the States Parties to the Convention. If the precautionary approach is part of customary international law, States Parties to the Convention are required to take it into account in implementing their obligations in respect of the protection and preservation of the marine environment.⁴⁹¹ In the Principle 15 of Rio

⁴⁹⁰ Article 15 of Rio Declaration

⁴⁹¹ A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (Kluwer Law International, Leiden 2002) 4; A. Trouwborst, *Precautionary Rights and Duties of States* (Martinus Nijhoff Publishers, Leiden 2005) 11–12.

Declaration, the statement on the content of the precautionary approach reflects customary international law.⁴⁹² However, customary international law does not prescribe the specific measures States have to adopt in implementing the precautionary approach. As has been observed by Birnie, Boyle and Redgwell:

“in determining whether and how to apply ‘precautionary measures’, states have evidently taken account of their own capabilities, their economic and social priorities, the cost-effectiveness of proposed measures, and the nature and degree of the environmental risk when deciding what preventive measures to adopt. They have in other words made value judgements about how to respond to environmental risk, and have been more willing to be more precautionary about ozone depletion, dumping at sea or whaling, than about fishing or industrial activities which cause air, river or marine pollution”⁴⁹³

Implicitly, in UNCLOS there are several articles that shows the implementation of Precautionary Principle, for instance Article 194 (1) stated that states have the obligation to take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source.⁴⁹⁴ The relevance of the precautionary approach for developing rules in accordance with the UNCLOS also has been recognized by the International Seabed Authority, one of the institutions set up by the Convention. The Authority has incorporated the precautionary approach in the Regulations on Prospecting and Exploration

⁴⁹² Trouwborst, Precautionary Rights, Op. Cit, p. 286–287.

⁴⁹³ P. Birnie, A. Boyle and C. Redgwell, International Law and the Environment 3rd ed. (Oxford University Press, Oxford 2009). p. 163.

⁴⁹⁴ Article 194 (1) of UNCLOS 1982

for Polymetallic Nodules in the Area and the Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area, which it adopted in, respectively, 2000 and 2010.⁴⁹⁵

a. Element of the Precautionary Principle

In international environmental law, the precautionary principle is a fundamental concept that guides decision-making in situations where there are uncertainties, potential risks, or threats to the environment or human health. It emphasizes taking preventive action to address these risks, even in the absence of conclusive scientific evidence. This principle states that the absence of conclusive and definitive scientific findings or evidence cannot be used as an excuse to delay efforts to prevent environmental damage.⁴⁹⁶ As stated in the Principle 15 of Rio Declaration “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.⁴⁹⁷

The principle is grounded in the idea that in cases of serious or irreversible harm, lack of full scientific certainty should not be a

⁴⁹⁵ Regulation 31 of the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area. Available at: <http://www.isa.org.jm/files/documents/EN/Regs/PN-en.pdf> ; and Regulations 2, 5 and 33 of the Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area. Available at <http://www.isa.org.jm/files/documents/EN/Regs/PolymetallicSulphides.pdf>

⁴⁹⁶ Dr. Khaidir Anwar, S.H., M.H. (2015). *Hukum Laut Internasional Dalam Perkembangan*. Bandar Lampung: Justice Publisher. p. 38.

⁴⁹⁷ Article 15 of Rio Declaration

reason for postponing measures to prevent environmental degradation. When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. It means this principle prioritizes prevention over waiting for conclusive evidence of harm before taking action. The precautionary principle is applied when there is reason to suspect that certain damage or harmful effects to biological resources are likely to be caused by certain substances, even where there is no scientific evidence proving a causal link between the source and the effect.

Alexandre Kiss defines the precautionary principle as follows.

*“The “precautionary principle” means that where there are threats to the environment of serious or irreversible damage, a lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.*⁴⁹⁸

Rosalind Malcolm states that the precautionary principle

means “it implies that, even where there is no scientific evidence available to support a particular theory, precaution should be taken.”⁴⁹⁹

The precautionary principle states indirectly that where there is no scientific evidence available to support a particular theory, precautionary measures should be taken. In its most basic form, the

⁴⁹⁸ Alexandre Kiss, Op. Cit, p.69.

⁴⁹⁹ Rosalind Malcolm, A Guidebook Environmental Law (London: Sweet & Maxwell, 1994), p.27.

precautionary principle requires that anyone who carries out an activity that has the potential to cause harm to the environment or human health, has an obligation to prevent harm arising from that activity. Trouwborst considers the precautionary principle as customary international law consisting of three main elements,⁵⁰⁰ which are 1) threat of harm to the environment; 2) uncertainty; 3) precautionary response. Meanwhile, according to Latifah, there are four main elements of the Precautionary Principle, namely: 1) the existence of risk; 2) an assessment of the risk; 3) the potential for serious or permanent damage; 4) proportionate measures; 5) the burden of proof.⁵⁰¹

The implementation of the precautionary principle also explicitly stated in the CBD di bagian Preamble nya, “...where there is 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.” This shows that CBD places a strong emphasis on the precautionary principle as a guiding principle for the conservation and sustainable use of biological diversity. It requires parties to take proactive measures to prevent or minimize the risks of significant harm to biodiversity, even in the

⁵⁰⁰ Arie Trouwborst, “The Precautionary Principle in General International Law: Combating the Babylonian Confusion,” *Review of European Community & International Environmental Law* 16 (2007), p. 187.

⁵⁰¹ Emmy Latifah. (2016). “Precautionary Principle sebagai Landasan dalam Merumuskan Kebijakan Publik,” *Yustisia* 5, no. 2. p. 281-285.

absence of full scientific certainty. This principle reflects the recognition of the irreversible loss of biodiversity and the need for precautionary action to ensure its long-term conservation and sustainable use. Besides that, the BBNJ legal instrument, which has not yet come into force, the precautionary principle makes it clear that the absence of information cannot be an excuse for failing to protect them. States and international organizations should apply the precautionary principle widely in order to conserve and protect living marine resources and preserve marine biodiversity and environment in ABNJ.

F. ISLAMIC PERSPECTIVE OF EQUITABLE ACCESS AND BENEFIT-SHARING

Allah SWT created nature to be utilized as best as possible by humans. As caliphs on this earth, humans must be able to accept and utilize this nature as a sense of gratitude and to carry out His orders and duties in accordance with Islamic teachings. The right to benefit from the essential environmental elements and resources such as water, minerals, land, forests, fish and wildlife, arable soil, air and sunlight is in Islam, a right held in common by all members of society. Each individual is entitled to benefit from a common resource subject to establishing the degree of need and the impact on the environment. The utilization of all-natural resources land, water, air, fire (energy), forests, oceans are considered the right and the joint property of the entire

humankind.⁵⁰² Since human is *Khalifatullah* (the vicegerent of Allah) on earth, he should take every precaution to ensure the interests and rights of others, and regard his mastery over his allotted piece of land as a joint ownership with the next generation.⁵⁰³ The concept or view of Islam towards the protection, management, utilization, and preservation of natural resources in general and marine resources in particular, is basically built on 9 principles as follows:⁵⁰⁴

1. Holistic /Tauhid (Prinsip Ketuhanan)

The Islamic approach to the environment and natural resources is holistic, which includes ethics and tawhid, which are at the core of the teachings and values of the Quran. Tawhid is the highest concept in Islam and the Islamic way of life. For a Muslim, ethics and tawhid are essential, final and non-negotiable.⁵⁰⁵ Therefore, issues regarding natural resources, economics and other technical matters, must always be within the framework of applying the principle of tawhid, which is the affirmation that Allah SWT is the One, the Creator of the entire universe, and the ultimate goal is to return to Allah SWT.⁵⁰⁶ Tawhid teaches us that only Allah SWT is the source of all values.⁵⁰⁷ Another thing that is also very

⁵⁰² Istianah. (2015). "Upaya Pelestarian Lingkungan Hidup Dalam Perspektif Hadis". Riwayat: Vol. 1, No. 2. p. 250.

⁵⁰³ Ibid

⁵⁰⁴ MS. Noorman, Gunarto, Maryanto. (2017). "Efforts to Protect and Manage Natural Resources of The Sea According to Islamic Law in order to Make Utilization". International Journal of Business, Economics and Law, Vol. 14, Issue 5. p. 147.

⁵⁰⁵ Ziauddin. (1988). "The Touch of Midas, Science, Values, and Environment in Islam and the West". Selangor: Pelanduk Publications. p. 155

⁵⁰⁶ Ibid

⁵⁰⁷ Vide QS. Fushshilat (41:21)

important in the context of tawhid is that Allah is different from His creatures (*al Mukhalafatu lil al hawadist*). Allah is an infinite and absolute 'dimension'. Whereas all creatures are infinite and relative. The universe (including humans) has certain potentials, but also has limits.⁵⁰⁸ It is this concept that in several verses of the Quran it is stated that everything created by God has a "measure" (*qadr*), and is therefore relative and dependent on God.⁵⁰⁹ If something created by God (including humans) violates the laws that have been set for it and exceeds its "size", then this universe will become chaotic.

Violation of this value of tawhid means shirk which is a sin in Islam. Therefore, monotheism becomes a foundation for every human action, both physical and mental actions including thinking. For a Muslim, monotheism must envelop all aspects of life and become a way of life. In other words, tawhid is the source of personal and group ethics, social ethics, economics, politics, including ethics in the management of natural resources and the environment, the development of science and technology.⁵¹⁰

⁵⁰⁸ Abdul Haseeb Ansari and Parveen Jamal. (2002). "Toward an Islamic Jurisprudence of Environment: An Expository Study". Religion and Law Review. Vol X-XI. p. 83-84.

⁵⁰⁹ Vide QS. Al-Qamar (54:49); See Also QS. Al-A'raf (7:54).

⁵¹⁰ Adnan Harahap, Ishak Manany, Isa Anshari dkk. (1997). "Islam dan Lingkungan Hidup". Jakarta: Penerbit Yayasan Swarna Bhumi.

2. Khalifah (God's representative)

As the highest (most perfect) creation of Allah SWT,⁵¹¹ humans have been endowed with all the essential abilities in the form of physical,⁵¹² psychological (moral), intellectual (aql), and spiritual fitness (Allah's guidance) for a special mission as the khalifah of Allah. Humans have a very important position, because humans are the frontline in protecting the balance of the ecosystem and preserving the carrying capacity of the environment. Thus, in managing the environment, humans essentially act as God's mandate or as an extension of God. Humans in their role as khalifatullah fil ard should be able to act wisely and wisely in managing the natural wealth on this earth so that no damage occurs.⁵¹³ Moreover, humans must be friendly to the environment. Thus, the sustainability of the earth and the environment is maintained. When humans do not pay attention or even care about nature, then there will be damage and even disasters that will befall them.⁵¹⁴ This concern for the environment is in accordance with the role of humans as khalifatullah fil ard (QS. Al-Baqarah [2]: 30), the caliphate requires humans to maintain, guide and direct everything in order to achieve the purpose and purpose of His creation.⁵¹⁵

⁵¹¹ Vide QS. At-Tin (95:4).

⁵¹² Ziauddin, Op. Cit, p. 156

⁵¹³ Mujiono Abdillah. "Agama Ramah Lingkungan Perspektif al-Quran", (Jakarta: Paramadina, 2001), p.203.

⁵¹⁴ Mukhlisin. (2011). "Menjaga Kelestarian Lingkungan Hidup dalam Perspektif Islam". Yogyakarta: Elsaq Press. p. 205

⁵¹⁵ QS. Al-Baqarah (2:30)

وَإِذْ قَالَ رَبُّكَ لِلْمَلَائِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً قَالُوا أَتَجْعَلُ

فِيهَا مَنْ يَفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَاءَ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ

لَكَ قَالَتْ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ

"Remember when your Lord said to the Angels: "Surely I will make a caliph on the earth". They said: "Why do you want to make on the earth one who will make mischief in it and shed blood, while we praise you and purify you?" God said: "Surely I know what you do not know."

As khalifatullah on earth, humans are obliged (actively) to be able to represent themselves in accordance with the attributes of Allah SWT. Khalifah in the context of the above verse means that humans are mandated to carry out an ecological mission to manage nature sustainably. God as the potential manager of the environment and man as the actual manager of the environment. So that cooperation is formed between God and humans in managing the environment.⁵¹⁶

3. Amanah (Principle of Trust)

Trust is a shared commitment between humans and Allah as their Creator. Allah entrusted mankind to manage to manage nature and

⁵¹⁶ Mukhlisin, Menjaga Kelestarian Lingkungan Hidup dalam Perspektif Islam, (Yogyakarta: Elsaq Press, 2011), p. 205.

expressed his confidence in man's abilities as stated in the last part of verse 30 of QS Al-Baqarah when Allah assured the angels by saying "*Inni a'lamu ma la ta'lamun*" which means "I know what you do not know". Therefore, man occupies a very important position in this world. He is at the axis and center of the cosmic environment, as well as the manager and guardian of nature. In the view of Islam, if there is damage to natural resources on earth (on land and in the sea), it is the result of human hands who neglect to carry out their trust (mandate) as khalifatullah on earth. QS. Ar-Rum (30:41) stated:⁵¹⁷

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ
بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ

"There is corruption on land and in the sea because of the deeds of men, that Allah may give them some of the consequences of their deeds, that they may return."

4. Tidal (Ecological Balance Principle)

The idea of ecological balance, which has been emphasized by the international community since the 1980s as one of the bases for environmental protection, is also a central tenet of Islam on the

⁵¹⁷ QS. Ar-Rum (30:41)

environment.⁵¹⁸ The Qur'an teaches that God has created the universe in proportion and measure, both quantitatively and qualitatively. The laws of God's creation include elements of order, balance and proportionality.⁵¹⁹ God has stated in QS. Al-Hijr (15:19)⁵²⁰

وَالْأَرْضَ مَدَدْنَاهَا وَأَلْقَيْنَا فِيهَا رَوَاسِيَ وَأَنْبَتْنَا فِيهَا مِنْ كُلِّ شَيْءٍ
مَّوْزُونٍ

"And We have spread out the earth and made mountains for it, and We grow everything according to measure."

The verse in the Qur'an explains that there is size, order and balance in God's creation. The environment consisting of the elements of soil, water, air, plants and animals was created in line with the concepts of proportionality, purposefulness and balance. The various elements of the natural environment affect each other. If any element of natural resources is overused, then other elements of natural resources will also be disturbed and even damaged. The one who will feel the impact of the imbalance of nature the most is humans themselves, because pollution and damage to nature will ultimately disrupt the survival of humans. Over-exploitation

⁵¹⁸ Fazlun M Khalid. (2002). Islam and the Environment. In Peter Timmerman (ed), Encyclopedia of Global Environmental Change, Vol. 5: Social and Economic Dimensions of Global Environmental Change Chichester: John Wiley & Sons, Ltd, p. 332-339.

⁵¹⁹ Vide QS. Al-Qamar (54:49).

⁵²⁰ Vide QS. Al-Hijr (15:19).

and illegal and unsustainable use of marine natural resources have caused disruptions to the balance and sustainability of marine natural resources.⁵²¹

5. Istishlah (Useful Creation Principle)

None of God's creation is in vain. Allah does not play around in His creation. Everything that Allah created is right and with a specific purpose (benefit). Allah says in QS. Ad-Dukhan (44:38-39):⁵²²

وَمَا خَلَقْنَا السَّمَوَاتِ وَالْأَرْضَ وَمَا بَيْنَهُمَا لَعِبِينَ
مَا خَلَقْنَاهُمَا إِلَّا بِالْحَقِّ وَلَكِنَّ أَكْثَرَهُمْ لَا يَعْلَمُونَ

"And We did not create the heavens and the earth and what is between them in play. We did not create them except with truth, but most of them do not know."

Al-istishlah or public good is one of the main pillars in Islamic Sharia, including in natural resource management. Allah strictly and explicitly prohibits humans from doing actions that are destructive to the environment, including damaging human life itself, after God has made repairs (ishlah).

⁵²¹ Fazlun M. Khalid, Op. Cit, p. 16.

⁵²² QS. Ad-Dukhan (44:38-39)

وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا وَادْعُوهُ خَوْفًا وَطَمَعًا إِنَّ

رَحْمَتَ اللَّهِ قَرِيبٌ مِّنَ الْمُحْسِنِينَ

"And do not corrupt the earth after it has been created good. Pray to Him with fear and hope. Verily, the mercy of Allah is very near to those who do good."⁵²³

The ultimate goal of the protection and management of natural resources and ecosystems is universal benefit and welfare for all creatures. Likewise, the gift of Allah SWT in the form of the creation of the sea with all the natural wealth in it is for the benefit of humans as said by Allah SWT in QS. An-Nahl (16:14) as follows:⁵²⁴

وَهُوَ الَّذِي سَخَّرَ الْبَحْرَ لِتَأْكُلُوا مِنْهُ لَحْمًا طَرِيًّا وَتَسْتَخْرِجُوا

مِنْهُ حِلْيَةً تَلْبَسُونَهَا وَتَرَى الْفُلْكَ مَوَاجِرَ فِيهِ وَلِتَبْتَغُوا مِنْ

فَضْلِهِ وَلِعَلَّكُمْ تَشْكُرُونَ

"And it is He who has subjected the seas (to you), that you may eat therefrom fresh meat (fish), and you may take out of them ornaments for your use, and you may see the ships sailing in them, and that you may seek from His bounty, and that you may be grateful."

⁵²³ Vide QS. Al-A'raf (7:56).

⁵²⁴ QS. An-Nahl (16:14)

6. Inter-generational Equity / Sustainable Use

Islamic ethics related to the protection and management of natural resources (including marine natural resources) lies in the idea of vicegerency and trusteeship. The heavens and the earth and all that they contain belong to Allah and have been given to humans as a form of trust.⁵²⁵ Humans, as custodians of nature, are obliged to maintain a harmonious relationship with nature. Humans are obliged to manage the earth in accordance with the purposes intended by Allah SWT for the benefit of humans themselves and other created beings. Existing natural resources are for the benefit of present and future generations (Inter-generational Equity Principle).⁵²⁶ This obligation clearly demonstrates the idea of inter-generational equity. If natural resources are exploited unwisely or excessively and are not used sustainably, then they will not be able to provide any benefits for future generations. This would be a violation of Allah's command.⁵²⁷

7. Prohibition of Excessive Use of Natural Resources

Islam forbids its followers to utilize or exploit natural resources excessively.⁵²⁸ On the contrary, Islam encourages people to utilize natural

⁵²⁵ Ziauddin, Op. Cit, p. 157.

⁵²⁶ Ibid

⁵²⁷ Abdul Haseeb Ansari. (2001). Socio-legal issues in Biodiversity Conservation: Penilaian Kritis dengan Referensi Khusus ke Malaysia. p. xxii

⁵²⁸ Vide QS. Al-An'am (6:141).

resources wisely and sustainably. Humans have no right to cause damage, unwise over-exploitation and pollution to marine resources. Thus, all exploitation activities that leave a destructive effect on marine natural resources which ultimately become the reason for the damage and threat of marine ecosystem habitats, such as the destruction of mangrove forests, coral reefs, polluted marine natural resources are clearly prohibited in Islamic teachings.⁵²⁹ Allah SWT says in QS Al-A'raf verse 31:⁵³⁰

يَبْنِي آدَمَ خُذُوا زِينَتَكُمْ عِنْدَ كُلِّ مَسْجِدٍ وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ

"O children of Adam! Wear your finest garments whenever you enter the mosque, eat and drink, but do not overdo it. Indeed, Allah dislikes those who exaggerate."

8. Natural Resources Conservation is an Obligation

Every individual must realize that conservation of the environment and natural resources is a religious obligation demanded by Allah. Indeed, Allah SWT has said in QS. Al-Qasas (28:77)⁵³¹

⁵²⁹ Abdul Haseeb Ansari, Loc. Cit.

⁵³⁰ QS. Al-A'raf verse 31

⁵³¹ QS Al-Qasas (28:77)

وَأَبْتَغِ فِي مَا آتَاكَ اللَّهُ الدَّارَ الْآخِرَةَ وَلَا تَنْسَ نَصِيبَكَ مِنَ الدُّنْيَا
وَأَحْسِنْ كَمَا أَحْسَنَ اللَّهُ إِلَيْكَ وَلَا تَبْغِ الْفُسَادَ فِي الْأَرْضِ إِنَّ اللَّهَ
لَا يُحِبُّ الْمُفْسِدِينَ

"And seek in that which Allah has bestowed upon you (the happiness) of the Hereafter, and forget not your share of the pleasures of this world, and do unto others as Allah has done unto you, and do not cause mischief on the earth, for Allah loves not those who cause mischief".

QS. Ash-Shuara' (26:152)⁵³²

الَّذِينَ يُفْسِدُونَ فِي الْأَرْضِ وَلَا يُصْلِحُونَ

"(Those) who do corruption in the earth and do not make amends."

Islam encourages the Ummah to raise religious awareness and be guided by Islamic demands to use all means to get all individuals to commit to Islamic ethics, morals, and behavior in treating nature, the environment, and natural resources for their sustainable use. All people should be reminded of the religious obligation to:⁵³³

- 1) Not to be wasteful or over-consume natural resources;
- 2) Realize that any act of destruction of natural resources is illegal;

⁵³² QS. Ash-Shuara' (26:152)

⁵³³ Abubakr Ahmed Bagader, et.al. (1994). Environmental Protection in Islam. IUCN Environmental Policy and Law Paper No. 20 Rev.

- 3) Do not carry out all forms of destruction, abuse, degradation of the quality and quantity of the environment and natural resources in any way;
- 4) Implementing the concept of sustainable development or thinking about the sustainability of future generations.

9. Principle of Government Authorized to Regulate and Enforce Laws

Islam prohibits humans from committing acts that cause pollution, damage, pollution, and excessive exploitation of the use of natural resources. To avoid damage and realize the sustainable management and utilization of natural resources, Islamic Law provides justification for the State Organizer or Government to intervene in supervising and enforcing the law for the benefit and interests of society in general. The justification for government intervention is found in the Islamic Law Rule (qawaid fihiyyah) which reads "Tasharruful imam 'ala al-ra'iyah manuthun bi al-mashlahah" which means that the Leader's intervention against the people is possible as long as it is intended for the benefit or benefit of the people. Therefore, all instruments both preventive and repressive aimed at conserving natural resources are in line with Islamic views on the protection, management and utilization of natural resources. The fuqaha agree on the principle of Islamic Law that states "ma la yatimmu al wajib illa bihi fahuwa wajib" which means that what is necessary in carrying out an obligation is also obligatory.

Based on this principle, with the aim of realizing the protection, security, management, and sustainable utilization of marine natural resources for the greatest prosperity of the people, the Government is obliged to make various policies, issue regulations, enforce the law, and establish cooperation with other countries. This includes the provision of criminal sanctions for the sinking of vessels that commit illegal fishing in territorial waters. The application of such criminal sanctions, as long as it is decided by the court, is possible in Islamic law based on the provisions of ta'zir.⁵³⁴

As for the utilization of marine natural resources, there are several principles in international law that reflect Islamic values related to the principles in Islamic economics, including the principle of equality, the principle of cooperation, and the principle of distributive justice. First, equal freedom and opportunities for all members of society to utilize natural resources that are available, abundant, and unlimited.⁵³⁵ Freedom means that people are not held back by others to combine their creative work with resources designed to be utilized by individual members of society following sharia rules. Chances are meaningful situations that allow the individual to try everything. The success or failure of a person's efforts depends on his efforts and abilities. Equality of opportunity must

⁵³⁴ Amir Abdul Aziz. (1997). *Al-Fiqh, Al-Janai Fi Al-Islam Durub, Al-Qatl, Al-Qisos, Al-Diyat, Hudud, Al-Ta'zir Amsilatun Wa Tatbiqotun Nazariyyatun*. Darussalam. p. 9.

⁵³⁵ Baqir al-Hasani & Abbas Mirakhor. (1998). *Essays on Iqtishad: The Islamic Approach to Economic Problems*. Nur.

be maintained collectively. Equality of access to resources and equality of opportunity in Islam is based on the view that natural resources are not created by humans but are bestowed by Allah SWT for all members of society, and because of that, freedom and opportunities to use these resources must be distributed equally to all people.⁵³⁶ Because Islam recognizes that individuals are rational actors, in Islam the main cause of poverty are viewed differently. Scarcity is not considered important in explaining poverty in Islam. The main cause of poverty is the injustice created from corruption, the mal-distribution of wealth and opinions, and the waste that accompanies it.⁵³⁷ In QS Al-Hujurat, verse 13 which contains the general basic principles of brotherhood and equality, the principle of equality is more explicitly stated in the Prophetic Hadith, as follows:⁵³⁸

"The Arabs have no superiority over the non-Arabs ('ajami), nor do the 'ajami have any superiority over the Arabs. The white man has no advantage over the black man, nor does the black man have any advantage over the white man. You are all children of Adam and Adam came from the ground."

Second, the principle of cooperation or helping (ta'awun) which means working together to help each other between fellow members of society (including the international community) in an effort to achieve

⁵³⁶ Iqbal, Zamir; Mirakhor, A. (2011). "An Introduction to Islamic Finance: Theory and Practice". John Wiley & Sons.

⁵³⁷ Askari, H., & Arfaa, N. (2007). Social safety net in Islam: The case of Persian Gulf oil exporters. *British Journal of Middle Eastern Studies*, 34(2), 177–202. <https://doi.org/10.1080/13530190701427925>

⁵³⁸ Hadist Riwayat Baihaqi dan Bazzas.

mutual benefit and goodness. By upholding this principle, it also means implementing the principle of friendship between countries.⁵³⁹ The principle of ta'awun for Muslims is to help each other in goodness and piety. This has been explained in QS. Al-Maidah (5:2):⁵⁴⁰

وَتَعَاوَنُوا عَلَى الْبِرِّ وَالتَّقْوَىٰ ۖ وَلَا تَعَاوَنُوا عَلَى الْإِثْمِ وَالْعُدْوَانِ
وَاتَّقُوا اللَّهَ ۚ إِنَّ اللَّهَ شَدِيدُ الْعِقَابِ

"Help each other in doing good and piety, and do not help each other in sin and transgression."

Third, distributive justice is a mechanism in which freedom and equal equity are reconciled without violating each other. Islam considers that poverty and inequality are not caused by scarcity or lack of resources, or due to an unsynchronized mode of production and distribution, but rather the result of waste, luxury, waste, and neglect of payments that belong to the community. Islam does not hesitate to assume that all individuals are connected to a certain standard of living. Thus, fulfilling the rights of the poor is a matter of equality and justice, not a matter of generosity alone.⁵⁴¹

⁵³⁹ Kailani, K. (2013). "Islam Dan Hubungan Antarneegara". Jurnal Ilmu Agama: Mengkaji Doktrin, Pemikiran, dan Fenomena Agama, 14(2), p. 99-118.

⁵⁴⁰ QS. Al-Maidah (5:2)

⁵⁴¹ Iqbal, Zamir; Mirakhor, A. Op. Cit.

There are many Islamic fiqh principles that can be applied in the context of natural resources, one of which is the Hifz al-Mal Principle. This is an important principle in Islamic law that governs the management of assets and property. This principle literally means "protecting property". This concept is based on Islamic teachings that teach Muslims to be responsible for the maintenance and wise use of resources. The principle of Hifz al-Mal emphasizes the importance of maintaining the sustainability and preservation of natural resources, including water, forests, land and mineral resources. Islam emphasizes that humans are the khalifah on earth and have the responsibility to maintain the natural environment and prevent over-exploitation and damage to resources.⁵⁴² In Islamic law, the maintenance of natural resources also includes social and economic aspects. This means that Muslims must ensure that natural resources are used fairly and benefit society as a whole. This involves the principle of justice in the sharing of natural resource proceeds as well as the prevention of harmful practices such as theft, corruption, or unfair exploitation of resources.⁵⁴³ The principle of Hifz al-Mal also teaches the importance of avoiding waste and unnecessary overuse of natural resources. This includes conservation efforts, efficient use of energy, and reducing waste and pollution.

⁵⁴² Dien, M. I. (2012). "Islamic Environmental Ethics: A Guide to the Preservation of the Natural World". Santa Barbara, California: ABC-CLIO. p. 220.

⁵⁴³ Konting, A. (2020). "Panduan Praktis Pengelolaan Lingkungan Berbasis Islam". Jakarta: Kencana.

Prophet Muhammad's teachings and actions serve as a role model for environmental sustainability. Prophet Muhammad was the first to introduce the notion of 'protected areas', and the measures for conservation that are increasingly being used today.⁵⁴⁴ He established protected areas known as *haram* (preservation possession) and *hima* (a preservation area for environmental protection) to protect land, forests, and wildlife. Within the boundaries of these areas, natural resources would not be used during specific periods. The term *hima* environmental protection refers to the areas surrounding water sources set aside to protect groundwater from depletion and excessive use. For instance, specific wild animals, natural habitats, and forests were considered sacred objects, and grazing and logging were prohibited in the protected areas. Moreover, certain animals, such as camels and antelopes, were protected.⁵⁴⁵ It is believed that Prophet Muhammad established preservation areas to the south of Medina. He prohibited hunting during certain times in those areas within a four-mile radius and prohibited cutting trees and plants within a 12-mile radius. The establishment of these protected areas demonstrates the importance the Prophet placed on the management and sustainable use

⁵⁴⁴ Bab al-Mazru'ah (The Book of Farming). (2018). In Al- "Ayni (Vol. 9)., pp. 4–24).

⁵⁴⁵ Shihadah, 'Abd al-Karim. 2005. *Safahat min Tarikh al-Turath al-Tibb al-Isami (Pages from the History of the Arab-Islamic Medical Heritage)*. Geneva: World Health Organization.

of natural resources, and the protection of the natural environment and agricultural lands.⁵⁴⁶

Specific legislation and policies promoting rational resource use and moderation are essential to ensure effective environmental protection.⁵⁴⁷ Islamic principles, which advocate justice, equality, and popular participation in decision making, form the bedrock of sustainable development.⁵⁴⁸ The guidance provided by the Prophet encourages consultation and responsible resource management, ensuring that the needs of the present and future generations are met without compromising the environment's well-being. While development projects may vary in their objectives, their ultimate aim should always be to sustain human well-being and benefit society as a whole.⁵⁴⁹ Islam emphasizes that development should not be pursued solely for its sake but with a focus on improving the lives of individuals and communities. This inclusive approach promotes the harmonious coexistence of human society with the natural world, leading to a balanced and prosperous future for all.

⁵⁴⁶ Safa, Muza. 2010. *Himayat al-Bi'ah al-Tabi'iyya fÊ al-Shari'ah al-Islamiyya: Dirasah Muqaranah (Protection of the Natural Environment in Islamic Law: A Comparative Jurisprudence Study)*. Amman: Dar al-Nawadir

⁵⁴⁷ Al-Siryani. (2006). "Al-Manzour al-Islami l-Qadaya al-Bi'ah: Dirasah Muqaranah". (The Islamic Perspective on Environmental Issues, a Comparative Study). Riyadh: Jami'ah Nayif., p. 146.

⁵⁴⁸ Al-Jayyousi. (2012). "Islam and Sustainable Development New Worldviews. Routledge".

⁵⁴⁹ Abu Zant, & Othman. (2006). "Al-Tanmiyya al-MustadÊmah: Dirasah Nazariyyah fi al-Mafhum wa-l-Muhtawa (Sustainable Development: A Theoretical Study of Concept and Content)". (Vol. 12). Al-Manara., pp. 154–55.

CHAPTER III

RESULT AND DISCUSSION

A. THE NECESSITY OF CURRENT INTERNATIONAL LEGAL FRAMEWORK IN ADDRESSING EQUITABLE ACCESS AND BENEFIT-SHARING OF MGRs IN ABNJ AMONG DEVELOPED AND DEVELOPING COUNTRIES

Recent scientific research demonstrates that many marine microorganisms from deep-sea habitats feature distinct genetic features due to their capacity to thrive in a particularly harsh environment.⁵⁵⁰ These resources, often referred to as "marine genetic resources" (MGRs), are distinct from other marine life exploited for consumption. Recent advancements in deep-sea ecosystem understanding, coupled with biotechnology progress, have highlighted significant interest in the genetic material of these resources among scientific and industrial communities. Marine scientists and bioprospectors are increasingly focusing on these resources due to their potential applications.⁵⁵¹ However, there currently exists no formal international framework addressing the protection and exploitation of MGRs beyond national jurisdiction. This has sparked intense debates in international forums and among research groups. The conflict primarily involves industrialized countries, possessing financial

⁵⁵⁰ This research has been funded by the China Social Sciences Foundation (Project No. 14ZDB165).

⁵⁵¹ UNU-IAS REPORT (United Nations University-Institute of Advanced Studies), *Bioprospecting of Genetic Resources in the Deep Seabed: Scientific, Legal and Policy Aspects* (2005), available at: <http://www.ias.unu.edu/binaries2/DeepSeabed.pdf>.

and technological capabilities to exploit MGRs, and underdeveloped nations seeking to benefit from these newly discovered genetic resources. The disparity in resources and interests between these countries underscores the complexity of the issue and the urgent need for comprehensive international agreements.

The purpose of this section is to provide light on some of the existing gaps and ambiguities in the current regimes governing MGRs in ABNJ. The legal framework in this regard is comprised of the UNCLOS, the CBD, and the Nagoya Protocol, with the UNCLOS serving as the primary legal framework, establishing the overall norms and principles for all ocean-related activities. According to Article 311 and the *lex superior* rule in Article 237 of the UNCLOS, in areas of environmental protection, other legal instruments must be implemented consistently and in conformity with the convention.⁵⁵² The CBD, as the primary convention governing biological diversity, specifically acknowledges that implementation must be consistent with the rights and obligations arising from the UNCLOS in article 22(2), and its Nagoya Protocol regulates its relationship to the UNCLOS to the same extent in article 4(3).

In international law, there are two forms of lacunae: silence, where the law fails to provide a solution due to lack of foresight; and social insufficiency, where intentional rules are absent. Based on the negotiation history of UNCLOS, the issue of MGRs appears to fall under the first category of lacunae. For MGRs within national jurisdiction, this lacuna can be partially addressed

⁵⁵² Arianna Broggiato, *supra* note 34, p. 179. s

by specific regimes governing territorial seas, exclusive economic zones, and continental shelves, as regulations for exploration and exploitation activities within these marine areas are subject to the sovereignty, sovereign rights, or jurisdiction of coastal states.⁵⁵³ However, for MGRs in ABNJ, such as the high seas and the 'Area', this lacuna is challenging to rectify by directly applying UNCLOS regimes on the high seas and the Area. Considering the freedom of the high seas, it appears that MGRs within the high seas, specifically the water column immediately above the seabed or deep ocean floor up to the surface are freely accessible for marine scientific research purposes. The issue arises due to the lack of a clear definition of 'pure' marine scientific research and bioprospecting under UNCLOS. Even the concept of 'marine scientific research' lacks a specific definition, let alone the complexities posed by increasing partnerships between public research institutions and industry.⁵⁵⁴ As argued, this ambiguity may hinder the regulation of bioprospecting. Another challenge is that most organisms from which MGRs are derived are found near hydrothermal vents, located on the seabed or deep ocean floor. Thus, making a clear distinction between MGRs in the water column and those in the Area is very difficult. Consequently, if the freedom of the high seas is deemed to apply to MGRs without distinction, it could undermine the principle of the common heritage of mankind. According to Article 133(a) of UNCLOS, 'resources' subject to the regime of Part XI on the Area refers to 'all solid, liquid, or gaseous

⁵⁵³ Maarten Bos, *A Methodology of International Law*, Elsevier Science Publishers, 1984, p.301

⁵⁵⁴ Iris Kirchner-Freis and Andree Kirchner, "Genetic Resources of the Sea," p.383.

mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules'. On the face of it, MGRs cannot be regarded as mineral resources as provided by Part XI of UNCLOS and are thus not subject to the regime on the exploration and exploitation of mineral resources in the Area. As the Virginia Commentary points out, the International Seabed Authority only has a mandate to regulate the exploitation of mineral resources, which comprises only non-living resources and therefore does not include MGRs.⁵⁵⁵

The global discourse surrounding the regulation of MGRs from ABNJ has predominantly revolved around a dichotomy between developed and developing countries. This divide is exemplified by the contrasting stances taken by groups such as the Group of 77 and China, which advocate for addressing what they perceive as a 'legal gap' in terms of access to and benefit-sharing from MGRs in ABNJ. They argue that the principle of the common heritage of mankind should apply to these resources, highlighting concerns over the exploitation of resources considered the common heritage of mankind without equitable sharing of benefits. Conversely, a coalition primarily comprising developed countries maintains that the applicable regime for MGRs in ABNJ is that of the freedom of the high seas, rather than the common heritage of mankind principle. This perspective reflects a contention over the governance framework for MGRs and underscores the complexities arising from differing national interests and perspectives on resource exploitation. The

⁵⁵⁵ M.H. Nordquist et al. (eds.), *United Nations Convention on the Law of the Sea 1982: A Commentary* (Vol. VI), Martinus Nijhoff Publishers, 2002, p.76.

absence of a comprehensive international framework directly regulating MGRs in ABNJ underscores the contentious nature of this issue. Existing legal instruments such as UNCLOS, the CBD, and the Nagoya Protocol provide some guidance but are seen by many stakeholders as insufficient or inadequately tailored to address the unique challenges posed by MGRs. UNCLOS delineates certain rights and responsibilities related to marine resources but lacks specific provisions for MGRs in ABNJ. The CBD and Nagoya Protocol emphasize access and benefit-sharing related to genetic resources but focus primarily on terrestrial biodiversity, leaving gaps in governance for MGRs in marine environments. The ongoing debate reflects broader tensions between competing interests in international resource governance, highlighting the need for inclusive and equitable frameworks that balance conservation imperatives with the principles of equity and sustainability. Moving forward, addressing these lacunae will require concerted efforts to bridge divergent perspectives and develop robust governance mechanisms that uphold the interests of all stakeholders, including both resource-rich and resource-poor countries.

1. Legal Gap and Challenges in the Current International Legal Regime in Addressing MGRs in ABNJ

a. UNCLOS

UNCLOS serves as the natural starting point for examining the management of ABS related to MGRs in ABNJ. Its primary aim is to

establish a legal framework for the seas and oceans, fostering peaceful utilization, fair resource allocation, conservation of marine life, and environmental protection.⁵⁵⁶ By using a zonal approach and defining distinct rights and obligations for nations in each marine zone, the treaty aims to accomplish its objectives. Under the multiple regimes of high seas freedoms and the Area, the UNCLOS regulates the rights and obligations of States in the ABNJ. Nevertheless, the UNCLOS makes no mention of MGRs. The main explanation for this is that MGRs and their potential values were not discussed in international law during the negotiations of the UNCLOS final text. The genetic resources of maritime regions didn't draw significant commercial attention until more than ten years after the agreement was ratified.⁵⁵⁷

The provisions within the UNCLOS pertaining to ABNJ encompass distinct legal frameworks for two key zones: the 'High Seas' and the 'Area'. According to Article 86 of UNCLOS, the 'High Seas' is defined as all parts of the sea not included in the exclusive economic zone, territorial sea, internal waters of a State, or archipelagic waters of an archipelagic State. This delineation establishes the scope within which the principle of freedom of the High Seas operates.⁵⁵⁸ Under customary international law and

⁵⁵⁶ Preamble, para 4 UNCLOS.

⁵⁵⁷ Arianna Broggiato, *supra* note 34, p. 179.

⁵⁵⁸ 'Statement on behalf of the Group of the Group of 77 and China [...] at the Ad Hoc Openended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction' (New York, 31 May 2011).

UNCLOS, it is widely acknowledged that MGRs in the High Seas are freely accessible to all nations. This freedom includes the legitimate exercise of activities such as accessing and sampling MGRs for scientific research or fishing purposes. Notably, Article 87(1) of UNCLOS enumerates several freedoms pertaining to the High Seas, including freedom of navigation, scientific research, and fishing. However, it's important to recognize that this list is non-exhaustive, allowing for a broader interpretation of activities permissible under the freedom of the High Seas.⁵⁵⁹ The legal regime governing the 'Area', which encompasses the seabed and ocean floor beyond national jurisdiction, is more complex. It is generally acknowledged that access to and benefit-sharing related to genetic resources of the Area remain unregulated. These activities fall outside the purview of the primary international legal regime established by Part XI of UNCLOS, which governs deep-sea resources. This is primarily due to the definition of 'resources' outlined in Article 133(a) of UNCLOS, which restricts the mandate of the ISA to "solid, liquid, or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules".⁵⁶⁰ Consequently, the mandate of the ISA is limited to regulating the exploitation of mineral resources within the Area, excluding genetic resources. This limitation highlights a significant

⁵⁵⁹ Glowka, L. (1996). 'The Deepest of Ironies: Genetic Resources, Marine Scientific Research, and the Area'. *Ocean Yearbook* 12: 154-162.

⁵⁶⁰ Ibid

gap in international law concerning the governance of MGRs in ABNJ. As a result, the genetic resources of the deep sea are not subject to the regulatory oversight of the ISA or any other comprehensive international framework, leaving considerable ambiguity regarding access, utilization, and benefit-sharing related to these resources. The evolving discourse surrounding MGRs in ABNJ underscores the urgent need for enhanced international cooperation and governance mechanisms to address the unique challenges posed by the exploitation of genetic resources in these ecologically sensitive and globally significant areas. Efforts to develop equitable and inclusive frameworks will be essential to ensure the sustainable management and conservation of marine biodiversity while promoting fair and equitable sharing of benefits derived from MGRs.

The provisions within UNCLOS concerning deep sea genetic resources and MGRs in ABNJ reveal a notable legal vacuum regarding whether these resources should be considered the common heritage of mankind, as articulated within UNCLOS itself. This legal ambiguity underscores fundamental questions surrounding the governance and regulation of MGRs in ABNJ, which remain largely unaddressed by existing international legal frameworks.⁵⁶¹ UNCLOS defines the 'Area' as the seabed, ocean floor, and subsoil beyond

⁵⁶¹ Leary, D.K. (2007). *International Law and the Genetic Resources of the Deep Sea*, Leiden and Boston: Martinus Nijhoff.

national jurisdiction, establishing the jurisdictional scope within which the ISA holds rights over resources, notably referring to solid, liquid, or gaseous minerals recovered from the Area. Notably absent from UNCLOS is explicit mention or regulation of MGRs, indicating a significant gap in legal coverage concerning these biologically diverse and economically valuable resources.”⁵⁶² The concept of the common heritage of mankind as outlined in UNCLOS pertains primarily to mineral resources recovered from the Area. However, the extension of this regime to encompass MGRs in ABNJ remains uncertain without explicit amendments to UNCLOS to include MGRs within the scope of the CHM and the mandate of the ISA.⁵⁶³ Even if MGRs were designated as the common heritage of mankind, the absence of regulatory mechanisms within UNCLOS to govern access and benefit-sharing related to these resources in ABNJ poses a critical challenge. This highlights the necessity for comprehensive international agreements and legal frameworks tailored specifically to address the unique complexities and concerns associated with MGRs in marine environments beyond national jurisdiction. The limitations of UNCLOS in addressing MGRs underscore the need for collaborative efforts among the international community to develop

⁵⁶² Kathryn J. Mengerink, “The Deep Ocean: Advancing Stewardship of the Earth’s Largest Living Space,” in Harry N. Scheiber et al., eds., *Science, Technology, and New Challenges to Ocean Law* (Leiden and Boston: Brill/ Nijhoff Publishers, 2013), p. 31.

⁵⁶³ Ibid

inclusive and equitable governance mechanisms that promote sustainable management, conservation, and fair and equitable benefit-sharing of MGRs. This requires innovative approaches and multilateral cooperation to bridge legal gaps and ensure the responsible utilization of marine genetic resources for the collective benefit of present and future generations. Addressing the regulatory vacuum surrounding MGRs in ABNJ necessitates a holistic and forward-thinking approach that prioritizes environmental conservation, biodiversity protection, and the equitable distribution of benefits derived from these valuable genetic resources. By fostering international cooperation and dialogue, stakeholders can work towards developing effective governance frameworks that uphold principles of equity, sustainability, and shared responsibility in the management of MGRs on a global scale.

1) The Principle of The Common Heritage of Mankind (CHM) vs Freedom of High Seas

As of today, ABNJ consists both of the principle of freedom of the high seas and the common heritage of mankind.

On the one hand, the high seas are considered a common property where the resources can be exploited individually.⁵⁶⁴ On the other

hand, the Area operates with a regime where the states cannot

⁵⁶⁴ Attention is drawn to certain legal restrictions, such as exercising due regard for the rights and interests of other states according to Article 87(2) of the UNCLOS

exploit resources individually, but for the benefit of all humanity.⁵⁶⁵ UNCLOS did not include BBNJ as part of the resources of the Area. Although it did say that the Area itself is a common heritage, there is no further regulation with regard to the living resources of the Area. In the same vein, the legal status of the waters above the Area shall not be affected by Part XI, hence it's remains as High Seas.⁵⁶⁶

Both UNCLOS and the CBD lack specific legal regimes addressing MGRs or bioprospecting within the Area. Neither treaty explicitly references "marine genetic resources" nor establishes regulatory frameworks tailored to these resources, posing significant challenges in governing activities related to MGRs in ABNJ. UNCLOS, primarily focusing on mineral resources in the Area, defines "resources" under Article 133 as limited to solid, liquid, or gaseous mineral resources in situ, excluding living resources such as sedentary species and genetic resources. This narrow definition excludes MGRs from the regulatory scope of Part XI, emphasizing the need for expanded legal frameworks to address biodiversity and genetic resources in marine environments. Similarly, the CBD and its Nagoya Protocol primarily apply to biological diversity within national

⁵⁶⁵ Article 137 (2) of UNCLOS

⁵⁶⁶ Article 135 of UNCLOS 1982

jurisdiction, offering limited coverage for MGRs in ABNJ. Article 4 of the CBD emphasizes conservation measures for biological diversity within national limits, while addressing genetic resources outside national jurisdiction by urging contracting parties to prevent environmental harm in areas beyond their control. Moreover, the Nagoya Protocol focuses on bilateral Access and Benefit-Sharing (ABS) agreements, underscoring challenges in establishing multilateral governance frameworks for MGRs in ABNJ. This regulatory gap, as highlighted in the UNU-IAS report, reveals a lack of national measures to govern bioprospecting activities by nationals in ABNJ, allowing unrestricted utilization of MGRs with potential adverse impacts on deep-sea ecosystems. The absence of specific rules for regulating MGRs and bioprospecting in ABNJ underscores the urgency for enhanced international cooperation and legal innovation to address gaps in governance and ensure sustainable management of marine genetic resources. Efforts to develop comprehensive regulatory frameworks must prioritize equitable benefit-sharing, environmental conservation, and biodiversity protection, fostering collective responsibility in the stewardship of MGRs for present and future generations. Moving forward, collaborative initiatives among states, international organizations, and stakeholders are essential to bridge legal

disparities, promote responsible resource utilization, and safeguard marine biodiversity in areas beyond national jurisdiction. By leveraging existing legal instruments and fostering inclusive dialogue, the international community can advance towards effective governance mechanisms that uphold principles of equity, sustainability, and shared responsibility in the management of MGRs on a global scale.

The debate surrounding the international regime for MGRs in ABNJ hinges on a fundamental question: whether these resources should be governed under the CHM regime or the freedom of the high seas regime. This pivotal issue is intrinsically linked to interpreting the phrase "under the Convention" within the context of the 9th BBNJ (Biodiversity Beyond National Jurisdiction) Working Group Meeting's recommendation to develop an international legally binding instrument under the Convention on the conservation and sustainable use of marine biological diversity of ABNJ. The legal status of MGRs in ABNJ will determine whether Part XI (Area) or Part VII (High Seas) of UNCLOS applies within the framework of "under the Convention." This distinction is crucial for establishing the regulatory framework that governs access, utilization, and benefit-sharing related to MGRs in these ecologically significant marine environments. Furthermore, the principles applicable to

MGRs in ABNJ play a vital role in shaping the scope and methods of benefit-sharing. Given the diverse interests and concerns of states and stakeholders, the approach to benefit-sharing from the utilization of MGRs in ABNJ can vary widely, reflecting the complexities of international negotiations and the need for equitable and sustainable resource management. Presently, the exploration and exploitation of MGRs in the Area operate under principles of free access, aligned with the freedom of the high seas regime. However, this freedom is subject to the overarching obligation to protect and preserve the marine environment as mandated by UNCLOS. Despite ongoing discussions and negotiations within the BBNJ Working Group, states have yet to reach a consensus on the legal status of MGRs in the Area within ABNJ. This impasse underscores the challenges of reconciling diverse interests and perspectives while developing robust international governance mechanisms for the conservation and sustainable use of MGRs in ABNJ. Moving forward, concerted efforts are needed to bridge existing gaps in international law, foster inclusive dialogue among stakeholders, and develop comprehensive regulatory frameworks that promote responsible stewardship of MGRs, uphold principles of equity and sustainability, and safeguard marine biodiversity in areas beyond national jurisdiction. By addressing these complex issues through

collaborative action, the international community can advance towards effective governance of MGRs and ensure their equitable and sustainable utilization for the benefit of present and future generations.

Controversially, as ABNJ consists both of the principle of freedom of the high seas and the common heritage of mankind. On the one hand, the high seas are considered a common property where the resources can be exploited individually.⁵⁶⁷ On the other hand, the Area operates with a regime where the states cannot exploit resources individually, but for the benefit of all humanity.⁵⁶⁸ The location of the MGRs which may possible in the volume of the water or located in the bottom of the sea has not yet been regulated by UNCLOS and did not include BBNJ as part of the resources of the Area. Although it did say that the Area itself is a common heritage, there is no further regulation with regard to the living resources of the Area. In the same vein, the legal status of the waters above the Area shall not be affected by Part XI, hence it's remains as High Seas.⁵⁶⁹ It can be proven that the seabed area which exercises the CHM does not include the MGRs which exist in the volume of the water or touch upon in the seabed

⁵⁶⁷ Attention is drawn to certain legal restrictions, such as exercising due regard for the rights and interests of other states according to Article 87(2) of the UNCLOS.

⁵⁶⁸ Article 137 (2) of UNCLOS

⁵⁶⁹ Article 135 of UNCLOS 1982

area, because there is no terminology of MGRs is available in the UNCLOS. Research and development concerning MGRs in the ABNJ always developed in order to utilise the MGRs which may potentially have various function for the human health and cosmetic.

Several industrialized States believe that freedom of the seas applies to access and use of biological resources, including marine genetic resources. They view a potential regulation of bioprospecting as a hindrance to scientific research which impedes the freedom of navigation.⁵⁷⁰ They further argue that biological resources on the seabed and the ocean floor in the Area also fall under the regime of the freedom of the high seas.⁴⁶ In Practice, the developed countries who have already accessed and exercised bioprospecting to the MGRs in the ABNJ using freedom of the sea that is stipulated in Article 87 UNCLOS as the justification.⁵⁷¹ The shortcomings of the proponents of the freedom of the high seas regime is that it neglects the fact that the utilization of the living resources for fisheries purpose differs from marine genetic resources. As there is no definition of marine scientific research, it is particularly difficult to determine when

⁵⁷⁰ Kathryn, Op. Cit

⁵⁷¹ Efthymios Papastavridis. (2010). "The Negotiations for A New Implementing Agreement under the Un Convention on the Law of the Sea Concerning Marine Biodiversity," *International and Comparative Law Quarterly* 69, p. 585–610, <https://doi.org/10.1017/S0020589320000202>.

the result of such research starts to become commercially viable which distinguishes a research as part of the freedom of the high seas and a research which potentially leads to the utilization of genetic resources. In the absence of international legally binding instrument, developed countries initiate bioprospecting of MGRs based on freedom of the sea, namely every state has freedom to carry out research on the high sea as part of ABNJ including the MGRs and the principle “first come first served is applicable”.⁵⁷² Consequently, there is no obligation to share the result of bioprospecting.

The view of the developing countries was that living and genetic resources of the seabed in the Area accord the status of common heritage of mankind. Several developing states also view that the International Seabed Authority will also have to administer living and genetic resources in the Area, something that was not prescribed in UNCLOS. This view, however, would require an amendment of Part XI. The arguments of the developing countries face opposition by rule of interpretation of the Vienna Convention on the Law of Treaties (hereinafter VCLT). The Convention requires a treaty to be interpreted in good faith in accordance with the ordinary meaning of the treaty.

⁵⁷² Tullio Scovazzi, “Open Questions on the Exploitation of Genetic Resources in Areas Beyond National Jurisdiction,” in Proceedings of the Annual Meeting (American Society of International Law), vol. 107, 2017, 119–22.

In light of the VCLT, the ordinary meaning of Part XI does not imply living resources as part of common heritage of mankind because Article 133 UNCLOS limits “resources” only to mineral resources. Nonetheless, the UNCLOS states in Article 136 that “the Area and its resources are the common heritage of mankind,” distinguishing between the two terms (the Area and its resources). This would lend credence to the idea that BBNJ is regarded as a part of the Area and so a shared human legacy.

The equitable sharing of benefits, implying distributive justice, is the most novel and most controversial feature of the CHM principle. This element may imply a sharing or broadening of the base of knowledge about resources. It also encompasses sharing the material benefits or proceeds derived from exploiting resources.⁵⁷³ Opposition to this benefit-sharing feature, as well as to the prohibition on sovereignty, help explain why the CH principle has not been applied to rain forests or other resources

located within national territory. According to Wolfrum, *de facto* equal participation

"derives from the common heritage concept, placing all States on the same footing and accordingly benefitting all States," but preferential treatment "favours only developing countries and has its roots in the development aid philosophy."

⁵⁷³ Ibid

The use of common heritage shall be carried out in accordance with a system of cooperative management for the benefit of all humankind, i.e., for the common good. This has been interpreted as creating a type of trustee relationship for explicit protection of the interests of humanity, rather than the interests of particular states or private entities. There shall be active and equitable sharing of benefits (including financial, technological, and scientific) derived from the CHM. This provides a basis for limiting public or private commercial benefits and prioritizing distribution to others, including developing states (intragenerational equity between present generations of humans).⁵⁷⁴

The legal implication of the applicability of CHM means that the benefits arise from the utilization of the resources have to be shared to the other states and the interested Party who conducted exploration and exploitation of the natural resources in the Seabed Area. This recognizes the need for international cooperation in scientific research in the Seabed Area and the transfer of technology, especially to developing countries. As the Law of the Sea's Constitution, UNCLOS offers opportunity for new international agreements to be formed in order to execute and remedy legal gaps in areas like benefit sharing,

⁵⁷⁴ K. Marciniak. (2017). 'Marine Genetic Resources: do they Form Part of the Common Heritage of Mankind Principle?' in L. Martin, C. Salondia, C. Hioureas (eds.), *Natural Resources and the Law of the Sea: Exploration, Allocation, Exploitation of Natural Resources in areas under National Jurisdiction and Beyond* (JuristNet, 2017).

conservation, and the sustainable use of marine genetic resources.⁵⁷⁵ The Parties who carried out the exploration and exploitation in the region are required to apply for an ISA license.⁵⁷⁶ It is clear from this that ISA is acting as the trustee for the resources found in the Seabed Area. Only parties who meet the conditions and benefit humanity as a whole are granted licenses by the ISA. Furthermore, all countries must fairly share in the benefits that have come from the use of the Seabed Area's natural resources.⁵⁷⁷

It is also argued that UNCLOS should also be interpreted within their context in the light of its object and purpose.⁵⁷⁸ It is argued that the object and purpose of the Convention could be interpreted from the Preamble of UNCLOS. The Preamble desires the equitable and efficient utilization of sea resources,

*“contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular, the special interests and needs of developing countries”.*⁵⁷⁹

Furthermore, the Preamble cites the 1970 Declaration of Principles resolution by the General Assembly which extends the concept of

⁵⁷⁵ Abhaya Ganashree, “Who Owns Ocean Biodiversity? The Legal Status and Role of Patents as a Means to Achieve Equitable Distribution of Benefits,” *Case W. Res. J. Int’l L* 53, no. 1 (2021): 197–236. p. 204.

⁵⁷⁶ Aguon Julian and Hunter Julie, “Second Wave Due Diligence: The Case for Incorporating Free, Prior, and Informed Consent into The Deep-Sea Mining Regulatory Regime,” *Stan. Envtl. LJ* 38, no. Desember (2018): 3–55

⁵⁷⁷ Karin Mickelson, “Common Heritage of Mankind as a Limit to Exploitation of the Global Commons,” *European Journal of International Law* 30, no. 2 (2019): 635–63

⁵⁷⁸ Article 31(1) of the Vienna Convention on the Law of Treaties of 23 May 1969 (1155 UNTS 331)

⁵⁷⁹ Preamble of UNCLOS 1982

common heritage of mankind into a broader meaning than mentioned under Article 133 and Article 136 UNCLOS.⁵³ Therefore, as negotiations for the BBNJ Treaty progress and while waiting it comes into force, states will need to reconcile these competing principles and interests to develop a balanced and effective regime for the governance of MGRs in ABNJ. The final treaty text is expected to reflect a compromise that addresses the diverse concerns of all stakeholders involved and can fill the legal gap in the conservation and sustainable use of marine biodiversity in ABNJ.

b. CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

The CBD is another significant treaty relevant to the issues surrounding MGRs, although its application is largely limited to activities within areas under national jurisdiction. In practical terms, the CBD's reach extends to activities within national boundaries to the extent that states regulate the activities of their own nationals.

However, currently, no state effectively regulates the activities of its nationals concerning genetic resources in areas beyond national jurisdiction, such as the deep seabed and other marine environments.

Article 4 of the CBD specifically outlines the jurisdictional scope of the convention, which is confined to components of biodiversity found within areas under national jurisdiction. Consequently, deep seabed and other marine genetic resources in areas beyond national

jurisdiction fall outside the direct purview of the CBD's regulatory framework. Nonetheless, the CBD does encompass processes and activities carried out under the jurisdiction or control of states, irrespective of where their effects occur. This broader interpretation implies that activities such as navigation, scientific research, bioprospecting, exploration, exploitation, dumping, and tourism undertaken in the High Seas or the Area are within the scope of the CBD if conducted under the control or jurisdiction of a CBD Party. As noted by Arico and Salpin (2005), this interpretation underscores the CBD's relevance to activities impacting components of biological diversity, extending its applicability to areas within and beyond national jurisdiction under Article 4(a). However, the practical effectiveness of the CBD in governing MGRs in ABNJ remains limited due to the challenges associated with regulating activities conducted in vast and remote marine environments beyond national boundaries. The absence of comprehensive international frameworks specifically tailored to govern MGRs in ABNJ underscores the urgent need for enhanced cooperation and innovative legal solutions to address gaps in governance, promote conservation, and ensure sustainable utilization of marine genetic resources on a global scale. In conclusion, while the CBD's scope is primarily focused on areas within national jurisdiction, its relevance extends to activities impacting biological diversity in areas beyond national boundaries if

conducted under the control or jurisdiction of CBD Parties. This highlights the complex interplay between international treaties, jurisdictional issues, and the challenges of governing marine genetic resources in ecologically sensitive and globally significant marine environments.

The Convention on Biological Diversity (CBD) contains several provisions that touch upon activities in areas beyond national jurisdiction (ABNJ), albeit with limitations in scope and applicability. Article 3 of the CBD places a duty on states to ensure that actions within their purview or control do not endanger the environment of other states or ABNJ. This reflects a broader obligation to prevent transboundary environmental harm, extending to activities both within and beyond national borders. Moreover, the CBD's reach encompasses actions and procedures under state control, regardless of their location or the geographic extent of their effects. This implies that activities conducted by CBD Parties, such as navigation, scientific research, bioprospecting, or other actions in ABNJ, fall within the convention's regulatory framework if carried out under the jurisdiction or control of a contracting state. Article 14 of the CBD specifically addresses impact assessment and mitigation of adverse effects on biological diversity, requiring contracting parties to promote notification, information exchange, and consultation regarding activities within their jurisdiction or control that may harm biological

diversity in other states or ABNJ. This obligation encourages the establishment of bilateral, regional, or multilateral agreements to address environmental risks and promote cooperative conservation efforts. Furthermore, in cases where imminent or serious danger or damage originates from a contracting state's jurisdiction or control and threatens biological diversity within other states or ABNJ, the affected states must be promptly notified, and actions taken to prevent or minimize harm. This underscores the CBD's commitment to transboundary cooperation and collective responsibility in protecting global biodiversity. However, despite these provisions, the CBD's direct regulatory authority over genetic resources in ABNJ remains limited. The convention primarily emphasizes states' sovereign rights over genetic resources within national boundaries, reflecting the traditional jurisdictional framework of international law. The fundamental premise of the CBD is to recognize and uphold states' sovereign rights over genetic resources, focusing primarily on conservation and sustainable use within national jurisdictions. As such, the scope of the CBD's applicability to genetic resources in ABNJ is constrained by this foundational principle, highlighting the need for enhanced international cooperation and innovative legal frameworks to address gaps in governance and promote equitable management of genetic resources in marine environments beyond national jurisdiction. In conclusion, while the CBD contains

provisions that touch upon activities in ABNJ and transboundary environmental protection, its effectiveness in regulating genetic resources in these areas remains limited by its primary focus on national sovereignty and jurisdiction. Addressing the complex challenges of governing genetic resources in ABNJ requires collaborative efforts and the development of inclusive international agreements that prioritize biodiversity conservation, equitable benefit-sharing, and sustainable resource management on a global scale.

The CBD protects biodiversity, sustainable use, and fair distribution of MGRs; nevertheless, it does not specify which approaches are appropriate in that situation (MGRs in ABNJ).⁵⁸⁰ It also doesn't specify which techniques should be applied in a process where the parties resolve their differences.⁵⁸¹ This includes legal gaps governing MGRs discovered in ABNJ. Regulatory gaps in the same domains are also revealed by scientific and commercial research on MGRs.⁵⁸² The current national legislative frameworks and the possibly legally enforceable framework controlling MGRs in ABNJ differ significantly. The disparity might cause conflicts and rivalry between States, as well as a "first-come, first-served" mentality.⁵⁸³

⁵⁸⁰ Article 1 of CBD

⁵⁸¹ Article 27 of CBD

⁵⁸² A. Horna, *Marine Genetic Resources, Including Sharing of Benefits*, Proceedings of the ASIL Annual Meeting, Vol. 111 (2017), p. 245.

⁵⁸³ UNGA, A/RES/66/119, Letter dated 30 June 2011 from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly (2011 Report of the UNGA Working Group), p. 5, para 17.

This type of activity will be particularly evident in situations involving transboundary resources.⁵⁸⁴

c. NAGOYA PROTOCOL

The Nagoya Protocol, a binding agreement under the CBD, embodies the concept of fair and equitable benefit-sharing resulting from the use of genetic resources, as implied by its name. Its Annex includes a roster of both monetary and non-monetary benefits, which Parties can consult to establish mutually agreed terms (MAT) for sharing benefits arising from the utilization of genetic resources, including their subsequent applications and commercialization.⁵⁸⁵

Looking beyond the Annex for guidance, it might be challenging to derive significant insights from the Nagoya Protocol's experience because it primarily focuses on facilitating access and benefit sharing through bilateral means.⁵⁸⁶ As a protocol under the CBD, the Nagoya

Protocol adheres to the CBD's foundational principle that states possess sovereign rights over their natural resources, including the authority to regulate access to genetic resources according to their national legislation, mutually agreed terms (MAT), and subject to the

⁵⁸⁴ R.J McLaughlin, 'Managing foreign access to marine genetic materials: moving from capture to cooperation', DD Caron and HN Scheiber (eds), *Bringing New Law to Ocean Waters*, Martinus Nijhoff Publishers, Leiden, (2004), p. 258.

⁵⁸⁵ Article 5 of Nagoya Protocol

⁵⁸⁶ C. Richerzhagen, "The Nagoya Protocol: Fragmentation or Consolidation", 3 *Resources*, No. 1, 2014, 135–151; M

prior informed consent (PIC) of the host state. Similar to the CBD, the Nagoya Protocol depends on national implementation to realize its overarching objectives.⁵⁸⁷ When considering the possibility of adapting the Nagoya Protocol to the context of ABNJ, one runs right back into the difficulties presented by the debate over the regime applicable to MGRs, namely to whom the MGR of ABNJ belong *ab initio*. Without an answer to this question, it becomes difficult to fashion how a PIC regime, in the context of ABNJ, could operate.⁵⁸⁸

The Nagoya Protocol, designed as a supplement to the CBD, presents a significant opportunity to address issues related to MGRs in ABNJ, where the scope of the CBD is limited. Unlike the CBD, the Nagoya Protocol extends its potential applicability to MGRs in ABNJ, offering a framework that could facilitate benefit-sharing and conservation efforts in these ecologically important marine environments. Article 10 of the Nagoya Protocol introduces the concept of a Global Multilateral Benefit-Sharing Mechanism (GMBSM), specifically aimed at addressing transboundary situations and situations where obtaining Prior Informed Consent (PIC) is impracticable. This provision is particularly relevant in the context of ABNJ, where jurisdictional uncertainties and the absence of coastal

⁵⁸⁷ M.I. Jeffery Q.C., 'Bioprospecting: Access to Genetic Resources and Benefit-Sharing under the Convention on Biodiversity and the Bonn Guidelines' (2002) 6 Sing. J. Int'l & Comp. L. 747, at 749–750.

⁵⁸⁸ Ibid

state authority pose significant challenges to governance and regulation. In ABNJ, which encompasses the high seas and the Area defined by UNCLOS, determining authority to grant PIC or ownership of MGRs becomes exceedingly complex. The absence of a coastal state and the exclusion of MGRs from Part XI of UNCLOS further complicate matters, raising fundamental questions about ownership and jurisdictional rights over these resources. Given the current Access and Benefit-Sharing system's reliance on ownership or jurisdictional rights, the absence of clear ownership or jurisdiction over MGRs in ABNJ presents a barrier to discussing ABS mechanisms in this context. The Nagoya Protocol's provision for a GMBSM acknowledges these challenges and provides a potential avenue for addressing exceptional situations where conventional bilateral ABS arrangements are unfeasible. The concept of transboundary situations in ABNJ underscores the interconnected nature of marine ecosystems and the need for cooperative approaches to conservation and resource management. Likewise, situations where obtaining PIC is impracticable highlight the complexities of governance in areas lacking clear jurisdictional boundaries. Moving forward, exploring the applicability of Article 10 of the Nagoya Protocol to MGRs in ABNJ requires innovative legal interpretations and collaborative efforts among states and stakeholders. Establishing a GMBSM could facilitate equitable benefit-sharing and conservation

efforts in ABNJ, promoting sustainable utilization of MGRs while safeguarding marine biodiversity on a global scale. In conclusion, leveraging the provisions of the Nagoya Protocol offers promising opportunities to address governance challenges associated with MGRs in ABNJ, advancing international cooperation and legal frameworks to promote responsible resource management and equitable benefit-sharing in these critical marine environments. By embracing multilateral approaches and innovative solutions, the international community can enhance conservation efforts and ensure the sustainable utilization of marine genetic resources for the benefit of present and future generations.

Article 10 of the Nagoya Protocol introduces the concept of a GMBSM to supplement, rather than replace, the existing bilateral Access and Benefit-Sharing system. This provision is designed to address exceptional situations, particularly in ABNJ, where conventional bilateral agreements may not be feasible due to jurisdictional uncertainties and the lack of clear ownership or control over genetic resources. It is essential to recognize that the interpretation and application of Article 10 could potentially challenge the fundamental assumptions underpinning the CBD and the Nagoya Protocol. Both treaties emphasize sovereign rights over genetic resources within national jurisdiction and prioritize exclusive rights over these resources. The GMBSM concept proposed in Article 10

deviates from the traditional bilateral ABS framework by advocating for global-level benefit-sharing rather than individual states' sovereign rights. This shift towards a multilateral approach challenges the prevailing understanding of genetic resource governance under the CBD and the Nagoya Protocol, which prioritize state sovereignty and exclusive control over genetic resources within national boundaries. The scope and implications of the Nagoya Protocol itself could be influenced by the interpretation and application of Article 10 in the future. The introduction of a GMBSM raises complex legal and policy questions regarding the distribution of benefits from genetic resources in ABNJ and the role of international cooperation in promoting equitable and sustainable use of these resources. Moreover, the GMBSM concept challenges conventional notions of ownership and jurisdiction over genetic resources, highlighting the need for innovative approaches to governance that accommodate the unique characteristics of marine biodiversity and the interconnected nature of global ecosystems. As discussions surrounding the interpretation and implementation of Article 10 evolve, stakeholders must navigate the complexities of international law and policy to ensure that the Nagoya Protocol remains a robust and effective framework for promoting biodiversity conservation and equitable benefit-sharing. In conclusion, while Article 10 of the Nagoya Protocol introduces an innovative approach to addressing challenges in areas beyond national

jurisdiction, its interpretation and application have the potential to reshape the landscape of genetic resource governance at the global level. The evolution of the GMBSM concept underscores the importance of adaptive legal frameworks that foster international cooperation and promote sustainable management of genetic resources for the benefit of present and future generations. By embracing multilateralism and innovation, the international community can advance towards achieving the objectives of biodiversity conservation and equitable benefit-sharing in marine environments beyond national jurisdiction.

The legal framework surrounding MGRs in ABNJ intersects with several international treaties and conventions, including the UNCLOS, the CBD, and the Nagoya Protocol. UNCLOS delineates maritime zones under national jurisdiction, such as inland waters, territorial sea, EEZ, and continental shelf, while zones beyond national jurisdiction include the high seas and international seabed areas. The CBD mandates that each State Party must implement its provisions related to the marine environment in accordance with the rights and obligations established under UNCLOS. This underscores the interconnectedness and interdependence of international legal frameworks governing marine biodiversity and resource management. Despite the regulations within the CBD and Nagoya Protocol regarding genetic resource management, these treaties primarily

address marine areas under national jurisdiction. States exercise sovereign rights and authority to negotiate benefit-sharing and access agreements within their respective maritime zones, excluding MGRs in ABNJ from the purview of the CBD and Nagoya Protocol. The absence of specific governance mechanisms for bioprospecting and benefit-sharing related to MGRs in ABNJ exacerbates disparities between developed and developing nations in accessing, exploiting, and benefiting from these resources. This regulatory gap highlights challenges in international law, leaving MGRs in ABNJ vulnerable to unregulated exploitation and uneven distribution of benefits. Furthermore, the legal frameworks provided by UNCLOS, CBD, and Nagoya Protocol do not extend to bioprospecting activities for MGRs in ABNJ. This creates ambiguity and gaps in regulating the exploration and utilization of genetic resources in the Area and the high seas. The disparity between states that can leverage MGRs for economic gain and those unable to benefit underscores broader issues of equity and sustainability in resource management. Bridging these gaps requires collaborative efforts among nations, international organizations, and stakeholders to develop inclusive and effective governance mechanisms for MGRs in ABNJ. In conclusion, the complex legal landscape surrounding MGRs in ABNJ reflects the challenges of harmonizing international law, ensuring equitable access and benefit-sharing, and promoting sustainable management of

marine biodiversity. Addressing these issues requires innovative approaches, multilateral cooperation, and inclusive governance frameworks that prioritize conservation, equity, and the common heritage of mankind in managing genetic resources for the collective benefit of humanity.⁵⁸⁹

2. The Urgency of ILBI-BBNJ to Cover the Legal Lacunae of MGRs in ABNJ

Since neither the UNCLOS nor the CBD have created particular regulations for this kind of operation outside of national jurisdiction, as was already indicated, there are a number of obstacles to the exploration and utilization of the marine genetic resources in the ABNJ.⁵⁹⁰ Additionally, only States' sovereignty inside their own national borders—which includes MGRs—are acknowledged by CBD and Nagoya. There is an obvious disparity in MGRs in ABNJ as a result of the geographic division between Nagoya and the CBD.

In June 2015, the UNGA adopted Resolution A/RES/69/292 by consensus to develop an international legally binding instrument (ILBI) under UNCLOS for the conservation and sustainable use of marine

⁵⁸⁹ Schoenberg, P.L. (2009). “Polarizing Dilemma: Accessing Potential Regulatory Gap-Filling Measures for Arctic and Antarctic Marine Genetic Resources Access and Benefit Sharing”. *Cornell International Law Journal*, 42, 271-299.

⁵⁹⁰ T. Scovazzi, ‘The Conservation and sustainable use of marine biodiversity, including genetic resources, in areas beyond national jurisdiction: A legal perspective’, Abstract, p. 1

biological diversity in ABNJ.⁵⁹¹ This decision followed nearly ten years of deliberation by a special UNGA Working Group on how best to respond to accelerating threats to marine biodiversity in ABNJ.⁵⁹² Given the increasing pressures on ABNJ's biodiversity, this historic UNGA resolution offers a significant chance to expand on and more fully implement the existing obligations under UNCLOS to protect and preserve the marine environment, conserve its living marine resources, develop capacity, transfer marine technology, and promote international and regional cooperation.⁵⁹³ By incorporating and operationalizing contemporary environmental law principles like precaution, ecosystem- and science-based management, equity, environmental stewardship, and good governance, as well as by creating the institutional framework necessary for cogent and coordinated policy-making across sectors and regions, the new ILBI further serves as a vehicle to update the more than thirty-year-old UNCLOS regime.⁵⁹⁴ The result of a preparation process

⁵⁹¹ UNGA Resolution, A/RES/69/29 of 19 June 2015. “The topic of developing an international legally binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (ABNJ) has garnered significant attention and engagement from the international community.”

⁵⁹² The Ad Hoc Open-ended Informal Working Group on issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (BBNJ Working Group) has been instrumental in studying and advancing discussions on this critical topic. Available at: [Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction \(un.org\)](#)

⁵⁹³ Kristina Gjerde, “Their works, including articles in journals like the International Journal of Marine and Coastal Law and Marine Policy, emphasize the urgent need for an UNCLOS Implementing Agreement tailored to safeguard marine life in ABNJ. 27(4) (2012): 839–847.

⁵⁹⁴ IUCN, The International Union for Conservation of Nature (IUCN) has also played a pivotal role by providing suggestions and elements for a draft text of an international legally binding instrument under UNCLOS (Bonn, Germany, IUCN Environmental Law Centre, 2015); Elisabeth

currently taking place at the UN will determine in many ways whether the ILBI will achieve the ambitious objectives envisioned by its supporters.

The Preparatory Committee (Prep-Com) was established by the 2015 UNGA resolution, and its main goal for the next two years will be to formulate substantive recommendations on how the ILBI should handle the following four issues: (1) marine genetic resources, including concerns about benefit sharing; (2) area-based management tools, such as marine protected areas; (3) environmental impact assessments; and (4) capacity building and Marine Technology Transfer.⁵⁹⁵ Like the package deal for negotiating UNCLOS, these four problems are to be viewed "together and as a whole," meaning that nothing is agreed upon until everything is agreed upon.⁵⁹⁶

A Preparatory Committee was formed to provide substantive recommendations on the components of a draft text of the international legally enforceable document before an intergovernmental conference was convened to negotiate these problems.⁵⁹⁷ The Committee's mandate stated that it would begin in 2016 and submit a report to the UN General

Druel and Kristina Gjerde, "Sustaining marine life beyond boundaries: the need for and potential content of an UNCLOS Implementing Agreement for marine biodiversity beyond national jurisdiction," *Marine Policy* 49 (2014): 90–97

⁵⁹⁵ UNGA Resolution, A/RES/69/292 of 19 June 2015; See also Kristina Gjerde, *Op. Cit.*, p.26.

⁵⁹⁶ Long and Winding Road, 28.

⁵⁹⁷ Development of an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction, UN Doc GA Res. 69/292 Agenda item 74 (a) (6 July 2015).

Assembly by the end of 2017.⁵⁹⁸ At the time of writing, the Committee has concluded four meetings, which were held between March 2016 and July 2017. As of this writing, the Committee has completed its four meetings, which took place in July 2017 and March 2016. The developing nations have voiced their worries about the use of marine biodiversity—including marine genetic resources—beyond national borders during these discussions. The G77 and China, for example, suggested the following preambular element:

“Desiring by this new instrument to develop an effective regime of conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including through a fair and equitable regime of access to and sharing of benefits of marine genetic resources. The principle of common heritage of humankind will contribute to the realization of the said objective as, through the application of this principle, the interests and needs of humankind as a whole, especially those of developing countries will be fairly addressed and taken care of.”⁵⁹⁹

This suggestion makes it very evident how important it is to consider the legal ramifications of using marine genetic resources outside of national borders. The Caribbean Community (CARICOM) and the Alliance of Small Island States (AOSIS) also back the G77 and China's stance. In addition, the G77 and China, with backing from CARICOM and

⁵⁹⁸ Ibid

⁵⁹⁹ Chair's Non-paper on Elements of a Draft Text of an International Legally-binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction” (28 February 2017); See Also Development, “Summary of the Third Session of the Preparatory Committee on Marine Biodiversity Beyond Areas of National Jurisdiction 27 March–7 April 2017.

Jamaica, put up the subsequent guiding principles concerning the application of MGR outside of national borders:⁶⁰⁰

- 1) *The new system controlling marine genetic resources in regions outside of national borders must be based on the idea of common heritage of mankind;*
- 2) *No claim or exercise of sovereignty or sovereign rights;*
- 3) *Exclusively for peaceful purposes;*
- 4) *Equitable sharing of benefits; and*
- 5) *Regulated or Governed by an international regime.*

Regarding more technical matters, particularly those pertaining to access to MGR outside of national jurisdictions and the distribution of advantages resulting from its use, developing countries should take note of the following recommendations.⁶⁰¹

- a. *Developing the models inspired on UNCLOS, CBD/Nagoya, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA),⁶⁰² and the Antarctic Treaty System;⁶⁰³*
- b. *Considering the requirements and preferences for marine scientific research as well as the prospects for development in emerging nations, including those involving future generations;*
- c. *Due consideration accorded to Small Island Developing States (SIDS); and*
- d. *Technology Transfer and strengthening the research capabilities of developing countries.*

Furthermore, the proposals encompass suggested components for enhancing capacity and transferring marine technology, which hold significant importance for underdeveloped nations when it comes to harnessing marine genetic resources. The recommendations note the

⁶⁰⁰ Ibid

⁶⁰¹ Ibid

⁶⁰² International Treaty on Plant Genetic Resources for Food and Agriculture, opened for signature 3 November 2001, 2400 UNTS.

⁶⁰³ Convention on the Conservation of Antarctic Marine Living Resources, opened for signature 1 August 1980, 1329 UNTS 47 (entered into force 7 April 1982).

following under the paragraph on "Types of and Modalities for Capacity-building and Transfer of Marine Technology": The text would elaborate on forms of cooperation and assistance in relation to marine genetic resources, including questions about benefit-sharing and actions like environmental impact assessments and area-based management tools like marine protected areas.⁶⁰⁴

Topics regarding the regulation of marine genetic resources outside the area of national jurisdiction began to be drafted in 2018 and then continued to develop along with the ILBI-BBNJ negotiation schedule as described in the previous section. In its draft, ILBI-BBNJ regulates the definition and scope of MGR, which consists of two things, namely "marine genetic material" and "marine genetic resources". The proposed definition of "marine genetic material" is any plant, animal, microbial or other marine living material that contains functional hereditary carrier units.⁶⁰⁵ As for the definition of "marine genetic resources" two alternatives are proposed, namely:

- 1) [*“Marine genetic resources” means any material of marine plant, animal, microbial or other origin, [found in or] originating from areas beyond national jurisdiction and containing functional units of heredity with actual or potential value of their genetic and biochemical properties.*].⁶⁰⁶

⁶⁰⁴ Report of the Preparatory Committee Established by General Assembly Resolution 69/292: Development of an Internationally Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (Advance, Unedited Version).

⁶⁰⁵ A/CONF.232/2020/3, Article 8.

⁶⁰⁶ A/CONF.232/2020/3, Article 9 paragraph (1)

2) [*“Marine genetic resources” means marine genetic material of actual or potential value.*].⁶⁰⁷

To support the protection of developing countries, the following articles in the BBNJ regarding the implementation of equal access and benefit-sharing of MGRs in ABNJ will be elaborated.

The list of guidelines and methods that must be used when addressing marine biodiversity is provided in Article 5 of the ILBI-BBNJ:

- c. The non-regression principle;*
- d. The polluter pays principle, which advocates for the internalization of environmental costs and the use of economic instruments, with the understanding that those responsible for pollution should generally bear its costs, considering the public interest and avoiding distortions in international trade and investment;*
- e. The common heritage of mankind principle;***
- d. The equity principle;***
- e. The precautionary principle;***
- f. An ecosystem-based approach;*
- g. An integrated approach aimed at enhancing ecosystem resilience against the negative impacts of climate change and ocean acidification, as well as restoring ecosystem integrity.*⁶⁰⁸

It's interesting to note that genetic resources are regarded in the international law doctrine as part of common heritage of mankind, or collective genetic property, that is available to everyone.⁶⁰⁹ Thus, Article 5 officially confirms the idea of marine diversity as a common legacy of

⁶⁰⁷ A/CONF.232/2020/3, Article 9 paragraph (2)

⁶⁰⁸ UNITED NATIONS. Revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. Intergovernmental conference on an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction Fourth session New York, 23 March-3 April 2020. Available at: [Available at: https://undocs.org/en/a/conf.232/2020/3](https://undocs.org/en/a/conf.232/2020/3). p. 7.

⁶⁰⁹ ASIMAKOPOULOU, Eleftheria; MOHAMMAD, Essam Yassin. Marine genetic resources in areas beyond national jurisdiction: a ‘common heritage of mankind’. IIED Briefing, 2019.

humanity. Additionally, Article 9 upholds the notion of MGRs as part of humanity's shared heritage:

“No State shall claim or exercise sovereignty or sovereign rights over marine genetic resources of areas beyond national jurisdiction, nor shall any State or natural or juridical person appropriate any part thereof]. No such claim or exercise of sovereignty or sovereign rights [nor such appropriation] shall be recognized.”⁶¹⁰

The provision in question is comparable to UNCLOS Article 137. Furthermore, as it is hard to apply the notion of the common heritage of mankind to the high seas, we think that applying it to MGRs could lead to even more legal disputes. Finding a balance between the liberties of the high seas and the preservation of MGRs is therefore essential.⁶¹¹

Article 9 (4) stated that:

“the utilization of marine genetic resources of areas beyond national jurisdiction shall be for the benefit of mankind as a whole, taking into consideration the interests and needs of developing States, in particular the least developed countries, landlocked developing countries, geographically disadvantaged States, small island developing States, coastal African States and developing middle-income countries.”⁶¹²

Furthermore, the provisions of Article 11 "Fair and equitable sharing of benefits" are essentially a replication of the IOC Criteria concerning the transfer of marine technology. It specifically states that States Parties, including their citizens, who have [collected] [accessed] [used] marine genetic resources of areas outside of their national borders

⁶¹⁰ United Nation (2020), Op. Cit, p. 9.

⁶¹¹ ASIMAKOPOULOU, et.al, Op. Cit.

⁶¹² Ibid

[may] share benefits arising therefrom [with other States Parties] in a just and equitable manner, taking into account the unique needs of developing States Parties.⁶¹³ Both monetary and non-monetary advantages [must] be included in the benefits package. Additionally, Article 11 outlines in great detail how gains resulting from MGRs are to be shared. Benefits may be taken into use:⁶¹⁴

- a. *Contribute to the preservation and sustainable utilization of marine biodiversity in areas outside national jurisdiction;*
- b. *Foster scientific research and facilitate access to marine genetic resources in areas beyond national jurisdiction;*
- c. *Enhance capacity for accessing and utilizing marine genetic resources in areas beyond national jurisdiction;*
- d. *Enhance the capacity of States Parties, particularly small island developing States, to conserve and sustainably utilize marine biodiversity in areas beyond national jurisdiction;*
- e. *Support the transfer of marine technology;*
- f. *Aid developing States Parties in participating in Conference of the Parties meetings.*

The draft substantive articles on marine genetic resources are contained in Section Two of the draft ILBI-BBNJ text. This section consists of eight draft articles that address: Purpose; Scope; Activities Related to Genetic Resources Outside the Area of National Jurisdiction; Collection of and Access to Genetic Resources Outside the Area of National Jurisdiction; Access to Traditional Knowledge Related to Genetic Resources Outside the Area of National Jurisdiction; Benefit Sharing;

⁶¹³ ANISIMOV, I. O.; GULYAEVA, E. E. Promoting the development and transfer of marine technologies as a mechanism for implementing the sustainable development goals: international legal aspect. *Revista Opinio Juridica*, Fortaleza, v. 19, n. 32, p. 184-201, 2021. Available at: Available at: <https://periodicos.unichristus.edu.br/opiniaojuridica/article/view/3860>

⁶¹⁴ United Nation (2020), Op. Cit, p. 11.

Intellectual Property Rights; and Monitoring.⁶¹⁵ The draft articles in the Objectives section contain a number of fundamental matters that are closely related to the objectives of genetic resources management in general, namely: (1) Promote fair and equitable benefit sharing in the collection/access/utilization of genetic resources outside the area of national jurisdiction; (2) Build the capacity of the parties, especially developing countries, in terms of collection/access/utilization of genetic resources outside the area of national jurisdiction; (3) Promote knowledge and technological innovation, including the development of marine scientific research outside the area of national jurisdiction; and (4) Promote the development and transfer of marine technology.⁶¹⁶ The draft of these articles again reflects the general objectives related to the management of genetic resources as contained in the CBD objectives and the Nagoya Protocol. The draft also emphasizes the capacity building of certain countries, especially developing countries, geographically disadvantaged countries, and small island developing countries in terms of utilization of marine genetic resources. Furthermore, in this design, objectives related to technological innovation and marine scientific research are also proposed.

Given the significant potential value of MGRs in ABNJ, future competition for these resources could exacerbate disparities in industrial

⁶¹⁵ RABONE, Muriel; et al. Access to Marine Genetic Resources (MGR): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ). *Front. Mar. Sci.*, 12 Sept. 2019. Available at: <https://doi.org/10.3389/fmars.2019.00520>.

⁶¹⁶ A/CONF.232/2020/3, Pasal 7

dominance among states. This competition may also widen existing development gaps and create differences between present and future generations, particularly concerning equitable access to and benefit-sharing from these valuable resources. While various legal frameworks exist at the national and regional levels, there is no comprehensive international agreement specifically addressing the conservation and sustainable use of marine biodiversity in ABNJ. As of today, a limited number of States have the economic or technical prerequisites needed to develop and utilize genetic resources in these areas. The significance of the internationally legally binding BBNJ (Biodiversity Beyond National Jurisdiction) in regulating MGR in the area beyond national jurisdiction can be summarized as follows:

1. Addressing Legal and Policy Complexities: The BBNJ agreement aims to clarify the legal definition and scope of MGR, which is currently lacking, and establish core obligations and principles for high seas conservation and sustainable management.⁶¹⁷
2. Filling Governance Gaps: The agreement has the potential to address the current gap in international ocean governance, which is inadequate for conserving and protecting biodiversity beyond national jurisdiction.⁶¹⁸

⁶¹⁷ Santos BS, Devereaux SG, Gjerde K, Chand K, Martinez J and Crowder LB. (2022). "The diverse benefits of biodiversity conservation in global ocean areas beyond national jurisdiction". *Front. Mar. Sci.* 9:1001240. doi: 10.3389/fmars.2022.1001240

⁶¹⁸ Ibid

3. Economic and Scientific Implications: The BBNJ treaty can help ensure that access to MGR is equitable and sustainable, addressing concerns about monetary benefits and potential restrictions for researchers.⁶¹⁹
4. Strengthening Multilateral Institutions: The agreement can strengthen multilateral institutions and promote international cooperation, which is essential for overcoming intragenerational inequalities in global science capacity and resource use.⁶²⁰
5. Supporting Sustainable Development Goals: The BBNJ treaty can contribute to the realization of a just and equitable international economic order, taking into account the interests and needs of mankind as a whole, particularly developing countries.⁶²¹
6. Enhancing Marine Scientific Research: The agreement can promote the fair and equitable sharing of benefits arising from the utilization of MGR, as well as the generation of knowledge and technological innovations through marine scientific research.⁶²²

Thus, BBNJ plays an important role in ensuring legal certainty in the management of these resources, which have become part of the economic potential of marine resources (blue growth). However, BBNJ

⁶¹⁹ Spiteri C., Senechal T., Hazin C., Hampton S., Greyling L., Boteler B. (2021). “Study on the socio-economic importance of areas beyond national jurisdiction in the southeast Atlantic region,” in Strong high seas project. doi: 10.48481/IASS.2021.010

⁶²⁰ Ibid

⁶²¹ Leandra R, DG Webster. (2020). “The emergence of a new legally binding agreement for a marine complex system: are we going beyond panaceas?”. p. 24.

⁶²² Ibid

Agreement cannot immediately enter into force. The Vienna Convention of 1969 states that an international agreement will only take effect once all requirements have been met, which is must be ratified by 60 UN member states before it can enter into force and it could take some time. For instance, the 1982 Convention on the Law of the Sea was adopted in 1982, but the UNCLOS didn't come into effect until 1994 after the convention was ratified by its sixty-first state.⁶²³ Thus, while waiting the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of ABNJ comes into force, it needs further research whether the new international legally binding Agreement to regulate the access and benefit sharing of MGRs is appropriate and maintenance the fair access and equitable sharing of the benefit concerning MGRs in the ABNJ among developed and developing countries. In summary, the BBNJ treaty is significant because it has the potential to address the legal and policy complexities surrounding MGR, fill existing governance gaps, ensure equitable access to MGR, strengthen multilateral institutions, and support sustainable development goals.

⁶²³ Aaron M Riggio. (2016). "Giving Teeth to The Tiger: How The South China Sea Crisis Demonstrates The Need For Revision To The Law Of The Sea," *Military Law Review* 224 (2016): 597–638.

3. The Significance Need of Equitable Access and Benefit-Sharing of

MGRs in ABNJ for Developing Countries

a. MGRs in ABNJ as Global Commons

Currently, the legal framework governing the law of the sea in ABNJ is characterized by a combination of principles: freedom of the high seas and the CHM Principle. Under the principle of freedom of the high seas, resources in the high seas are considered common goods, meaning they do not belong to any specific state, and every state has the right to exploit them,⁶²⁴ This principle is rooted in an individualistic approach, emphasizing freedoms with inherent limitations to ensure due regard for other states' rights and interests.⁶²⁵ In contrast, the regime governing the Area operates from a collective perspective. States are not permitted to claim sovereignty or sovereign rights over resources in the Area. Instead, the rights to these resources are vested in mankind as a whole, managed and controlled by the ISA.⁶²⁶ This dual approach reflects the complexity of managing resources in ABNJ, balancing individual freedoms with collective responsibilities and ensuring equitable and sustainable use of marine resources for the benefit of all humankind.⁶²⁷ In addition to the CHM

⁶²⁴ Konrad J. Marciniak, 'Marine Genetic Resources: Do They Form Part of the Common Heritage of Mankind Principle?', JurisNet, LLC 2017, Chapter 16, pp. 373-405, p. 375.

⁶²⁵ Article 87 (2) UNCLOS. The ICJ referred to this as 'a recognition of the duty to have due regard to the rights of other States and the needs of conservation to the benefit for all' in the 'Fisheries Jurisdiction cases' (UK, Germany and Iceland) (1974), ICJ, Reports, 3.

⁶²⁶ Article 137(2) of UNCLOS

⁶²⁷ Article 140 (1) of UNCLOS

and the freedom of the high seas, there are numerous other examples of global commons. Two such examples within environmental law are biodiversity conservation and global climate change, both of which are described as "common concerns of humankind" (CCH).⁶²⁸ These global commons, which have been recognized as CCHs, are areas of the global environment that are so fundamentally important that they must be protected and preserved, owing to their status as "common concerns".⁶²⁹ The idea of "common concerns" conveys the idea that there is a clear public interest in the protection and collaboration of specific resources or elements of the global environment, even when the major focus of these agreements and treaties is within regions of national sovereignty.⁶³⁰

According to the common heritage principle, resources or global commons that are valued by all of humanity should not be unilaterally exploited by individual states or private organizations, but rather should be used for the benefit of global humankind under an international management regime.⁶³¹ The high seas environment is safeguarded by the complementary duties of doing no harm and

⁶²⁸ The United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107 preamble, para 1 and preamble, para 3 CBD.

⁶²⁹ Frederiech Soltau, 'Common Concern of Humankind', *The Oxford Handbook of International Climate Change Law*, Oxford University Press (2016), p. 203.

⁶³⁰ Kemal Baslar, *supra* note 89, pp. 107-111.

⁶³¹ Isabel Feichtner, *Community Interest*, *Max Planck Encyclopedia of Public International Law* (2007), available at: <http://opil.ouplaw.com.libproxy.ucl.ac.uk/search?pageSize=10&prd=EPIL&q=Community+interest&sort=relevance>. Also see Yoshifumi Tanaka, *supra* note 57, p. 340.

protecting the marine environment since it is a part of the global commons, an area in which nations have a shared interest. The former stems from the celebrated 1941 Trail Smelter arbitral ruling between the United States and Canada, which recognized the well-known customary international law norm *sic utere tuo ut alienum non laedas* (obligation to not use one's property in a manner to cause injury to that of another)⁶³² and later in the seminal Corfu Channel Case brought by the United Kingdom against Albania.⁶³³ As acknowledged as a rule of customary international law, UNCLOS itself stipulates in Article 192 that governments have a broad and universal responsibility to conserve and preserve the marine environment.⁶³⁴ All marine environments, especially the high seas, which are a part of the global commons, are subject to this requirement. This obligation has two components: the right to hold nations accountable for failing to uphold their individual and collective responsibility to take action to safeguard and conserve the marine environment. Two categories of obligations are established by Article 192: obligations *erga omnes* parties, which are owed to all Parties to a treaty and may be invoked

⁶³² Trail Smelter Arbitration (United States of America/Canada), Final Award, 11 March 1941, Reports of International Arbitral Awards, Vol. III, 65.

⁶³³ Corfu Channel (UK vs Albania), Merits, Judgment of 9 April 1949, ICJ Reports 1949, 22.

⁶³⁴ Available (with commentaries) at http://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf.

by a non-injured party; and obligations erga omnes, which are owed to all States in addition to other contracting States.⁶³⁵

The Area's MGRs can also be found in worldwide commons. Thus, these materials are also linked to frequent issues resulting from open access. Even while these live resources are replenishable, uncontrolled access would either hasten their exploitation or cause them to deteriorate. The situation with whale stocks in the high seas serves as a good example of this.⁶³⁶ Because of their intricate symbiotic and ecological ties, as well as the steady habitat in which they reside, the MGRs of the deep water are exceptionally sensitive.⁶³⁷ In reality, overexploitation, pollution, and habitat degradation are already posing threats to a large number of marine ecosystems and species.⁶³⁸ In this context, a 2006 General Assembly Resolution emphasized the necessity for states and capable international organizations to immediately explore methods to incorporate and enhance the management of risks to the marine biodiversity of seamounts, cold water corals, hydrothermal vents, and specific other underwater features.⁶³⁹ In addition, world leaders committed to

⁶³⁵ Obligations erga omnes has been recognized in other cases for the principle of self-determination in the Case Concerning East Timor (Portugal v. Australia) ICJ Reports 1995, p. 90, in the Advisory Opinion on the Legal Consequences of the Construction of a Wall in Occupied Palestinian Territory, ICJ Reports, 2003, paras. 88, 1.

⁶³⁶ John Vogler, *supra* note 85, p.64.

⁶³⁷ Frida M. Armas Pfirter, *supra* note 79, p.305.

⁶³⁸ Kristina M. Gjerde, "Challenges to Protecting the Marine Environment beyond National Jurisdiction," 27 *The International Journal of Marine and Coastal Law* (2012), p.841.

⁶³⁹ "Resolution Adopted by the General Assembly on 29 November 2005," Doc. A/RES/60/30, 8 March 2006, para.73.

"protect and restore the health, productivity, and resilience of oceans and marine ecosystems,[..], enabling their conservation and sustainable use for present and future generations" during the 2012 UN Conference on Sustainable Development (Rio+20).⁶⁴⁰ It is evident that the preservation and sustainable utilization of MGRs found in global commons are increasingly becoming the shared interests of the global community.⁶⁴¹

Certain states argue that MGRs should be regarded as part of the common heritage of mankind, while others emphasize applying the principle of freedom of the high seas to these resources. Although MGRs are not explicitly addressed in Part XI of UNCLOS, the authors contend that the CHM principle offers a rational and equitable approach for managing MGRs. Furthermore, the conservation and sustainable use of MGRs, like other resources in the global commons, represent common interests of the international community. The Common Heritage of Mankind can serve as a guiding principle for a future regulatory framework aimed at effectively safeguarding these shared interests. As negotiations continue on the ILBI-BBNJ, it remains to be seen whether and to what extent the CHM principle will be integrated into the forthcoming legal regime governing MGRs.

⁶⁴⁰ "The Future We Want," Doc. A/Res/66/288 of 11 September 2012, para.158. 102 Yoshifumi Tanaka, *supra* note 6, p.130.

⁶⁴¹ Yoshifumi Tanaka, *supra* note 6, p.130.

In the realm of marine environmental protection, conserving marine biological diversity is paramount. The CBD serves as the primary international legal framework governing this vital aspect of the global commons. MGRs as components of biological diversity, align with one of the CBD's key objectives: biodiversity conservation. Therefore, it can be argued that the conservation of MGRs qualifies as a Common Concern of Humankind (hereinafter CCH), akin to biodiversity conservation.⁶⁴² While the principle of Common Concern of Humankind has traditionally been associated with treaties governing areas within national sovereignty, it is not confined to specific spatial dimensions. According to Shelton, common concerns can transcend territorial boundaries, encompassing both areas within national jurisdiction and beyond. This suggests that MGRs, irrespective of their spatial location, could be considered a part of the Common Heritage of Humankind.⁶⁴³ These insights indicate that the concept of global commons is dynamic and adaptable, accommodating contemporary international commons such as MGRs under the framework of the Common Heritage of Humankind. Regarding equitable benefit-sharing, the CBD establishes regulations for the conservation and sustainable use of biological diversity. It

⁶⁴² Chelsea Bowling, Elizabeth Pierson and Stephanie Ratté, 'The Common Concern of Humankind: A Potential Framework for a New International Legally Binding Instrument on the Conservation and Sustainable Use of Marine Biological Diversity in the High Seas, pp. 15, p. 11.

⁶⁴³ Article 5 of CBD

emphasizes collaboration among Contracting Parties, whether directly or through capable international organizations, to promote biodiversity conservation and sustainable use. Each Contracting Party is tasked with adopting measures to mitigate adverse effects on biological diversity and integrating biodiversity considerations into national decision-making processes.⁶⁴⁴

UNCLOS does not explicitly address the concept of the CHM, although it does endorse "the equitable and efficient utilization of resources" across the oceans and supports "the conservation and sustainable use of the marine environment".⁶⁴⁵ Furthermore, MGRs represent one of the key elements in discussions on BBNJ Agreement, with the United Nations General Assembly emphasizing the importance of enhancing "the conservation and sustainable use of marine biological diversity" in these areas.⁶⁴⁶ Reports from various agencies, including the United Nations' assessments on Marine Biological Diversity of Areas Beyond National Jurisdiction, highlight significant disparities in research capacities among states. These disparities are most pronounced between developed countries in the "north" and developing countries in the "south," encompassing differences in technological, scientific, and economic capabilities. Such inequalities underscore challenges in accessing, applying, and

⁶⁴⁴ Article 6 of CBD

⁶⁴⁵ Part XII of the UNCLOS.

⁶⁴⁶ Sophie Arnaud-Haond et al., *supra* note 47, p 454.

benefiting from MGRs.⁶⁴⁷ Questions of justice and equity arise within the context of the global commons regarding MGRs. Should the benefits derived from MGRs be conserved and shared globally as part of our common heritage, or should commercial gains be exclusively reserved for the discoverers? These discussions suggest a connection between MGR benefit-sharing and the concept of the Common Heritage of Mankind.⁶⁴⁸ Therefore, establishing a regime for Access and Benefit Sharing in Areas Beyond National Jurisdiction could be justified by linking the principles of Common Heritage of Mankind with MGRs. This implies a collective ethical obligation within the international community to address inequalities and promote fair governance of MGRs, irrespective of the specific legal framework governing these resources in the future.

The proposed legally binding instrument under negotiation at the United Nations for the conservation and sustainable use of biodiversity beyond national jurisdiction aims to safeguard a crucial component of the global commons and the common interests of the international community. By doing so, it fulfills the obligation erga omnes to protect and preserve the marine environment. This instrument should not be viewed as a restriction on the freedoms of the high seas. Instead, it represents a balanced approach that considers

⁶⁴⁷ Marjo Vierros et al., *supra* note 125, p. 5.

⁶⁴⁸ Dinah Shelton, 'Common Concern of Humanity', *Iustum Aequum Salutare*, 'V./1 (2009), p. 38.

both the individual interests of states and the collective interests of the international community as a whole. The goal is to preserve the finite natural resources of the oceans for present and future generations.

b. Promoting Sustainable Development Goals

The utilization of marine genetic resources is relevant to Sustainable Development Goals (hereinafter SDGs) as it contributes to the conservation and sustainable use of marine biodiversity. This activity also exemplifies the relationship between scientific research, technology, and sustainable development. The significance of marine scientific research in advancing sustainable development was highlighted in the document "A Blueprint for Ocean and Coastal Sustainability," prepared by multiple United Nations agencies before the Rio+20 Conference,⁶⁴⁹ This document outlines four objectives for ocean and coastal sustainability, explicitly addressing marine scientific research under Objective 4, which emphasizes actions supporting research, monitoring, technology transfer, and capacity-building to enhance knowledge and support sustainable ocean use.⁶⁵⁰

Despite the importance of this proposal, the Rio+20 Conference outcome document, "The Future We Want," did not adequately

⁶⁴⁹ H. Harden-Davies, "The Regulation of Marine Scientific Research: Addressing Challenges, Advancing Knowledge", in: Warner and Kaye (eds.), *Routledge Handbook of Maritime Regulation and Enforcement* (London and New York, Routledge, 2016), p. 214.

⁶⁵⁰ IOC/UNESCO, IMO, FAO, UNDP, *A Blueprint for Ocean and Coastal Sustainability* (Paris, IOC/UNESCO, 2011).

address marine scientific research. While recognizing the contributions of the scientific and technological community to sustainable development, this document falls short in specifically addressing marine research, with only two paragraphs dedicated to this topic. The section on Oceans and Seas lacks robust language regarding sustainable development”.⁶⁵¹ However, despite its limitations, Rio+20 marked a significant milestone by introducing the SDGs through the document "Transforming Our World: The 2030 Agenda for Sustainable Development".⁶⁵² Goal 14 of the SDGs, "Conserve and Sustainably Use the Oceans, Seas, and Marine Resources for Sustainable Development," underscores the importance of marine biodiversity conservation and sustainable utilization for global sustainable development efforts”.⁶⁵³

The utilization of MGRs is pertinent to achieving Sustainable Development Goal 14 (SDG 14) as it supports the conservation and sustainable use of marine biodiversity, a key focus of this goal. While SDG 14 does not explicitly address MGRs, they play a significant role in marine scientific research and technology, particularly through marine bioprospecting activities. Under SDG 14.a, the relationship between marine scientific research, marine biodiversity, and

⁶⁵¹ The Future We Want, UN Doc A/RES/66/288 (11 September 2012).

⁶⁵² Id., paras. 160 and 166

⁶⁵³ United Nations Development Group, "A Million Voices: The World We Want-A Sustainable Future with Dignity for All", para. 13.

developing countries is highlighted. Equitable benefit sharing ensures that communities and countries, especially those in developing nations, receive a fair share of the benefits from MGR utilization. This equitable sharing contributes directly to conserving and sustainably using marine biodiversity, aligning with the core objectives of SDG 14.

In June 2017, a significant United Nations Conference was convened to advance Sustainable Development Goal 14, resulting in the adoption of the "Our Ocean, Our Future: Call for Action" resolution".⁶⁵⁴ This resolution reaffirms the commitment to achieving Goal 14, emphasizing the critical role of marine scientific research in conserving and sustainably utilizing oceans, seas, and marine resources. Additionally, it underscores a dedication to:

*"Allocate increased resources to marine scientific research, including interdisciplinary studies and continuous ocean and coastal monitoring. Enhance efforts to collect and share data and knowledge, including traditional knowledge, to advance our understanding of the ocean and its relationship with climate and productivity. Strengthen the development of coordinated early warning systems for extreme weather events and phenomena based on scientific findings. Encourage evidence-based decision-making and foster scientific and technological innovation. Furthermore, leverage marine biodiversity to support the development of developing countries, especially small island developing States and least developed countries."*⁶⁵⁵

⁶⁵⁴ Our Ocean, Our Future: Call for Action, UN Doc A/RES/71/312, Seventy-first session, Agenda Items 19 and 73 (a) (14 July 2017).

⁶⁵⁵ Ibid, para. 13 (f).

This paragraph underscores the interconnectedness of marine scientific research, marine biodiversity, and sustainable development. However, the current absence of comprehensive international legal frameworks, particularly regarding the utilization of marine genetic resources beyond national jurisdiction, presents significant challenges to fostering these positive relationships. The resolution on "Our Ocean, Our Future: Call for Action," as mentioned earlier, requires concrete measures to effectively achieve Goal 14 by leveraging marine genetic resources beyond national jurisdiction to benefit developing countries and promote the conservation and sustainable use of marine biodiversity.

As previously discussed, the utilization of MGR in ABNJ is closely linked to marine scientific research and technology transfer. Ensuring equal access and benefit-sharing in MGR utilization for developing countries also upholds the human right to science,⁶⁵⁶ This right is recognized in the Universal Declaration of Human Rights and further codified in treaties like the International Covenant on Economic, Social, and Cultural Rights, establishing its legally binding nature.⁶⁵⁷ The right to science is considered fundamental and deserving of protection due to its role in fostering sustainable improvements in material and spiritual standards of living for all

⁶⁵⁶ International Covenant on Economic, Social and Cultural Rights, 6 ILM 360 (1967), Article 15.

⁶⁵⁷ A Plomer, Patents, Human Rights and Access to Science. p. 53.

members of society, promoting both individual empowerment and collective economic and social progress.⁶⁵⁸ It contributes significantly to the realization of other human rights, such as the rights to food and health, thereby supporting the achievement of SDGs 2 (zero hunger) and 3 (good health and well-being).⁶⁵⁹ Moreover, the right to science enables individuals to develop their capacities for education, establish meaningful relationships, participate equally in political and social life, and work without fear of discrimination. Therefore, it plays a crucial role in advancing education (SDG 4), decent work (SDG 8), and reducing inequalities (SDG 10).⁶⁶⁰

Therefore, the equitable sharing of benefits derived from the utilization of MGRs in ABNJ is intricately linked to several SDGs and is crucial for achieving sustainable development outcomes. Here's how the relationship between equitable benefit sharing of MGRs in

ABNJ and the SDGs can be understood:

- 1) SDG 14 (Life Below Water): Equitable benefit sharing ensures that the communities and countries that are custodians of marine biodiversity, particularly those in developing countries, receive a

⁶⁵⁸ The UN Committee on Economic, Social and Cultural Rights states that the right to health “extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment”. CESCR General Comment No. 14 (2000): The Right to the Highest Attainable Standard of Health (Art. 12), para. 4.

⁶⁵⁹ Ibid

⁶⁶⁰ E. Morgera and M Ntona, ‘Linking Small-Scale Fisheries to International Obligations on Marine Technology Transfer’ (2018) 93 Marine Policy 295-306.

fair share of the benefits derived from the utilization of MGRs.

This contributes to the conservation and sustainable use of marine biodiversity, which is a core objective of SDG 14.⁶⁶¹

2) SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities): By ensuring equitable benefit sharing, particularly with communities in developing countries that may rely on marine resources for their livelihoods, the utilization of MGRs can contribute to poverty reduction and the reduction of inequalities.⁶⁶² Fair access to benefits derived from MGRs can provide socio-economic opportunities and improve the well-being of marginalized communities.

3) SDG 3 (Good Health and Well-being): Equitable benefit sharing may facilitate access to medicines, biotechnological products, and other innovations derived from MGRs, contributing to advancements in healthcare and promoting well-being.⁶⁶³ This aligns with the objectives of SDG 3, which aims to ensure healthy lives and promote well-being for all.

⁶⁶¹ SDG 14.A: “Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.” Available at <https://sustainabledevelopment.un.org/sdg14>

⁶⁶² Oldham, P., S. Hall, C. Barnes, C. Oldham, M. Cutter, N. Burns and L. Kindness. 2014. *Valuing the Deep: Marine Genetic Resources in Areas Beyond National Jurisdiction*. London, UK: Department for Environment, Food and Rural Affairs.

⁶⁶³ A Chapman, ‘Towards an Understanding of the right to Enjoy the Benefits of Scientific Progress and its Applications’ (2009) 8 *Journal of Human Rights*. p. 1.

4) SDG 9 (Industry, Innovation, and Infrastructure): Equitable benefit sharing can incentivize investment in research, innovation, and infrastructure related to the sustainable utilization of MGRs. This can foster research and technology development, technological advancements, promote sustainable industrial development, and contribute to economic growth, aligning with the objectives of SDG 9.

5) SDG 17 (Partnerships for the Goals): Achieving equitable benefit sharing of MGRs requires international cooperation, capacity building, and partnerships among governments, industry, academia, and civil society.⁶⁶⁴ SDG 17 emphasizes the importance of such partnerships in achieving sustainable development outcomes, including those related to the sustainable use of marine resources.

In addition, there is a precautionary principle that plays a crucial role in maintaining equitable access and utilization of MGR in ABNJ in order to create sustainable development. This principle is applied to ensure that the absence of scientific certainty does not prevent the adoption of measures to protect the marine environment and its biodiversity. The precautionary principle is embedded in

⁶⁶⁴ N Cooper and D French, 'SDG 17: Partnerships for the Goals - Cooperation within the Context of a Voluntarist Framework' in D French and L Kotzé (eds) *Sustainable Development Goals: Law, Theory and Implementation* (Edward Elgar, 2018). p. 271.

various international agreements and guidelines, including the United Nations Convention on the Law of the Sea (UNCLOS) and the BBNJ Agreement. In the context of MGRs in ABNJ, the precautionary principle is applied to manage the exploration and utilization of these resources in a way that minimizes harm to the marine environment and its biodiversity. This involves a cautious approach to the collection, utilization, and commercialization of MGRs, recognizing that the long-term impacts of these activities are not yet fully understood. It ensures that the absence of scientific certainty does not prevent the adoption of measures to protect the marine environment and its biodiversity, and it is applied through a range of mechanisms, including notifications, environmental impact assessments, risk assessments, conservation and sustainable use, and international cooperation and coordination.

The BBNJ agreement, which focuses on four main areas:

Marine Genetic Resources (MGR), area-based management tools, including marine protected areas; environmental impact assessments (EIAs); and capacity building and technology transfer, is a significant step towards regulating MGRs in areas beyond national jurisdiction (ABNJ) and ensuring their equitable access and benefit-sharing.⁶⁶⁵

This agreement aligns with SDG 14, which aims to conserve and

⁶⁶⁵ L de La Fayette, 'A New Regime for the Conservation and Sustainable Use of Marine Biodiversity and Genetic Resources Beyond the Limits of National Jurisdiction' (2009) 24 *The International Journal of Marine and Coastal Law*. p. 221.

sustainably use the oceans, seas, and marine resources for sustainable development. Moreover, the BBNJ agreement prioritizes promoting, not inhibiting, marine scientific research and innovation, recognizing the benefits of ABNJ to human wellbeing, the key role of science in management and conservation, and the importance of lifting the capacity of all States to support equitable sharing in the benefits of research, technology development, capacity building, and innovation.⁶⁶⁶ By promoting equitable benefit sharing of MGRs in ABNJ, countries can not only advance the objectives of specific SDGs but also contribute to broader sustainable development efforts, including poverty reduction, health improvement, and the promotion of inclusive and sustainable economic growth. It underscores the importance of governance mechanisms and international cooperation frameworks to ensure that benefits derived from MGRs are shared fairly and contribute to sustainable development for all.⁶⁶⁷ In conclusion, the utilization of MGRs is relevant to SDGs because it contributes to the conservation and sustainable use of marine biodiversity, represents the relationship between scientific research, technology, and sustainable development, and aligns with the BBNJ

⁶⁶⁶ D Tladi, 'Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction: Towards an Implementing Agreement' in R Rayfuse (ed), *Research Handbook of International Marine Environmental Law* (EE, 2017). p. 259.

⁶⁶⁷ *Ibid*

agreement, which is a significant step towards regulating MGRs in ABNJ and ensuring their equitable access and benefit-sharing.

c. Uphold Fair and Equitable Benefit-Sharing

Historically, there has been a power imbalance in the exploitation of natural resources, with developed countries often benefiting disproportionately. With the view that the legal regime applicable to MGR in ABNJ is part of the Common Concern of Humankind (CCH), any utilization by developed countries is obliged to benefit-sharing to developing countries, be it in the form of monetary or non-monetary benefits. Equitable access frameworks aimed to address this imbalance and promote more inclusive and balanced participation in the utilization of MGRs.⁶⁶⁸ This means establishing transparent and non-discriminatory procedures for obtaining access to MGRs, regardless of a country's economic or technological capacity.⁶⁶⁹ Equity ensures that all countries, particularly those with limited resources and capacities, have a fair opportunity to participate in and benefit from activities related to MGRs. This promotes fairness and justice in the global governance of

⁶⁶⁸ M. Tvedt, T. Young, Beyond Access: Exploring the Implementation of the Fair and Equitable Sharing Commitment in the CBD, IUCN Environmental Policy and Law Paper No. 67/2, Bonn Germany, IUCN Environmental Law Centre, 2007, <http://www.fni.no/doc&pdf/beyondaccess.pdf>

⁶⁶⁹ Ibid

marine resources.⁶⁷⁰ When connected to equitable access and utilization of MGR in ABNJ, CBDR-RC principle here has a very important role in upholding equality and justice. principles of Common but Differentiated Responsibilities,⁶⁷¹ which recognizes that developed countries have historically contributed more to the depletion of global resources and should therefore bear a greater-responsibilities for their conservation and sustainable use.⁶⁷² Exploiting countries which are usually carried out by developing countries, have the responsibility to share results or assistance to developing countries in ways such as technology transfer, capacity building, funding, data access, etc. As we know, it has always been developed countries that have the opportunity and access to exploit marine genetic resources, so they have an obligation to contribute to developing countries so that they can carry out the same utilization at sea. The concept of CBDR-RC is implicit in the following provisions of the CBD articles.

Article 5

“Each Contracting Party shall endeavor to cooperate with other Contracting Parties, either directly or through competent international organizations, to address matters of mutual interest, including the conservation and sustainable use of biological

⁶⁷⁰ B. De Jonge, Op. Cit, p. 142.

⁶⁷¹ Philippe Cullet, ‘Principle 7: Common but Differentiated Responsibilities’ in Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (2015). p. 229.

⁶⁷² Philippe Cullet, ‘Principle 7: Common but Differentiated Responsibilities’ in Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (2015). p. 229.

*diversity in areas beyond national jurisdiction, to the extent feasible and appropriate.*⁶⁷³

Article 15 (7)

*“Each Contracting Party shall enact legislative, administrative, or policy measures, as deemed appropriate and in accordance with Articles 16 and 19, and, where necessary, utilize the financial mechanism established by Articles 20 and 21. The objective is to ensure fair and equitable sharing of research and development outcomes and benefits derived from the commercial and other utilization of genetic resources with the Contracting Party that provided such resources. This sharing shall occur based on mutually agreed terms.”*⁶⁷⁴

Article 20 (7)

*“Each Contracting Party shall adopt legislative, administrative, or policy measures as appropriate, in alignment with Articles 16 and 19, and utilize the financial mechanisms established by Articles 20 and 21. The goal is to ensure fair and equitable sharing of research and development results and benefits derived from the commercial and other utilization of genetic resources with the Contracting Party that provided these resources, based on mutually agreed terms.”*⁶⁷⁵

The CBD’s preamble stipulates that the conservation of biodiversity is a common concern of humankind, but it also reaffirms states’ sovereign rights over their own biological resources.⁶⁷⁶ When it comes to differentiated responsibilities, the CBD draws a simple picture. Developing countries have to protect biodiversity, but

⁶⁷³ Article 5 of CBD

⁶⁷⁴ Article 15 (7) of CBD

⁶⁷⁵ Article 20 (7) of CBD

⁶⁷⁶ Kellersmann, B. (2000): Die gemeinsame, aber differenzierte Verantwortlichkeit von Industriestaaten und Entwicklungsländern für den Schutz der globalen Umwelt, Beiträge zum ausländischen öffentlichen Recht und Völkerrecht, vol. 143, Berlin: Springer

developed countries have to pay for it. According to Article 20 on financial resources:⁶⁷⁷

“The developed country Parties are committed to providing new and additional financial resources to support developing country Parties in meeting the agreed full incremental costs of implementing measures required by this Convention and to enable them to benefit from its provisions [...].”

Furthermore:

“The successful implementation of commitments by developing country Parties under this Convention hinges upon the effective fulfillment of commitments by developed country Parties regarding financial resources and technology transfer. This implementation will fully consider that economic and social development, as well as poverty eradication, are the primary and overarching priorities of developing country Parties.”⁶⁷⁸

Therefore, it is likely that any types of benefit-sharing will be needed in the future and could play an important role in contributing toward greater equity between States in terms of opportunities to utilize MGR from ABNJ. Critical to this would be ensuring that the aims, aspirations and needs from all countries are heard, and that all countries have opportunities to participate in an equitable manner, such as through long-term and meaningful partnerships.⁶⁷⁹ Equitable ABS requires that the benefits derived from the utilization of MGRs are allocated fairly among all stakeholders, including both developed

⁶⁷⁷ Article 20 of CBD

⁶⁷⁸ Ibid

⁶⁷⁹ Österblom, H., Wabnitz, C.C.C. and Tladi, D. et al. (2020). Towards Ocean Equity. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/how-distribute-benefits-ocean-equitably.

and developing countries. This may involve establishing mechanisms to ensure that developing countries receive a proportionate share of the benefits, considering factors such as the contribution of MGRs to economic development, the capacity of countries to utilize these resources, and the conservation needs of marine biodiversity.⁶⁸⁰ Thus, to further the goal of equality in the utilization of MGR in ABNJ, even in ILBI-BBNJ Treaty Article 52, it has been stipulated that Developed states parties are required to make annual contributions to a special fund established under Article 52 of ILBI-BBNJ Treaty. The rate of contributions is determined by the Conference of the Parties (COP) and is based on 50% of a party's assessed contribution to the budget adopted by COP. This financial mechanism ensures that resources are available for the benefit-sharing mechanism and capacity building in developing countries.⁶⁸¹ Also, The ILBI-BBNJ includes provisions for capacity building and technology transfer to help developing countries access and utilize MGR and DSMR in ABNJ. This is essential for ensuring that all countries can participate in the benefits of marine

⁶⁸⁰ Gjerden, K. M. (2008). Regulatory and governance gaps in the international regime for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction. Gland, Switzerland: IUCN. p. 214.

⁶⁸¹ Summary report, 20 February – 4 March 2023: Resumed 5th Session of the Intergovernmental Conference (IGC) on BBNJ. Available at <https://enb.iisd.org/marine-biodiversity-beyond-national-jurisdiction-bbnj-igc5-resumed-summary>

scientific research and the exploitation of MGR in a non-discriminatory way.⁶⁸²

B. ASSESSING IMPROVEMENTS REQUIRED BY DEVELOPING COUNTRIES

1. Current Capabilities and Limitations of Developing Countries: A Challenge

To propose widely acceptable options for the governance system of the International Legally Binding Instrument (ILBI) on MGR in ABNJ, it is crucial to identify areas where inequalities between states are most evident. The analysis should focus on the actual availability of MGR from ABNJ and the capacities required to study and utilize them. This involves collecting samples of marine organisms containing genetic material directly from their natural habitats. MGR is accessed away from their natural environments, such as from culture collections, museums, or research institutions. This refers to accessing genetic data directly, including whole genomes, isolated gene sequences, functional annotations, or biochemical data on gene products like proteins and metabolites. Recent technical assessments have revealed significant disparities in MGR access between a small group of developed countries

⁶⁸² IIED Briefing. (2019). Marine genetic resources in areas beyond national jurisdiction: a 'common heritage of mankind'. Available at <https://www.iied.org/sites/default/files/pdfs/migrate/17498IIED.pdf>

and the rest of the world To address these inequalities and propose equitable governance options for the ILBI, it is essential to consider mechanisms that promote fair and inclusive access to MGR while supporting capacity-building initiatives for developing countries. This may involve establishing collaborative research networks, providing technical and financial support for capacity development, and fostering technology transfer to empower all states to participate effectively in marine genetic research and conservation efforts in ABNJ :

- 1) The cost of technology to sample in international waters and the deep sea, and the cost of its maintenance,⁶⁸³
- 2) The scientific skills needed to undertake research on marine biodiversity,⁶⁸⁴
- 3) The cost of and scientific skills needed to undertake molecular screening and biodiversity assessment,⁶⁸⁵
- 4) The scientific skills needed to analyse the data thereby produced.⁶⁸⁶

In 1995, only six countries possessed the technological, financial, and human resources to directly access MGR in situ in ABNJ, namely

⁶⁸³ K Juniper, 'Use of Marine Genetic Resources' in M Banks, C Bissada, PE Araghi (eds), *The First Global Integrated Marine Assessment World Ocean Assessment I* under the auspices of the United Nations General Assembly and its Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects (UN, New York, 2016), Chapter 29, at p. 6.

⁶⁸⁴ Juniper, *Op. Cit.*, p. 9.

⁶⁸⁵ Broggiato et al., *Op. Cit.*, p. 179.

⁶⁸⁶ G Shimmield, 'Extent and Types of Research, Uses and Applications' in IUCN information papers for the intersessional workshop on marine genetic resources in ABNJ (IUCN Environmental Law Center, Bonn, 2013), 7–15, at p. 13.

Finland, France, the United Kingdom, Japan, Russia, and the United States of America.⁶⁸⁷ By 2012, the number had expanded to twenty-nine countries, including both developed and developing nations, which gained access to MGR from hydrothermal vents through organizations like InterRidge and the Pacific Islands Applied Geoscience Commission. Despite broader access to deep-sea sampling technologies, disparities persist.⁶⁸⁸ Another critical aspect for deriving value from marine biodiversity is the specialized scientific skills required to identify species, including both known and newly discovered ones. Most of these taxonomic specialists are trained in developed countries with extensive botanical and zoological research traditions in universities and museums. Research literature shows that a majority of marine taxonomy publications originate from a limited number of developed countries.⁶⁸⁹ However, some developing countries possess capabilities in bioinformatics and genomics, particularly in health and agricultural sciences, which can be adapted and applied to the study of MGR. Capacity-building initiatives aimed at reducing these disparities exist.⁶⁹⁰ For instance, the UK's Wellcome Trust and Japan's National Institute of Technology and Evaluation provide training in genetic data analysis, primarily focusing on human genetics and

⁶⁸⁷ Glowka (n 35), *Op. Cit.*, p. 412.

⁶⁸⁸ *Ibid*

⁶⁸⁹ Broggiato et al. (n 20), *Op. Cit.*, p. 179.

⁶⁹⁰ IE Hendriks and CM Duarte, 'Allocation of effort and imbalances in biodiversity research' (2008) 360(1) *Journal of Experimental Marine Biology and Ecology* 15–20, at p. 17; Juniper (n 39), at p. 7.

pathogens, to developing countries.⁶⁹¹ In summary, according to the United Nations First Assessment of the Ocean, inequality between states in MGR exploitation is primarily driven by discrepancies in global research capacities rather than access to in-situ resources.⁶⁹² Addressing these disparities requires concerted efforts in capacity development, particularly in the context of Marine Scientific Research (MSR).⁶⁹³

Significant disparities exist in research capacity among states, encompassing economic, scientific, and technological dimensions, particularly evident between developing and developed states. This discrepancy is highlighted in reports such as the United Nations First Integrated Marine Assessment on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.⁶⁹⁴ Access to necessary technology for scientific research on genetic resources in the deep seabed typically involves advanced vessels equipped with sophisticated technology, remotely operated underwater vehicles, sampling equipment, and other tools related to the commercialization process. However, few states possess this level of technological capability. Developing states often face limitations or lack opportunities to extract

⁶⁹¹ Ibid, p. 18.

⁶⁹² Juniper (n 31), Op. Cit, p. 17.

⁶⁹³ Michael Banks, et al., 'Use of Marine Genetic Resources', The First Global Integrated Marine Assessment (First World Ocean Assessment), United Nations General Assembly – A Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects, United Nations, New York, Cambridge University Press (2017), Chapter 29, p. 14.

⁶⁹⁴ Michael Banks, Op. Cit, p. 14.

MGRs to the same extent as developed states.⁶⁹⁵ Developing states advocate for solutions that enable resource-sharing, allowing access to necessary technological aids for seabed research through collaboration with public and private research institutions. Moreover, the protection of MGRs and the establishment of access and benefit-sharing mechanisms require collective efforts from both public and private actors.

2. Opportunities for Equal Access and Benefit-Sharing for Developing Countries

As we know that in order to create MGR utilization in ABNJ and an equal benefit-sharing mechanism between developing and developed countries, it is not an easy matter. ISA as the mandated authority under UNCLOS to manage mining resources in the area, has the opportunity to manage genetic resources in ABNJ in line with the establishment of the BBNJ Agreement. The BBNJ Agreement, adopted in 2023, aims to conserve and sustainably use marine biodiversity in ABNJ. In this context, the ISA is expected to contribute significantly to the implementation of the treaty's provisions related to MGRs. The International Seabed Authority plays a vital role in managing the utilization of Marine Genetic Resources in Areas Beyond National Jurisdiction in accordance with the BBNJ Agreement. The ISA's responsibilities include operating a notification and

⁶⁹⁵ CBD Doc, UNEP/CBD/SBSTTA/11/11 (22 July 2005), paras 12 and 13.

clearing-house mechanism, facilitating benefit-sharing and capacity building, overseeing environmental impact assessments, developing regional environmental management plans, supporting technology transfer, and promoting international cooperation and coordination. In addition to the efforts required from developing countries themselves, international cooperation is needed to create synergistic efforts between the two. Here are some efforts that can be made by the utilizing country:

a. Promoting the Equitable Governance and Benefit-Sharing

Building capacity, gaining access to and transferring marine technology, and exchanging knowledge are all essential elements of benefit sharing and ethical, inclusive research and innovation.⁶⁹⁶ The limited likelihood of commercial success in biodiscovery, coupled with extended timelines for potential financial gains, implies that some of the most valuable benefits are non-monetary, arising from the research process itself rather than from commercial products. These may encompass scientific training, access to research facilities, and enhanced collaboration in marine science through activities such as data collection, technical exchanges, and joint research initiatives. Given the complexities of marine genetic resource (MGR) governance, beyond scientific, institutional, and legal capabilities

⁶⁹⁶ Broggiato, A., T. Vanagt, L.E. Lallier, M. Jaspars, G. Burton and D. Muyltermans. 2018. "Mare Geneticum: Balancing Governance of Marine Genetic Resources in International Waters." *The International Journal of Marine and Coastal Law* 33 (1): 3–33. <https://doi.org/10.1163/15718085-13310030>.

necessary for the development and implementation of international and national regulatory frameworks, there's a need for capacity to negotiate fair agreements, resolve disputes, and address ownership and access issues. Additionally, a deepened social and ethical understanding, particularly regarding the responsibilities of marine scientists, is essential for managing the sustainable and equitable utilization of commonly shared MGR.⁶⁹⁷ Regardless of MGR's legal standing, a broader moral approach to benefit sharing ought to be taken. This will promote "deeper and cosmopolitan cooperation" through the use of the UNCLOS's pre-existing commitments to environmental preservation, scientific research, capacity building, and technology transfer.

Under such a principled approach, the human right to science would be seen as part of an emerging international legal norm of fair benefit sharing.⁶⁹⁸ Current frameworks, including the intersection between environment and intellectual property norms, are extrapolated from constructs that apply on land, where boundaries are more tangible and organisms tend to have restricted ranges. The open character of the ocean is overlooked by these frameworks, as currents carry various creatures across great distances. For example, bacteria that are

⁶⁹⁷ Morgera, E. 2018. "Fair and Equitable Benefit-Sharing in a New Treaty on Marine Biodiversity: A Principled Approach towards Partnership Building?" Forthcoming in *Maritime Safety and Security Law Journal*. BENELEX Working Paper No. 16.

⁶⁹⁸ Ibid

aerosolized off the sea surface and deposited thousands of kilometers distant are returned to the ocean.⁶⁹⁹ The 200-nautical-mile legal boundary that separates most national exclusive economic zones from areas beyond national jurisdiction lacks a biological rationale or scientific basis, and a successful mechanism regulating access and benefit sharing with regard to marine genetic resources will need to address this, possibly through collaborative mechanisms between the CBD and UNCLOS.⁷⁰⁰ It is important that the BBNJ process does not replicate the implementation challenges that follow from the wide disparities in domestic measures under the Nagoya Protocol. One way to avoid the pitfalls of disparate implementation would be to agree on what equitable benefit sharing means as a principle of international law, rather than as a mere modality that has polarised the ABS debate.⁷⁰¹ With benefit sharing as a freestanding principle of international law, the links between other global mandates would become clearer, including as an aspect of the human right to science,⁷⁰² contribution to other human rights such as those to food and health, and therefore significant for the realisation of SDGs 2

⁶⁹⁹ Ramesh, N., J.A. Rising and K.L. Oremus. 2019. "The Small World of Global Marine Fisheries: The Cross-Boundary Consequences of Larval Dispersal." *Science* 364 (6446): 1192–96. <https://doi.org/10.1126/science.aav3409>.

⁷⁰⁰ R Warner, 'Oceans beyond Boundaries: Environmental Assessment Frameworks' (2012) 27 *The International Journal of Marine and Coastal Law* 481–499, at pp. 494–497.

⁷⁰¹ E Morgera, Fair and equitable benefit-sharing: history, normative content and status in international law, BENELEX Working Paper N. 12 (April 2017) at 10 [Working Paper No. 12].

⁷⁰² Article 15 of ICESCR

(hunger) and 3 (health and well-being). The UNCLOS preambular phrase "just and equitable international economic order which takes into account the interests and needs of humankind as a whole" may also be related to it, since it served as the foundation for the organization's benefit-sharing agreements regarding deep-seabed mineral resources and outer continental shelf resources. These are matters that call for political will on a global scale,⁷⁰³ and are subject to negotiations in the upcoming intergovernmental conference.

b. Assisting the Capacity-Building and The Transfer of Marine Technology to the Developing Countries

Building capacity, conducting scientific research, and enhancing information sharing are crucial for effective conservation and sustainable use of marine biodiversity in ABNJ. Providing financial and technical support is essential to meet the national needs and priorities of Pacific states in developing capacity for ABNJ biodiversity conservation and sustainable utilization.⁷⁰⁴ One proposed strategy is to enhance efforts at local, national, and regional levels by establishing regional centers of excellence focused on ABNJ. These centers could facilitate education and training opportunities in ABNJ-related topics such as area-based management, environmental impact assessments, and MGRs. To ensure the sustainability of capacity-

⁷⁰³ Morgera, Op. Cit

⁷⁰⁴ Broggiato, Op. Cit, pp. 176–185.

building efforts, it is imperative to move away from ad hoc programs and adopt long-term strategies. Sustainable capacity-building requires continuous investment and commitment to strengthen expertise and skills in ABNJ conservation and management. This approach can empower Pacific states and other stakeholders to effectively address the challenges and opportunities associated with marine biodiversity in ABNJ.⁷⁰⁵ In capacity building programs, equally active participation and real-world experience were essential components. Initiatives for ABNJ technology transfer and capacity development could be grafted onto or based on already-existing capacity building programs in pertinent fields.⁷⁰⁶

Building capacity, gaining access to and transferring marine technology, and exchanging knowledge are all essential elements of benefit sharing and ethical, inclusive research and innovation.⁷⁰⁷ The

low chance of commercial success from biodiscovery, combined with the long-time frame for potential financial returns, means that some of the most significant benefits are nonmonetary, emerging from the research process itself rather than from commercial products. These

⁷⁰⁵ EJ Tirpak, Practices of States in the Fields of Marine Scientific Research and Transfer of Marine Technology: An Update of the 2005 Analysis of Member State Responses to Questionnaire No. 3, UN Doc. IOC/ABE-LOS VIII/8 (19 March 2008).

⁷⁰⁶ High Seas Alliance, “Biodiversity Beyond National Jurisdiction. Technical Report for the Pacific Islands Region.” Para. 4.2.4.

⁷⁰⁷ Collins, J.E., H. Harden-Davies, M. Jaspars, T. Thiele, T. Vanagt and I. Huys. 2019. “Inclusive Innovation: Enhancing Global Participation in and Benefit Sharing Linked to the Utilization of Marine Genetic Resources from Areas beyond National Jurisdiction.” Marine Policy 109 (November): 103696. <https://doi.org/10.1016/j.marpol.2019.103696>.

might include scientific training; access to research infrastructure; and increased collaboration and cooperation in marine science through data collection, technical exchange and the development of joint scientific research projects and programmes.⁷⁰⁸ The complexities of MGR governance mean that in addition to the scientific, institutional and legal capacities necessary to develop and administer international and national regulatory frameworks, capacity is also needed to negotiate equitable agreements, resolve disputes and untangle the knotty problems of ownership and access. It also takes a deeper understanding of social and ethical issues, with an emphasis on the role of marine scientists, to manage the shared use of MGR in a fair and sustainable way.⁷⁰⁹ Regardless of MGR's legal standing, a broader moral approach to benefit sharing ought to be taken. This will promote "deeper and cosmopolitan cooperation" through the use of the UNCLOS's pre-existing commitments to environmental preservation, scientific research, capacity building, and technology transfer. Under such a principled approach, the human right to science would be seen as part of an emerging international legal norm of fair benefit sharing.⁷¹⁰ Existing frameworks—such as the one relating to the interaction between intellectual property laws and the environment—

⁷⁰⁸ D Burnett, D Freestone and T Davenport, *Submarine Cables in the Sargasso Sea: Legal and Environmental Issues in Areas Beyond National Jurisdiction*, Report from the Workshop held 23 October 2014 at George Washington Law School, Washington, D.C. p. 25.

⁷⁰⁹ Morgera, *Op. Cit.*

⁷¹⁰ *Ibid*

are derived from concepts that are applicable on land, where limits are more definite and animals often have limited home ranges. The open character of the ocean is overlooked by these frameworks, as currents carry various creatures across great distances. For example, bacteria that are aerosolized off the sea surface and deposited thousands of kilometers distant are returned to the ocean.⁷¹¹ The 200-nautical-mile legal boundary that separates most national exclusive economic zones from areas beyond national jurisdiction lacks a biological rationale or scientific basis, and a successful mechanism regulating access and benefit sharing with regard to marine genetic resources will need to address this, possibly through collaborative mechanisms between the CBD and UNCLOS. To sum up, the importance of technology transfer and scientific capacity development to implement the UNCLOS and benefit from sustainable development has been recognised by the United Nations General Assembly (UNGA). Sustainable Development Goal 14a calls on States to increase scientific knowledge, develop research capacity and transfer marine technology to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries.⁷¹²

⁷¹¹ Mayol, E., J.M. Arrieta, M.A. Jiménez, A. Martínez-Asensio, N. GarciasBonet, J. Dachs, B. González-Gaya, et al. 2017. "Long-Range Transport of Airborne Microbes over the Global Tropical and Subtropical Ocean." *Nature Communications* 8 (1): 1–9. <https://doi.org/10.1038/s41467-017-00110-9>.

⁷¹² Sustainable Development Goal 14 "Conserve and sustainably use the oceans, seas and marine resources for sustainable development". In: United Nations General Assembly Resolution

c. Availability of Data Information and Knowledge

Working with (or within) the UNCLOS regime on marine scientific research could nicely complement an access and benefit sharing mechanism. In the BBNJ discussions, delegations have discussed the importance of considering both the monetary and non-monetary aspects of a benefit sharing regime.⁷¹³ Information sharing and exchange has been highlighted as an important consideration by some delegations. Additionally, some delegations have highlighted the relationship in these discussions with capacity-building and the transfer of technology. One of the key components of the access and benefit sharing system is the publication and distribution of knowledge, scientific data, and information.⁷¹⁴ The publication and dissemination of knowledge, scientific data, and information, are important elements that can be considered as part of the access and benefit sharing regime.⁷¹⁵ UNCLOS puts a strong emphasis on the publication and dissemination of knowledge resulting from marine scientific research. While all States have the right to conduct marine

70/1 'Transforming our world: the 2030 Agenda for Sustainable Development', 25 September 2015, at p. 14. Available at http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/70/1

⁷¹³ L.A. de la Fayette, 'A New Regime for the Conservation and Sustainable Use of Marine Biodiversity and Genetic Resources beyond the Limits of National Jurisdiction' (2009) 24 *International Journal of Marine and Coastal Law* 221, at 273.

⁷¹⁴ A. Kiss, 'The Common Heritage of Mankind: Utopia or Reality?' (1984–1985) 40 *Intl'l J.* 423, at 438: 'the term "for the benefit of all mankind" is to be interpreted in a generous way to include aesthetic, cultural, and scientific benefits as well as economic revenues.

⁷¹⁵ A. Kiss, 'The Common Heritage of Mankind: Utopia or Reality?' (1984–1985) 40 *Intl'l J.* 423, at 438: 'the term "for the benefit of all mankind" is to be interpreted in a generous way to include aesthetic, cultural, and scientific benefits as well as economic revenues.

scientific research in the high seas and the Area, they also have the obligation to make available information and knowledge gained through such research through publication and other means of dissemination.⁷¹⁶ Furthermore, States must promote the flow of scientific data and information and the transfer of knowledge resulting from marine scientific research, especially to developing States. They must also strengthen the marine scientific research capabilities of developing countries through programmes to provide adequate education and training of their technical and scientific personnel.⁷¹⁷

UNCLOS puts a strong emphasis on the publication and dissemination of knowledge resulting from marine scientific research. While all States have the right to conduct marine scientific research in the high seas and the Area, they also have the obligation to make available information and knowledge gained through such research through publication and other means of dissemination. Furthermore, States must promote the flow of scientific data and information and the transfer of knowledge resulting from marine scientific research, especially to developing States. Additionally, through initiatives to give their technical and scientific staff proper education and training, they must bolster the developing countries' capacity for conducting maritime scientific research. Significantly, one of the core tenets

⁷¹⁶ Ibid

⁷¹⁷ Article 241 of UNCLOS

stated in Part XII is that the legal foundation for any claim to any portion of the maritime environment or its resources is not created by marine scientific research operations.⁷¹⁸

3. Case Studies of Successful Initiatives by Developing Countries

a. South Africa

South Africa has succeeded in utilizing MGR in ABNJ by focusing on benefit-sharing mechanisms in international negotiations. The exploitation of MGRs in industries like cosmetics, food, and pharmaceuticals can lead to economic, technological, and social development for the continent. Since South Africa industries lack the means to exploit these resources independently, they have engaged in international negotiations to share the benefits derived from MGRs exploitation.⁷¹⁹ This approach aligns with the principles of equity in international law and consensus among developed and developing countries. African negotiators involved in these discussions need a clear understanding of the challenges, opportunities, and options for Africa to harness MGRs effectively as raw material for blue biotechnology-based companies.⁷²⁰ The African Development Bank (AfDB) has played a crucial role in funding initiatives to build

⁷¹⁸ Article 241 of UNCLOS

⁷¹⁹ Joseph R Gusfield, *The Culture of Public Problems: Drinking-Driving and The Symbolic Order* (University of Chicago Press. 1984) at p. 181.

⁷²⁰ Collins, J. E., Vanagt, T., & Huys, I. (2020). Stakeholder Perspectives on Access and Benefit-Sharing for Areas Beyond National Jurisdiction. *Frontiers in Marine Science*, 7, 265. p. 9.

practical knowledge and capacity for African countries to maximize development outcomes from natural resources, including marine genetic resources.⁷²¹ By investing in training researchers in blue biotechnology and developing infrastructure, Africa can harness the benefits of MGRs in ABNJ in a proactive and dignified manner. This strategic approach, which emphasizes benefit-sharing and capacity-building, has been instrumental in Africa's efforts to utilize MGRs effectively in ABNJ.

b. Thailand

Thailand has been successful in utilizing genetic resources, particularly marine genetic resources, through a combination of dedicated funding and research efforts. The Thailand Research Fund and the Commission on Higher Education in Thailand, along with universities, play a dominant role in funding marine research in Thailand. This funding network reflects dedicated investment in marine research, which is evident from the strong trend in marine research publications in Thailand. Thailand's research investments in marine genetic resources are notable for their focus on fisheries research and Marine & Freshwater Biology. These investments indicate targeted efforts towards understanding and utilizing marine

⁷²¹ African Natural Resources Centre, available at <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/african-natural-resources-centre>

genetic resources for aquaculture and conservation purposes. Additionally, Thailand collaborates with external funding bodies such as the United States National Science Foundation, Germany, Japan (through the Ministry of Education, Culture, Sports, Science and Technology and the Japan Society for the Promotion of Science), Europe, and China, which further enhances research opportunities and access to resources.⁷²²

The funding networks in Thailand are essential for improving access to marine genetic resources by facilitating research collaborations, sharing knowledge, and promoting innovation. By investing in research areas related to marine genetic resources, Thailand is positioning itself as a key player in the field, with a strong emphasis on conservation, sustainable use, and innovation in aquaculture. The funding networks not only support research activities but also help in identifying priority research issues, coordinating efforts, and maximizing the impact of research outcomes.⁷²³ In summary, Thailand's success in utilizing genetic resources, particularly marine genetic resources, can be attributed to its robust funding networks, strategic research investments, and collaborations with international partners. These efforts have enabled Thailand to

⁷²² World Intellectual Property Organization (WIPO). "Patent Landscape Report: Marine Genetic Resources in Southeast Asia." WIPO Publication No. 947/6E. p. 26-28.

⁷²³ Ibid

make significant contributions to the field of marine genetic research and position itself as a leader in the ASEAN region.

c. Republic of Indonesia

As a Party to UNCLOS, CBD, and the Nagoya Protocol, Indonesia would expect the provisions concerning the transfer of technology and access to genetic resources. In spite of the positive growth in the past decade, Indonesia is still considered as a developing country. Indonesia is a member of the G77, along with other developing states.⁷²⁴ At this very moment Indonesia is yet to develop its capacity to take benefit directly from the resources of the areas beyond national jurisdiction. Indonesia currently does not possess the technology to undergo a marine scientific research that penetrates to the bottom of the ocean or acquiring biodiversity that exist there. Hence, Indonesia needs the transfer of technology and access to genetic resources. On another note, Indonesia is eager to elevate itself in terms of economy, technology, and industry.⁷²⁵ Since 2008, Indonesia has become a member of the G-20, a group of 20 major economies in the world. As Indonesia continues to project its growth, it will soon be able to reach its potential of benefitting from various

⁷²⁴ A.G. Siswandi, *Marine Bioprospecting: International Law, Indonesia, and Sustainable Development* (Ph.D. Thesis, The Australian National University, 2013), pp. 81–82.

⁷²⁵ Chris Forward, “Archipelagic Sea Lanes in Indonesia, Their Legality in International Law”, available at <http://www.austlii.edu.au/au/journals/ANZMarLawJl/2009/15.pdf>

natural resources, particularly newly discovered resources in the oceans. Therefore, it is expected that Indonesia would secure access to marine genetic resources as it developing its capacity so in the future in can also obtain the benefit from its resources.

As the BBNJ Agreement has been officially adopted by 193 UN member states on Monday, 19 June 2023, at the UN Headquarters in New York. Indonesia fully supports the adoption of the BBNJ Agreement. Coordinating Minister for Maritime Affairs and Investment, Luhut Binsar Pandjaitan, as the head of the Indonesian delegation in the BBNJ agreement negotiations, welcomed the adoption of the BBNJ Agreement as an international legal instrument through a written statement.⁷²⁶ Minister Luhut also expressed appreciation for the dedication of the Indonesian National Team that has been actively and strategically involved in the negotiations and advocating national interests and emphasised the importance of Indonesian scientists and businesses in developing research on the utilisation of genetic resources in Indonesian and international waters for the good of Indonesia and humanity.⁷²⁷

Indonesia's commitment to increasing the involvement of developing countries in the sustainable use of genetic resources in

⁷²⁶ Ministry of Foreign Affairs of The Republic of Indonesia. Indonesia For the World: Through BBNJ Agreement, Indonesia Pushes to Accelerate Global Ocean Protection and Utilisation. Available at <https://kemlu.go.id/portal/en/read/4872/berita/through-bbnj-agreement-indonesia-pushes-to-accelerate-global-ocean-protection-and-utilisation>

⁷²⁷ Ibid

international waters is clearly documented in various sessions of the BBNJ Agreement negotiations. The Indonesian National Team, which negotiated the BBNJ Agreement, consisted of negotiators from the Coordinating Ministry for Maritime Affairs and Investment, Ministry of Foreign Affairs, Ministry of Maritime Affairs and Fisheries, Ministry of Environment and Forestry, Permanent Representative of the Republic of Indonesia in New York, and experts from the National Research and Innovation Agency, as well as the Indonesian Navy Hydrographic and Oceanographic Center, all actively participated in the negotiations to ensure that Indonesia's position was accommodated in the BBNJ Agreement.⁷²⁸ The Indonesian National Team also actively pushed for biotechnology to be an integral aspect of technology transfer to developing countries. Initially challenged by developed countries, this proposal was eventually accepted in the session following the Indonesian delegation's intervention. In preparing for the government's position, the National Team also involved academics from Universitas Padjajaran, Universitas Parahyangan and Universitas Indonesia. In addition to advocating equal opportunities for developing countries, Indonesia also succeeded in ensuring that the largest genetic resource in the ocean, namely fish, which is utilised in biotechnology activities, is not

⁷²⁸ Ibid

exempted from the regime of benefit-sharing among all countries, particularly developing countries. Strategically,⁷²⁹ Indonesia's independent and active diplomacy allowed Indonesian negotiators to play a central yet neutral and facilitative role in the BBNJ Agreement negotiations. In discussing the article related to the exception of disputed areas in the establishment of conservation areas on the high seas, Indonesia's neutral position allowed for substantive and conclusive dialogues among the relevant parties, particularly China, Vietnam, the Philippines, the European Union, and the United States.⁷³⁰

The solidarity of the Indonesian National Team in advocating national interests was supported by discussions over the past 5 years among relevant ministries/institutions under the coordination of the Coordinating Ministry for Maritime Affairs and Investment. In addition, the trust given by the leaders of the ministries/institutions to the negotiators and scientists involved in the National BBNJ Team allowed Indonesia to prepare determined and steadfast negotiators in advocating Indonesia's interests and the well-being of humanity in the future. Indonesia will continue to play a crucial role in various multilateral discussions in other forums and prepare itself to maximise the benefits of the agreed BBNJ Agreement. The Coordinating

⁷²⁹ Ibid

⁷³⁰ Ibid

Ministry of Maritime Affairs and Investment will continue to coordinate the Indonesian National BBNJ Team in formulating strategic implementation measures for the provisions of the BBNJ Agreement.⁷³¹

4. Developing Countries Efforts for Improving Equitable Access and Utilization of MGRs in ABNJ

a. Encouraging Investment in MGRs Utilization Activities in ABNJ

Deep-sea resources hold significant commercial value, particularly in the fields of healthcare, industry, and environmental remediation. In pharmaceutical applications, organisms sourced from the deep seabed have shown promise in developing treatments for prevalent diseases like malaria, tuberculosis, and HIV/AIDS, which are particularly widespread in developing States.⁷³² However, the economic benefits of utilizing MGRs are not immediately realized upon resource extraction. States must invest in extensive research, a costly and time-consuming process, to unlock potential financial gains. Developing States often face challenges in allocating capital to such risky scientific endeavors without guaranteed returns,⁷³³

⁷³¹ Ibid

⁷³² J. M. Arrieta et al., 'What lies underneath: Conserving the oceans' genetic resources' (2010), PNAS, Vol. 107, no. 43, p. 18318; See also Callum Roberts et al., 30x30: a blueprint for ocean protection, Greenpeace International (2019), p. 18320

⁷³³ Report from the United Nations Development Program (UNDP), 'The New Gold Rush: Bioprospecting', June 30, 2022.

Moreover, a concerning trend has emerged where certain entities patent innovations derived from MGRs, leading to substantial financial gains for those who invest in these patents. However, this practice predominantly benefits private actors from major industrialized States, creating disparities in monetary and non-monetary gains among nations.⁷³⁴ Studies indicate that a significant majority of patents up to 90% are associated with ten industrialized nations, with Japan, the USA, and Germany leading the ownership, surpassing 70%.⁷³⁵ Developing countries should invest in building their research and educational institutions to maintain, update infrastructure, and strengthen human capacity to assess, analyze, and utilize MGRs. This includes access to collections, data, and ocean-going vessels.⁷³⁶

The utilization of marine genetic resources (MGRs) in areas beyond national jurisdiction (ABNJ) is currently marked by significant imbalances. Developing countries often face challenges in accessing and utilizing these resources due to technological, financial, and capacity constraints. However, there are several strategies and measures that developing countries can adopt to encourage investment and create more equitable utilization of MGRs in ABNJ. These

⁷³⁴ Robert Blasiak et al., Op. Cit, p. 60.

⁷³⁵ M. Vierros et al., 'Who Owns the Oceans? Policy Issues Surrounding Marine Genetic Resources', Association for the Sciences of Limnology and Oceanography (2016), p. 3.

⁷³⁶ Rogers AD, et.al., Op. Cit.

measures can be understood through a comprehensive analysis of why this investment is crucial and how it can be effectively implemented.

There are several reasons why developing countries should encourage investment in MGRs utilization in ABNJ:

- 1) **Economic Potential:** MGRs hold immense potential for new biotechnological and pharmaceutical applications, which can drive economic growth. Utilizing MGRs can generate revenue through patents, products, and services derived from marine bioprospecting.
- 2) **Sustainable Development:** Accessing MGRs can diversify the economic base of developing countries, making them less reliant on traditional sectors like agriculture and mining (Resource Diversification). Sustainable utilization of MGRs can promote conservation efforts and sustainable practices in marine ecosystems.
- 3) **Technological Advancement:** Investment in MGRs utilization can foster technological advancements and scientific research capabilities within developing countries. It can stimulate innovation and technological development, leading to broader applications and improvements in various sectors.

While capacity-building is recognized as crucial within the Agreement, the text presents various unresolved issues concerning how to facilitate this, including whether it should be mandatory or

voluntary.⁷³⁷ This touches on a fundamental challenge identified in the Convention. The Agreement proposes a range of funding options for capacity-building, considering both voluntary and mandatory approaches, including public-private partnerships to support institutions and aid developing States in implementing the Agreement.⁷³⁸ Similar to the Convention, the draft text suggests that developing States parties should receive priority in receiving funds and technical assistance from international organizations.⁷³⁹ One proposed option is the creation of a voluntary trust fund to finance the participation of developing country participants in agreement-related bodies, and a special fund to support capacity-building projects and assist developing States in implementing the Agreement.⁷⁴⁰ Potential funding mechanisms discussed include the Global Environment Facility, the Green Climate Fund, and payments associated with accessing and using MGRs.⁷⁴¹ However, during the third session, differing opinions were voiced regarding the establishment of a

⁷³⁷ P. Bhatia and Archana Chugh, Role of marine bioprospecting contracts in developing access and benefit sharing mechanisms for marine traditional knowledge holders in the pharmaceutical industry, *Global Ecology and Conservation* 3 (2015-2017), p. 185.

⁷³⁸ A new market study published by Global Industry Analysts Inc., (GIA). Commented by PRNewswire, San Francisco, July 4, 2022.

⁷³⁹ Blasiak et al., *Op. Cit.*, p. 60.

⁷⁴⁰ M. Vierros et al., 'Who Owns the Oceans? Policy Issues Surrounding Marine Genetic Resources', *Association for the Sciences of Limnology and Oceanography* (2016), p. 3.

⁷⁴¹ Article 52(5) bis(e) of BBNJ Treaty.

special fund and the role of a future Conference of the Parties in allocating funding.⁷⁴²

As expected, during the session, developing countries strongly advocated for mandatory funding for capacity building, contrasting with the less enthusiastic stance on mandatory funding from delegations representing developed countries, including the European Union. There was little discussion about potential avenues to engage with the private sector and investment communities, such as linking finance provisions in the Agreement with initiatives like the UN's 'Principles of Responsible Investment' or the EU's 'Sustainable Blue Economy Finance Principles'. Without practical business approaches and appropriate funding mechanisms, especially for capacity building, it's challenging to see how the Agreement will effectively promote sustainability and growth.⁷⁴³ The scientific exploration of MGRs demands more than just a commitment to research; it requires substantial upfront investment. The benefits of this investment may only materialize towards the end of the process. Developing country governments must be willing to invest in promoting equal access to and utilization of MGRs in ABNJ. Such investments offer long-term prospects and align with Sustainable Development Goal 14 (SDG 14)

⁷⁴² UNGA, Statement by the President of the conference at the closing of the third session, UN doc. A/conf.232/2019/10*, 13 September 2019.

⁷⁴³ See at https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2018-03-08-befp-press-release_en.pdf

on the Blue Economy.⁷⁴⁴ Coastal communities, often facing poverty and limited resources, play a crucial role in the Blue Economy. Many of these communities are engaged in fishing, trade, and aquaculture. Challenges faced by these communities, including hunger and malnutrition, can potentially be addressed through investment in utilizing MGRs in ABNJ. This investment not only supports the Blue Economy agenda but also enhances the socio-economic well-being of coastal communities, yielding positive impacts beyond economic gains.

In addition, there are several efforts that developing countries can make in encouraging investment in MGRs utilization activities in ABNJ:

1. Capacity Building and Technological Transfer: Invest in training and educational programs to build expertise in marine biology, genetics, biotechnology, and related fields (training and education). Establish partnerships with developed countries, international organizations, and research institutions to facilitate technology transfer and collaborative research (international collaboration).
2. Financial Mechanisms and Incentives: Promote public-private partnerships to attract investment in marine genetic

⁷⁴⁴ Patil, P. G., Viridin, J., Diez, S. M., Roberts, J., & Singh, A. (2016). Toward the Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overvie. <https://openknowledge.worldbank.org/handle/10986/25061>

research and development. Also, secure funding from international bodies such as the Global Environment Facility (GEF), World Bank, and regional development banks to support MGRs projects.

3. Research and Development Infrastructure: Develop and enhance marine research facilities and laboratories equipped with advanced technologies for genetic research.
4. Awareness and advocacy: Conduct awareness campaigns to highlight the importance and potential of MGRs for sustainable development. Beside that, developing countries advocate for the interests of developing countries in international forums and negotiations to ensure fair access to MGRs and related technologies.

By implementing these strategies, developing countries can enhance their capacity to utilize MGRs in ABNJ, thereby promoting economic growth, technological advancement, and sustainable development.

Through international cooperation, legal frameworks, and strategic investments, they can achieve a more balanced and equitable utilization of marine genetic resources.

b. Strengthening International Cooperation and Partnership

Marine biodiversity in ABNJ demand positive obligations to cooperate, gather and share information, as well as potential

constraints, on individual activities that may compromise biodiversity. This cooperation should cover the fields of technology transfer, scientific research and development, collection and distribution of information and financial resources.⁷⁴⁵ Thus, the general obligation for states to cooperate highlights that all states affected by the proposed planned measure have equal right to cooperate and be cooperated with to ensure that optimal benefit is derived from the water as well as adequately protected from harm.⁷⁴⁶ This cooperation must however be carried out based on sovereign equality which does not mean economic and political equality but refers to the equality of rights based on the sovereignty of the states. Cooperation among states must also be based on mutual benefit, territorial integrity as well as good faith.⁷⁴⁷ The principle of equitable participation recognizes that it is only through the cooperation of states that equitable and reasonable utilization can be achieved. It implies intentionality in cooperation among states.⁷⁴⁸ Thus, Developing countries should strengthen international cooperation and collaboration in marine

⁷⁴⁵ Richard A. Barnes. (2012). "Consolidating Governance Principles for Areas beyond National Jurisdiction". *The International Journal of Marine and Coastal Law* 27, 261–290. Martinus Nijhoff Publishers: The Law School, University of Hull, UK. p. 266.

⁷⁴⁶ McIntyre O. The current state of development of the no significant harm principle: How far have we come? *International Environmental Agreements: Politics, Law and Economics*. 2020

⁷⁴⁷ Isabela Battistello Espíndola and Wagner Costa Ribeiro. 2020. "Transboundary waters, conflicts and international cooperation". Examples of the La Plata basin, *Water International*; <https://doi.org/10.1080/02508060.2020.1734756>.

⁷⁴⁸ Hussein H, Menga F, Greco F. (2018). "Monitoring transboundary water cooperation in SDG 6.5.2: how a critical hydropolitics approach can spot inequitable outcomes". *Sustainability*. 2018;10(10):3640. <https://doi.org/10.3390/su10103640>

scientific research and benefit-sharing, including sharing knowledge, capacity-building, and technology transfers arising from research on MGRs in ABNJ.⁷⁴⁹

To enhance knowledge about biological diversity in ABNJ, international cooperation is essential. The implementation of UNCLOS Articles 242 and 243 can play a key role in fostering this cooperation. The previous draft text of the BBNJ agreement emphasizes promoting international cooperation in marine scientific research and technology development and transfer, aligned with the convention's objectives.”⁷⁵⁰ Engaging research groups and relevant stakeholders globally is vital for comprehensive understanding of ABNJ biological diversity. International support is crucial for ongoing and future research efforts to bridge knowledge gaps, especially in challenging areas. Increased knowledge sharing can stimulate political commitment, leading to enhanced research capacity and technology transfer.⁷⁵¹ International financial cooperation is pivotal to ensure equitable access and benefit-sharing. Economic and financial disparities remain primary challenges in addressing these issues. Therefore, fostering international collaboration and financial support

⁷⁴⁹ Rogers AD, et.al. (2021). Marine Genetic Resources in Areas Beyond National Jurisdiction: Promoting Marine Scientific Research and Enabling Equitable Benefit Sharing. *Front. Mar. Sci.* 8:667274. doi: 10.3389/fmars.2021.667274

⁷⁵⁰ UNGA, Article 6, [3], p. 8.

⁷⁵¹ Moritz Bollmann, et al, 'World Ocean Review: Living with the Oceans', Hamburg, Germany, Maribus 2010, GmbH 236 pp. 176-195. P. 178.

is crucial for effective exploration and management of ABNJ biological diversity.

Part XIII of UNCLOS 1982 emphasizes the promotion of international cooperation in marine scientific research for peaceful purposes by states and competent international organizations”.⁷⁵² This collaborative approach is further echoed in Article 143, which encourages cooperation in scientific research conducted in the Area.⁷⁵³ Effective international cooperation also necessitates the adoption of best research practices among states to enhance capacity building.⁷⁵⁴ Additionally, sharing marine technology enhances opportunities for developing states to actively participate in research endeavors. Due to monetary cooperation faces many challenges and not all countries have the same views regarding this form of cooperation. Cooperation that is effective and widely supported by the majority of countries is a form of non-monetary cooperation, including:⁷⁵⁵

1. *Sharing research and development outcomes.*
2. *Collaborating, cooperating, and contributing to scientific research and development programs, especially in biotechnological research, where feasible in the country providing genetic resources.*
3. *Participating in product development.*
4. *Collaborating, cooperating, and contributing to education and training initiatives.*

⁷⁵² Article 242(1) of UNCLOS

⁷⁵³ T. Scovazzi, Op. Cit, p. 2.

⁷⁵⁴ EU Regulation 511/2014 expresses that the States maintain their obligations under the EU's ABS regulation by exercising "best practice" according to Article 8.

⁷⁵⁵ Annex of Nagoya Protocol.

5. *Enhancing capacities for technology transfer.*
6. *Strengthening institutional capacity.*

Articles 268 and 269 of UNCLOS 1982 advocate for various measures including: Acquiring, evaluating, and sharing marine technological knowledge and technology. Developing human resources through training and education programs for nationals of developing States and countries. Facilitating the exchange of scientists, technological experts, and other professionals. Supporting joint ventures and other forms of bilateral and multilateral cooperation in marine scientific research and technology development.

Developing countries can collaborate with developed countries and international organizations to build their scientific and technical capacities for researching and utilizing MGRs. This can involve training scientists, exchanging knowledge and expertise, and facilitating technology transfer to enable developing countries to participate fully in MGR-related activities. Like the efforts made by South Africa, developing countries should also encourage cooperative efforts with developed countries, starting from the exchange of knowledge, scientists, and researchers.⁷⁵⁶ This would stand as an example of these countries to fulfilled their obligations to ensure their peoples' human right to science in several ways, including the

⁷⁵⁶ Lothar Gündling & D Navid, Compliance assistance in international environmental law: capacity-building through financial and technology transfer, 56 ZEITSCHRIFT FÜR AUSLÄNDISCHES ÖFFENTLICHES RECHT UND VÖLKERRECHT (1996) at p. 808.

development of international contacts and cooperation in ocean science.⁷⁵⁷ Beside that, developing countries can engage in “South-South cooperation” initiatives to share experiences, best practices, and resources related to the utilization of MGRs. This cooperation is essential for developing countries, as they often lack the resources and expertise to fully utilize and manage MGRs effectively on their own.⁷⁵⁸ Key aspects of South-South cooperation in this context include:⁷⁵⁹

- 1) **Capacity Building:** Developing countries can share their experiences, expertise, and best practices in managing MGRs, enabling other countries to build their capacity and improve their management of these resources.
- 2) **Knowledge Sharing:** South-South cooperation facilitates the exchange of knowledge, technologies, and methodologies among developing countries, enhancing their ability to manage MGRs effectively and sustainably.

⁷⁵⁷ Paragraph 45 General comment No. 25 (2020) on science and economic, social and cultural rights (article 15 (1) (b), (2), (3) and (4) of the International Covenant on Economic, Social and Cultural Rights.

⁷⁵⁸ United Nations Office for South-South Cooperation. (2018). Good Practices in South-South and Triangular Cooperation for Sustainable Development - Volume 2.

⁷⁵⁹ United Nations SSC/18/1. (2014). South-South cooperation for development: Review of progress made in implementing the Buenos Aires Plan of Action, the new directions strategy for South-South cooperation and the Nairobi outcome document of the High-level United Nations Conference on South-South Cooperation, taking into account the complementary role of South-South cooperation in the implementation of relevant major United Nations conferences in the social, economic and related fields. High-level Committee on South-South Cooperation Eighteenth session.

3) **Technical Cooperation:** Developing countries can provide technical assistance and support to other countries, helping them to develop their own capacity to manage MGRs and ensuring that these resources are utilized in a sustainable manner.

4) **Policy and Institutional Cooperation:** South-South cooperation can also involve policy and institutional cooperation, where developing countries share their policies and institutional frameworks for managing MGRs, helping other countries to develop their own policies and institutions.

5) **Regional and International Cooperation:** South-South cooperation can be extended to regional and international levels, where developing countries collaborate with other countries and international organizations to address common challenges and opportunities related to MGRs in ABNJ.

Examples of South-South cooperation in the context of MGRs in ABNJ include:

a. **The Convention on Biological Diversity (CBD):** The CBD promotes South-South cooperation among developing countries to support the conservation and sustainable use of MGRs in ABNJ.⁷⁶⁰

⁷⁶⁰ Convention on Biological Diversity. UNEP/CBD/BM-SSC/1/2/Rev. 2 23 October 2006. Brainstorming Meeting on South-South Cooperation on Biodiversity: Elements For A Multi-Year Plan of Action For South-South Cooperation on Biodiversity For Development.

b. **The International Seabed Authority (ISA):** The ISA facilitates South-South cooperation among developing countries in the management of MGRs in ABNJ, ensuring that these resources are utilized in a sustainable and equitable manner.⁷⁶¹

c. **Regional and International Agreements:** Regional and international agreements, such as the BBNJ Agreement, promote South-South cooperation among developing countries in the management of MGRs in ABNJ, ensuring that these resources are utilized in a sustainable and equitable manner.

By collaborating with other developing countries facing similar challenges, they can strengthen their collective capacity and leverage each other's strengths which leads to greater innovation as it provides opportunities for developing countries to learn from each other and share best practices.⁷⁶² Thus, foster partnerships with other countries, international organizations, and private sector entities to facilitate technology transfer, knowledge sharing, and joint research initiatives related to marine genetic resources.

An example of benefit-sharing can be observed in the International Treaty on Plant Genetic Resources for Food and Agriculture, which is fostering a structured multilateral approach to

⁷⁶¹ Ibid

⁷⁶² United Nations Industrial Development Organization (UNIDO). "South-South Cooperation". Available at <https://www.unido.org/south-south-cooperation>

support information-sharing and capacity building. The development of a Global Information System (GLIS) aims to enhance existing information systems by promoting interoperability and creating a mechanism to monitor effectiveness and progress. GLIS also actively identifies opportunities for all to contribute to scientific research, offering capacity development and technology transfer. This demonstrates the potential of institutionalized approaches to meet the needs of beneficiaries of information-sharing, oversee benefit distribution across regions, and foster systematic capacity building. Consequently, Material Transfer Agreements (MTAs) play a crucial role in implementing benefit distribution in genetic resource utilization, ensuring compliance with relevant regulations.

To sum up, developed and developing countries should cooperate and synergize efforts to realize equal access and benefit-sharing in the utilization of marine genetic resources (MGRs) in areas beyond national jurisdictions (ABNJ). Marine genetic resources represent a common heritage of humankind, and all countries have the right to access and utilize these resources for their development. However, unequal access and benefit-sharing arrangements can perpetuate disparities between developed and developing countries.

Cooperation ensures that benefits derived from the utilization of MGRs are shared equitably, contributing to global equity and social justice. Collaboration between developed and developing countries

facilitates scientific research and innovation in MGRs exploration and utilization. By combining resources and expertise, countries can conduct more comprehensive studies, develop new technologies, and unlock the potential of marine genetic resources for various applications, including medicine, biotechnology, and environmental remediation. Furthermore, Cooperation on the utilization of marine genetic resources aligns with several Sustainable Development Goals, especially Goal 14 (Life Below Water). By promoting international cooperation and partnership, countries can contribute to achieving these goals and advancing global efforts towards sustainable development and environmental stewardship. Thus, by collaborating and synergizing their efforts, developed and developing countries can work together to realize equal access and benefit-sharing in the utilization of marine genetic resources in areas beyond national jurisdictions. This cooperation is essential for achieving sustainable development goals and promoting the conservation and responsible use of MGRs for the benefit of present and future generations.

CHAPTER IV

CLOSING

A. CONCLUSION

1. Marine Genetic Resources (MGRs) hold significant commercial and scientific promise. However, current regulatory frameworks like the CBD and the Nagoya Protocol mainly address resources within national jurisdiction, leaving a gap for resources in ABNJ. UNCLOS also faces challenges in regulating these ABNJ areas due to undefined terms and uncertain provisions. There are several reasons why does the current international legal framework have to guarantee the equitability among developed and developing countries. First, MGRs in. Given that ABNJ embodies both the principle of freedom of the high seas and the concept of the common heritage of mankind. Currently, it's already stated in the Article 5 and 9 of BBNJ Treaty that genetic resources are regarded in the international law doctrine as part of common heritage of mankind, or collective genetic property, that is available to everyone. By uniting the view that MGRs in ABNJ includes global common means that should not be unilaterally exploited by individual states or private organizations, but rather should be used for the benefit of global humankind. Consequently, exploit countries obligate to share the result of bioprospecting. Second, Promoting Sustainable Development Goals. The equitable sharing of benefits from the utilization of MGRs in ABNJ is crucial to SDG 14 which can contribute to the conservation and sustainable

use of marine biodiversity. This also linked up to others SDGs development, for instance SDG 3, SDG 4, SDG 10, SDG 17, etc. Third, Uphold Fair and Equitable Benefit-sharing. Equitable access frameworks aimed to address the power imbalance and promote more inclusive and balanced participation in the utilization of MGRs. This means establishing transparent and non-discriminatory procedures for obtaining access to MGRs, regardless of a country's economic or technological capacity. Equity ensures that all countries, particularly those with limited resources and capacities, have a fair opportunity to participate in and benefit from activities related to MGRs. This promotes fairness and justice in the global governance of marine resources.

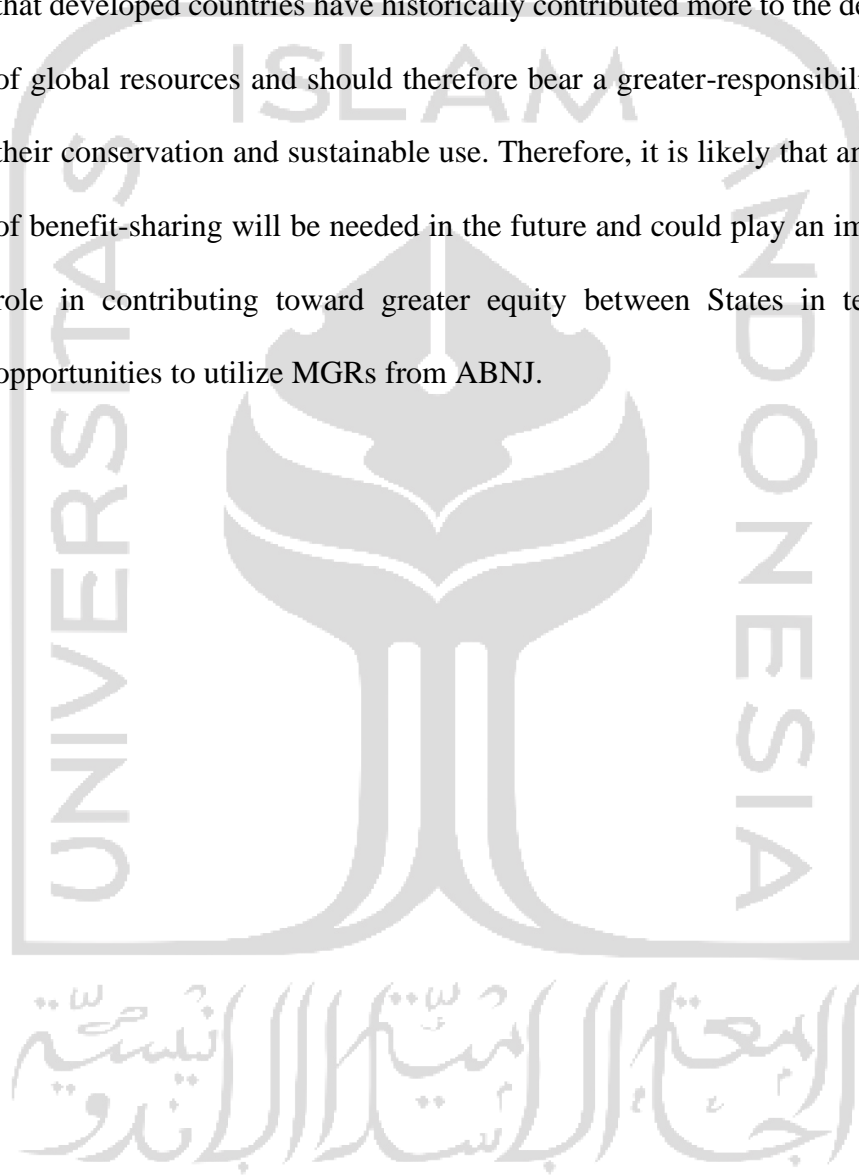
2. Significant disparities exist in research and access capabilities among states, driven by economic, scientific, and technological factors. These differences are particularly pronounced between developed and developing states. Therefore, there must be some efforts of developing countries for improving equitable access and utilization of MGRs in ABNJ. First, encouraging Investment in MGR Utilization Activities in ABNJ. Developing countries must dare to invest in building their research and educational institutions to maintain, update infrastructure, and strengthen human capacity to assess, analyze, and utilize MGRs. This investment has a long term that has good prospects and supports SDG 14 as well as Blue Economy commitment which can also improve the socio-economic quality of the community and other positive impacts. Second, Strengthening International Cooperation

and Partnership. Developing countries should strengthen international cooperation with developed countries and international organizations to build their scientific and technical capacities for researching and utilizing MGRs. This can involve training scientists, exchanging knowledge and expertise, and facilitating technology transfer to enable developing countries to participate fully in MGR-related activities. Other than that, developing countries can engage in “South-South cooperation” initiatives to share experiences, best practices, and resources related to the utilization of MGRs.

B. SUGGESTION

1. Developing countries should invest in building their research and educational institutions to maintain, update infrastructure, and strengthen human capacity to assess, analyze, and utilize MGRs. Developing country governments must dare to invest in a commitment to have equality in the utilization of MGRs in ABNJ. Because this investment has a long term that has good prospects and supports SDG 14 or Blue Economy, which can also improve the technology development and socio-economic quality of the community and other positive impacts.
2. Developed and developing countries should cooperate and synergize efforts to realize equal access and benefit-sharing in the utilization of Marine Genetic Resources (MGRs) in Areas Beyond National Jurisdictions (ABNJ). While developing countries are improving their quality and making efforts to improve equitable access and utilization of MGRs in ABNJ,

developed countries must also continue to assist developing countries in the form of monetary or non-monetary benefits. This is also based on the principles of Common but Differentiated Responsibilities, which recognizes that developed countries have historically contributed more to the depletion of global resources and should therefore bear a greater-responsibilities for their conservation and sustainable use. Therefore, it is likely that any types of benefit-sharing will be needed in the future and could play an important role in contributing toward greater equity between States in terms of opportunities to utilize MGRs from ABNJ.



BIBLIOGRAPHY

A. BOOKS

- Third World Network. (2005). *Pengelolaan Lingkungan Internasional dari Sudut Pandang Negara Sedang Berkembang*. Yogyakarta: Cinderalas Pustaka Rakyat Cerdas.
- Howard Mann. (1991). *International Environmental Law*, Alexandre Kiss and Dinah Shelton, New York: Transnational Publishers, Inc., 1991, Yearbook of International Environmental Law, Volume 2, Issue 1, 1991.
- Chinthaka Mendis. (2006). 'Sovereignty vs. trans-boundary environmental harm: The evolving International law obligations and the Sethusamuduram Ship Channel Project'. United Nations/Nippon Foundation Fellow Paper.
- Tim Stephens and Donald R. Rothwell. 2015. 'Marine Scientific Research', The Oxford Handbook of the Law of the Sea, Oxford University Press.
- Donald Rothwell and Tim Stephens. (2010). "The International Law of the Sea".
- Rudolph Preston Arnold. 1975. *The Common Heritage of Mankind as a Legal Concept*, The International Lawyer, Vol. 9, No. 1.
- Davlembayeva, D. & Alamanos, E. (2023). *Equity Theory: A review*. In S. Papagiannidis (Ed), TheoryHub Book.
- Roland Klager. (2013). "Fair and Equitable Treatment in International Investment Law". Cambridge University Press.
- Evanson Chege Kamau. (2022). "Transformations in International Law on Access To Genetic Resources and Benefit-Sharing and Domestic Implementation. Introduction, Synthesis, Observations, Recommendations and Conclusions," IUS Gentium 95.
- Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et al. 2020. *The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources*. Washington, DC: World Resources Institute.
- Blasiak, R., J.-B. Jouffray, C.C.C. Wabnitz, E. Sundström and H. Österblom. 2018. "Corporate Control and Global Governance of Marine Genetic Resources." Science Advances 4 (6).

- Dr. Suparto Wijoyo, Dr. Aan Efendi. (2022). *“Hukum Lingkungan Internasional”*. Jakarta: Sinar Grafika.
- Greiber, T. (2012). *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-Sharing*. 83. Gland, Switzerland: International Union for Conservation of Nature.
- Aaron M Riggio. (2016). *“Giving Teeth To The Tiger: How The South China Sea Crisis Demonstrates The Need For Revision To The Law Of The Sea,”* Military Law Review 224.
- United Nations Office for South-South Cooperation. (2018). *Good Practices in South-South and Triangular Cooperation for Sustainable Development*. Volume 2.
- Cranor, Carl. F. (1999). *Asymmetric Information, the Precautionary Principle, and Burdens of Proofs*, in Carolyn Raffensperger and Joel A. Tickner, *Protecting Public Health and the Environment: Implementing the Precautionary Principle*, Washington DC: Island Press.
- Wibisana, M.R.A.G. (2008). *Law and Economic Analysis of the Precautionary Principle*. Desertasi Doktor Maastricht University, Maastricht.
- Freestone, David & Ellen Hey. (1996). *Origins and Development of the Precautionary Principle, dalam The Precautionary Principle and International Law, The Challenge of Implementation*. Hague: Kluwer Law International.
- S. Nasution. (2011). *Metode Research (Penelitian Ilmiah) usulan Tesis, Desain Penelitian, Hipotesis, Validitas, Sampling, Populasi, Observasi, Wawancara, Angket*, (PT. Bumi Aksara, Jakarta, Cetakan ke-4).
- Soerjono Soekanto dan Sri Mamuji. (2001). *Penelitian Hukum Normatif (Suatu Tinjauan Singkat)*, Rajawali Pers, Jakarta.
- Peter Mahmud Marzuki. (2005). *Penelitian Hukum*, Prenada Media, Jakarta.
- Paul A Berkman. (2010). *“Biodiversity stewardship in international spaces”*, 8(3) Systematics and Biodiversity.
- Mar Campins Eritja. (2017). *“Bio-Prospecting in the Arctic: An Overview of the*

Interaction Between the Rights of Indigenous Peoples and Access and Benefit Sharing,” Boston College Environmental Affairs Law Review 44, no. 2.

- Peter Mahmud Marzuki, (2016). “*Penelitian Hukum Normatif dalam Justifikasi Teori Hukum*”, Prenada Media Group, Jakarta.
- Soetandyo Wignjosoebroto, (2020). “*Hukum: Konsep dan Metode*”, Setara Press, Malang.
- Greiber, T. (2012). “*An Explanatory Guide to the Nagoya Protocol on Access and Benefit-Sharing*”. 83. Gland, Switzerland: International Union for Conservation of Nature.
- Frederiech Soltau, (2016), ‘*Common Concern of Humankind*’, The Oxford Handbook of International Climate Change Law, Oxford University Press.
- Kemal Baslar, (1997). “*The Concept of the Common Heritage of Mankind in International Law*”, Developments in International Law, Volume: 30.
- Isabel Feichtner. (2007). “*Community Interest*”. Max Planck Encyclopedia of Public International Law.
- Chelsea Bowling, Elizabeth Pierson and Stephanie Ratté. (2018). “*The Common Concern of Humankind: A Potential Framework for a New International Legally Binding Instrument on the Conservation and Sustainable Use of Marine Biological Diversity in the High Seas.*”
- H. Harden-Davies. (2016). “*The Regulation of Marine Scientific Research: Addressing Challenges, Advancing Knowledge*”, in: Warner and Kaye (eds.), Routledge Handbook of Maritime Regulation and Enforcement (London and New York, Routledge).
- Oldham, P., S. Hall, C. Barnes, C. Oldham, M. Cutter, N. Burns and L. Kindness. (2014). “*Valuing the Deep: Marine Genetic Resources in Areas Beyond National Jurisdiction*”. London, UK: Department for Environment, Food and Rural Affairs.
- D Tladi. (2017). ‘*Conservation and Sustainable Use of Marine Biodiversity in*

- Areas beyond National Jurisdiction: Towards an Implementing Agreement*' in R Rayfuse (ed), *Research Handbook of International Marine Environmental Law*.
- M. Tvedt, T, Young, (2007). *"Beyond Access: Exploring the Implementation of the Fair and Equitable Sharing Commitment in the CBD"*. IUCN Environmental Policy and Law Paper No. 67/2, Bonn Germany, IUCN Environmental Law Centre.
- Philippe Cullet. (2015). 'Principle 7: Common but Differentiated Responsibilities' in Jorge E. Viñuales ed., *The Rio Declaration on Environment and Development: A Commentary* (Oxford: Oxford University Press).
- Österblom, H., Wabnitz, C.C.C. and Tladi, D. et al. (2020). *"Towards Ocean Equity"*. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/how-distribute-benefits-ocean-equitably.
- Glowka, L. (1996). *'The Deepest of Ironies: Genetic Resources, Marine Scientific Research, and the Area'*. *Ocean Yearbook* 12: 154-162.
- Michael Banks, et al., (2017). *'Use of Marine Genetic Resources'*, The First Global Integrated Marine Assessment (First World Ocean Assessment), United Nations General Assembly – A Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects, United Nations, New York, Cambridge University Press, Chapter 29.
- Joseph R Gusfield, (1984). *"The Culture of Public Problems: Drinking-Driving and The Symbolic Order"*. University of Chicago Press.
- J. M. Arrieta et al., (2010). *'What lies underneath: Conserving the oceans' genetic resources'*, *PNAS*, Vol. 107, no. 43.
- Callum Roberts et al., (2019). *"30x30: a blueprint for ocean protection"*, Greenpeace International.
- Blasiak, R., R. Wynberg, K. Grorud-Colvert, S. Thambisetty, et al. (2020). *"The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources"*. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/blue-papers/ocean-

genome-conservation-andfair-equitable-and-sustainable-use-marine-genetic

- Gündling, L., & Navid, D. (1996). “*Compliance assistance in international environmental law: capacity-building through financial and technology transfer*”. *Zeitschrift für ausländisches öffentliches Recht und Völkerrecht*, 56, 796-809.
- Dhiana Puspitawati. (2017). “*Hukum Laut Internasional*”. Edisi Kedua Cetakan ke IV. Depok: Kencana.
- Mochtar Kusumaatmadja dan Etty R.Agoes. (2003). “*Pengantar Hukum Laut Internasional*”. Pusat Studi Wawasan Nusantara, Hukum dan Pembangunan. P.T. Alumni, Bandung.
- Bähr, U., et al. (2017). *Ocean Atlas - Facts and Figures on the Threats to Our Marine Ecosystems*. Bonifatius GmbH Druck – Buch – Verlag, Paderborn. 1st edition, May 2017.
- Brian Opeskin and Martin Tsamenyi. (2006). “*The law of the Sea*”, in Sam Blay, Ryszard and Martin Tsamenyi (eds). *Public International Law: An Australian Perspective (Second Edition)*. Oxford University Press.
- Huala Adolf. (2002). “*Aspek-Aspek Negara Dalam Hukum Internasional*”. Jakarta: Raja Grafindo Persada.
- Mochtar Kusumaatmadja. (1983). “*Hukum Laut Internasional*”. Bandung: Binacipta.
- J.L.Brierly. (1996). “*Hukum Bangsa-Bangsa*”, Jakarta: Bhratara.
- Churchill, R.R. and Lowe, A.V. (1999). “*Law of the Sea*”. Fourth Edition.
- J.G Starke. (2006). “*Pengantar Hukum Internasional*”, Jakarta: Sinar Grafika.
- Diantha, I Made Pasek. (2002). “*Zona Ekonomi Eksklusif Indonesia Berdasarkan Konvensi Hukum Laut PBB 1982*”. Denpasar: Mandar Maju.
- Ivan Shearer. (1986). “*Problems of Jurisdiction and Law Enforcement Against Delinquent Vessels*”. *International Comparative Law Quarterly*. Vol. 35.
- David Attard. (1987). “*The Exclusive Economic Zone in International Law*”. Clarendon Press Oxford.
- Robin Rolf Churchill and Alan Vaughan Lowe. (1983). “*The Law of the Sea*”. New

- Hampshire: Manchester University Press.
- T. May Rudy. (2002). *"Hukum Internasional 2"*. Bandung: Refika Aditama.
- Anwar, Chairul. (1989). *"Hukum Internasional Pengantar Hukum Bangsa-Bangsa"*. Jakarta: Djambatan.
- Robin Rolf Churchill and Alan Vaughan Lowe. (1999). *"The Law of The Sea"*. Manchester University Press ND.
- Prue Taylor and Lucy Stroud. (2013). *"Common Heritage of Mankind: A Bibliography of Legal Writing"*. LULU Press.
- Hurst D., Børresen T., Almesjö L., De Raedemaeker F., Bergseth S. (2016). *"Marine Biotechnology Strategic Research and Innovation Roadmap: Insights to the Future Direction of European Marine Biotechnology. Marine Biotechnology"*. ERA-NET; Oostende, Belgium.
- Jack N. Barkenbus. (1979). *Deep Seabed Resources: Politics and Technology*. The Free Press.
- Arvid Pardo. (1975). *'The Common Heritage: Selected Papers on Oceans and world order 1967-1974'*, Malta University Press.
- Jean Buttigieg. (2012). *'The Common Heritage of Mankind – From the Law of the Sea to the Human Genome and Cyberspace'*, University of Malta.
- Jutta Brunnée, *'Common Areas, Common Heritage and Common Concern'*, The Oxford Handbook of International Environmental Law, Oxford University Press.
- Rudiger Wolfrum. (2010). *"The Common Heritage of Mankind"*. Max Planck Encyclopedia of Public International Law.
- R. Barnes, *'Fisheries and Biodiversity'* in M. Fitzmaurice, D. Ong and P. Merkouris (eds.), *Research Handbook on International Environmental Law* (Edward Elgar, Cheltenham, 2010).
- Edith Brown Weiss, *"Environmental Equity: The Imperative for the Twenty-first Century,"* in *Sustainable Development and International Law*, ed. W. Lang (London: Martinus Nijhoff Publishers, 1995).
- Philippe Sands. (2003). *Principles of International Environmental Law*, 2nd ed. Cambridge: Cambridge University Press.

- Emmy Latifah. (2016). *“Precautionary Principle sebagai Landasan dalam Merumuskan Kebijakan Publik,”* Yustisia 5, No. 2.
- Dr. Khaidir Anwar, S.H., M.H. (2015). *Hukum Laut Internasional Dalam Perkembangan.* Bandar Lampung: Justice Publisher.
- L. Rajamani. *“The Nature, Promise, and Limits of Differential Treatment in the Climate Regime”*, in Ole Kristian Fauchald & Jacob Werksman (Eds.), *Year Book of International Environmental Law*, (London: Oxford University Press 2005), vol. 16.
- David Hunter, James Salzman, Durwood Zaelke, (1998), *International Environmental Law and Policy*, Foundation Press, New York.
- Rosalind Malcolm. (1994). *A Guidebook Environmental Law* (London: Sweet & Maxwell, 1994).
- Istianah. (2015). *“Upaya Pelestarian Lingkungan Hidup Dalam Perspektif Hadis”*. Riwayah: Vol. 1, No. 2.
- Adnan Harahap, Ishak Manany, Isa Anshari dkk. (1997). *“Islam dan Lingkungan Hidup”*. Jakarta: Penerbit Yayasan Swarna Bhumi.
- Aaron M Riggio, *“Giving Teeth To The Tiger: How The South China Sea Crisis Demonstrates The Need For Revision To The Law Of The Sea,”* Military Law Review 224 (2016).
- M.G. Jennings. (1994). *“Surveillance, and Control on Marine Resources”*. In OECD Documents on Fisheries Enforcement Issues, Paris.
- Louis B. Sohn and John E. Jones. (2004). *“Cases and Materials of the Law of the Sea”*. (Ardsley, New York: Transnational Publishers).
- Farhana Yamin dan Joanna Depledge. (2004). *“The International Climate Change Regime: A Guide to Rules, Institutions and Procedures”*. (Cambridge: Cambridge University Press, 2004).
- Ziauddin. (1988). *“The Touch of Midas, Science, Values, and Environment in Islam and the West”*. Selangor: Pelanduk Publications.
- Mujiono Abdillah. (2001). *“Agama Ramah Lingkungan Perspektif al-Quran”*, (Jakarta: Paramadina).

- Mukhlisin. (2011). *“Menjaga Kelestarian Lingkungan Hidup dalam Perspektif Islam”*. Yogyakarta: Elsaq Press.
- Hrynkow, Christopher. (2014). *“Ecology and Islam.”* In Muhammad in History, Thought, and Culture: An Encyclopedia of the Prophet of God, Volume 1, 157-161. Santa Barbara, CA and Oxford: ABC-CLIO.
- Konting, A. (2020). *“Panduan Praktis Pengelolaan Lingkungan Berbasis Islam”*. Jakarta: Kencana.

B. JOURNALS

- Sri Wartini. (2022). *“The Legal Lacunae of UNCLOS and CBD to The Access and Benefit Sharing of Marine Genetic Resources in The Area Beyond National Jurisdiction”*. *Varia Justicia*: Vol. 18 No. 1.
- Fernando de la Calle. (2009). *“Marine Genetic Resources. A Source of New Drugs The Experience of the Biotechnology Sector”*, 24(2) *The International journal of Marine and Coastal Law*.
- Mar Campins Eritja. (2017). *“Bio-Prospecting in the Arctic: An Overview of the Interaction Between the Rights of Indigenous Peoples and Access and Benefit Sharing,”* *Boston College Environmental Affairs Law Review* 44, No. 2.
- De Jonge, B. (2011). *“What Is Fair and Equitable Benefit-sharing?”* *Journal of Agricultural & Environmental Ethics*, 24.
- Siavash Mirzaee. (2017). *“The Conceptual Foundations of the Common Heritage of Mankind,”* *Eurasian Law Journal*, no.10.
- Russell, L. (2009). *“The Future of the Seabed. Economic Affairs”*, 29.
- Schoenberg, P.L. (2009). *“Polarizing Dilemma: Accessing Potential Regulatory Gap-Filling Measures for Arctic and Antarctic Marine Genetic Resources Access and Benefit Sharing”*. *Cornell International Law Journal*
- Paul Arthur Berkman. (2010). *“Biodiversity stewardship in international spaces, Systematics and Biodiversity”*, 8:3.

- P. Birnie. 1995. 'Law of the Sea and Ocean Resources: Implications for Marine Scientific Research' 10 International Journal of Marine and Coastal Law.
- Waseem Ahmad Qureshi. (2019). "Protecting the Common Heritage of Mankind beyond National Jurisdiction," Arizona Journal of International and Comparative Law 36, No. 1.
- Jonathan M. Harris. (2000). "Basic Principles of Sustainable Development", Working Paper 00-04, Global Development and Environment Institute.
- Christopher D. Stone. "Common but Differentiated Responsibilities in International Law". The American Journal of International Law, Vol. 98.
- Chris World. (2008). *The Status of Sea Turtles under International Environmental Law and International Environmental Agreements*, Journal of International Wildlife Law and Policy.
- E. Tourme-Jouannet. (2013). "What Is a Fair International Society? International Law between Development and Recognition". Oxford: Hart Publishing.
- J. M. Arrieta et al. (2010). 'What lies underneath: Conserving the oceans' genetic resources', PNAS, Volume 107, No. 43.
- Lodge, M.W. (2012). "The Common Heritage of Mankind". The International Journal of Marine and Coastal Law, 27.
- Angelica Bonfanti and Seline Trevisanut. (2011). "TRIPS on the High Seas: Intellectual Property Rights on Marine Genetic Resources," Brooklyn Journal of International Law 37, No. 1.
- L Glowka. (2014). "Marine genetic resources within and beyond the limits of national jurisdiction: challenges and opportunities posed by existing and emerging international legal frameworks and processes". In MC Ribeiro (ed), 30 Years After the Signature of the United Nations Convention on the Law of the Sea: The Protection of the Environment and the Future of the Law of the Sea. Coimbra Editora, Coimbra 251–290.
- Alex G. Oude Elferink. (2007). 'The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas', The International Journal of Marine and Coastal Law, Vol 22, No. 1.

- Lisa A Levin and Myriam Sibuet. (2012). *'Understanding Continental Margin Biodiversity: A New Imperative'*. 4(1) Annual review of marine science 79.
- E RamirezLlodra et al. (2010). *'Deep, diverse and definitely different: unique attributes of the world's largest ecosystem'*, 7(9) Biogeosciences.
- Friederike Lehmann. (2007). *"The Legal Status of Genetic Resources of the Deep Seabed,"* New Zealand Journal of International Law 11, no. 33.
- Thornburg, C.C., J.R. Britt, J.R. Evans, R.K. Akee, J.A. Whitt, S.K. Trinh, M.J. Harris, et al. 2018. *"NCI Program for Natural Product Discovery: A Publicly-Accessible Library of Natural Product Fractions for HighThroughput Screening."* ACS Chemical Biology 13 (9): 2484–97.
- Alves, C., J. Silva, S. Pinteus, H. Gaspar, M.C. Alpoim, L.M. Botana and R. Pedrosa. 2018. *"From Marine Origin to Therapeutics: The Antitumor Potential of Marine Algae-Derived Compounds."* Frontiers in Pharmacology 9.
- Arnaud-Haond, S., J.M. Arrieta and C.M. Duarte. 2011. *"Marine Biodiversity and Gene Patents."* Science 331 (6024).
- Tolochko, P., & Vadrot, A. B. (2021). *The usual suspects? Distribution of collaboration capital in marine biodiversity research.* Marine Policy, 124, 104318.
- Vadrot, A., Langlet, A., Tessnow von Wysocki, I. (2021). *Who owns marine biodiversity? Contesting the world order through the 'common heritage of humankind' principle.* Environmental politics.
- Christopher R German et al, (2011), *'Deep-Water Chemosynthetic Ecosystem Research During the Census of Marine Life Decade and Beyond: A Proposed DeepOcean Road Map'*, 6(8) PLoS ONE 1.
- Arianna Broggiato et al, (2014), *'Fair and equitable sharing of benefits from the utilization of marine genetic resources in areas beyond national jurisdiction: Bridging the gaps between science and policy'*, 49(0) Marine Policy.

- Smagadi, A. (2006). *Analysis of the Objectives of the Convention on Biological Diversity: Their Interrelation and Implementation Guidance for Access and Benefit Sharing*. Columbia Journal of Environmental Law, 16.
- Siebenhuner, B. and Suplie, J. (2005). "Implementing the Access and Benefit-Sharing Provisions of the CBD: A Case for Institutional Learning." Ecological Economics, 53.
- M. Ilham F. Putuhena. (2019). *Urgensi Pengaturan Mengenai Eksplorasi dan Eksploitasi Pertambangan di Area Dasar Laut Internasional*, Jurnal Rechtsvinding, Vol. 8, No. 2.
- M Mancisidor. (2015). "Is There such a Thing as a Human Right to Science in International Law?". Volume: 4 Issue 1. European Society of International Law.
- R.J McLaughlin. (2004). "Managing foreign access to marine genetic materials: moving from capture to cooperation". Editor: DD Caron and HN Scheiber (eds) in Bringing New Law to Ocean Waters Books. Martinus Nijhoff Publishers, Leiden.
- E. Morgera and M Ntona. (2018). "Linking Small-Scale Fisheries to International Obligations on Marine Technology Transfer". 93 Marine Policy 295-306.
- Abeyasinghe, A. C., & Arias, G. (2013). "CBDR as a principle of inspiring actions rather than justifying inaction in the global climate change regime". In O. Ruppel, C. Roschmann, & K. Ruppel-Schlichting (Eds.), "Climate change: International law and global governance". Nomos Verlagsgesellschaft Baden-Baden, Germany.
- Carlos M. Correa. (2017). 'Access to and Benefit Sharing of Marine Genetic Resources Beyond National Jurisdiction: Developing a new Legally Binding Instrument', South Centre, Research Paper 79.
- Anais Kedgley Laidlaw. (2005). "Is it Better to be Safe than Sorry? The Cartagena Protocol versus The World Trade Organisation", Victoria University of Wellington Law Review, August.

- Rosendal, K. P. J. Schei (2012). “*Convention on Biological Diversity: from national conservation to global responsibility*”, in: S. Andresen / E. L. Boasson / G. Honneland (eds.), *International environmental agreements: an introduction*, London: Routledge, 119–133.
- Lisa A Levin and Myriam Sibuet. (2012). *Understanding Continental Margin Biodiversity: A New Imperative*. 4(1) Annual review of marine science 79.
- Friederike Lehmann. (2007). “*The Legal Status of Genetic Resources of the Deep Seabed*,” *New Zealand Journal of International Law* 11, no. 33.
- Fernanda Millicay, (2007). “*A Legal Regime for the Biodiversity of the Area*” in *Law, Science, and Ocean Management*, Myron H. Nordquist et. al. ed. (Leiden: Martinus Nijhoff).
- Schoenberg, P.L. (2009). “*Polarizing Dilemma: Accessing Potential Regulatory Gap-Filling Measures for Arctic and Antarctic Marine Genetic Resources Access and Benefit Sharing*”. *Cornell International Law Journal*, 42, 271-299.
- Sophies Arnaud-Haond, Jesus M. Arrieta, Cados M. Duarte, “*Marine Biodiversity and Gene Patents*”, 331 *Science*.
- Fernando de la Calle. (2009). “*Marine Genetic Resources. A Source of New Drugs the Experience of the Biotechnology Sector*”, 24(2) *The International journal of Marine and Coastal Law*.
- Rivai Sihalo. (2013). “*Penetapan Garis Batas Zona Ekonomi Eksklusif Indonesia dan India dalam Penegakan Kedaulatan Teritorial Ditinjau dari Hukum Internasional*”.
- Blasiak R, Jouffray JB, Wabnitz CCC, Sundström E, Österblom H. (2018). “*Corporate control and global governance of marine genetic resources*”. *Sci Adv*. 2018 Jun 6;4(6):eaar5237. doi: 10.1126/sciadv.aar5237. PMID: 29881777; PMCID: PMC5990308.
- Blasiak, R. et al. (2010). “*The Ocean Genome: Conservation and the Fair, Equitable and Sustainable Use of Marine Genetic Resources*”. (High Level Panel for a Sustainable Ocean Economy, 2020).

- Tolochko, P., & Vadrot, A. B. (2021). "The usual suspects? Distribution of collaboration capital in marine biodiversity research". *Marine Policy*, 124, 104318.
- Vadrot, A., Langlet, A., Tessnow von Wysocki, I. (2021). "Who owns marine biodiversity? Contesting the world order through the 'common heritage of humankind' principle.
- L de La Fayette. (2009). "A New Regime for the Conservation and Sustainable Use of Marine Biodiversity and Genetic Resources Beyond the Limits of National Jurisdiction". *The International Journal of Marine and Coastal Law*.
- Nurbintoro, Gulardi and Nugroho, Haryo Budi. (2016). "Biodiversity Beyond National Jurisdiction: Current Debate and Indonesia's Interest," *Indonesia Law Review*: Vol. 6: No. 3.
- Fae Sapsford. (2022). "Ocean Exploration Facts: What Is High Seas Governance?". Marine Research Fellow, Sargasso Sea Commission. Available at <https://oceanexplorer.noaa.gov/facts/high-seas-governance.html>
- German CR, Ramirez-Llodra E, Baker MC, Tyler PA, and the ChEss Scientific Steering Committee. (2011). "Deep-Water Chemosynthetic Ecosystem Research during the Census of Marine Life Decade and Beyond: A Proposed Deep-Ocean Road Map". *PLoS ONE* 6(8): e23259. <https://doi.org/10.1371/journal.pone.0023259>
- Arianna Broggiato et al. (2014). 'Fair and equitable sharing of benefits from the utilization of marine genetic resources in areas beyond national jurisdiction: Bridging the gaps between science and policy'. 49(0) *Marine Policy*.
- De Jonge, B. (2011). "What Is Fair and Equitable Benefit-sharing?" *Journal of Agricultural & Environmental Ethics*, 24, 127-146. <https://doi.org/10.1007/s10806-010-9249-3>
- Russell, L. (2009). "The Future of the Seabed. *Economic Affairs*", 29. <https://doi.org/10.1111/j.1468-0270.2009.01898.x>

- Schoenberg, P.L. (2009). *“Polarizing Dilemma: Accessing Potential Regulatory Gap-Filling Measures for Arctic and Antarctic Marine Genetic Resources Access and Benefit Sharing”*. Cornell International Law Journal
- T. Scovazzi. (2011). *‘The Conservation and sustainable use of marine biodiversity, including genetic resources, in areas beyond national jurisdiction: A legal perspective’*.
- ASIMAKOPOULOU, Eleftheria, MOHAMMAD, Essam Yassin. (2019). *“Marine genetic resources in areas beyond national jurisdiction: a ‘common heritage of mankind”*. IIED Briefing.
- A Chapman. (2009). *‘Towards an Understanding of the right to Enjoy the Benefits of Scientific Progress and its Applications’*. Journal of Human Rights.
- IIED Briefing. (2019). *“Marine genetic resources in areas beyond national jurisdiction: a ‘common heritage of mankind”*.
- Chris Forward, *“Archipelagic Sea Lanes in Indonesia, Their Legality in International Law”*, available at <http://www.austlii.edu.au/au/journals/ANZMarLawJI/2009/15.pdf>
- M. Vierros et al., (2016). *‘Who Owns the Oceans? Policy Issues Surrounding Marine Genetic Resources’*, Association for the Sciences of Limnology and Oceanography.
- Rogers AD, et.al. (2021). *“Marine Genetic Resources in Areas Beyond National Jurisdiction: Promoting Marine Scientific Research and Enabling Equitable Benefit Sharing”*. Front. Mar. Sci. 8:667274.
- Patil, P. G., Virdin, J., Diez, S. M., Roberts, J., & Singh, A. (2016). *“Toward the Blue Economy: A Promise for Sustainable Growth in the Caribbean”*.
- Nurhayati, S. (2013). *“Blue and Green Economy (BGE) Policy and Their Impact to Indonesian Community Welfare”*. Jurnal Ekonomi Dan Bisnis, 12(2).
- Richard A. Barnes. (2012). *“Consolidating Governance Principles for Areas beyond National Jurisdiction”*. The International Journal of Marine and Coastal Law 27, 261–290. Martinus Nijhoff Publishers: The Law School, University of Hull, UK.

- Isabela Battistello Espíndola & Wagner Costa Ribeiro, (2020). *"Transboundary waters, conflicts and international cooperation - examples of the La Plata basin,"* Water International, Taylor & Francis Journals, vol. 45(4).
- Yentchare, Pag-yendu, (2021). *"Marine Genetic Resources in Areas Beyond National Jurisdictions: Strategy for a Successful Harnessing of Blue Biotechnology in Africa"*. Available at SSRN: <https://ssrn.com/abstract=3851866> or <http://dx.doi.org/10.2139/ssrn.3851866>
- Kelly Macnamara. 2023. *Drugs from the deep: scientists explore ocean frontiers.* <https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>
- Alves, C., J. Silva, S. Pinteus, H. Gaspar, M.C. Alpoim, L.M. Botana and R. Pedrosa. 2018. *"From Marine Origin to Therapeutics: The Antitumor Potential of Marine Algae-Derived Compounds."* Frontiers in Pharmacology 9. <https://doi.org/10.3389/fphar.2018.00777>.
- Etty R. Agoes. (1996). *"Pengaturan tentang Wilayah Perairan Indonesia dan Kaitannya dengan Konvensi Hukum Laut 1982"*.
- Toni, K. Winanda, C.K. Andy, A. Syaiful, S. Rafiq. (2020). *"Relevansi Hak Berdaulat Zona Ekonomi Eksklusif Dalam Perkembangan Hukum Laut Internasional Kontemporer"*. Prosiding Seminar Hukum dan Publikasi Nasional (Serumpun) II.
- Martin Tsamenyi and Transform Aqorau. *"Fishing Rights and Responsibilities at Sea: Analysis of the Relevant Provisions of the United Nations Convention on the Law of the Sea"*. In Martin Tsamenyi and Max Herriman (ed) *"Rights and Responsibilities in the Maritime Environment: National International Dilemmas"*. Wollongong Papers on Maritime Policy No. 5, Centre for Maritime Policy.
- M. Damhari. (1987). *"The Fisheries Regime of the Exclusive Economic Zone"*. Martinus Nijhoff Publishers.
- Donat Pharad and Bob Applebaum. (1993). *"Rights of the Coastal State Over*

- Fisheries in the EEZ: Canadian Perspective*” in the Donat Pharad and Umberto Leanza (eds). *“The Continental Shelf/Exclusive Economic Zone Regime*, Martinus Nijhoff, Dordrecht, Boston and London.
- I Made Andi Arsana. (2009). *“Menuju Penyelesaian Sengketa Ambalat: Sebuah Kajian Teknis dan Yuridis”*. Proceeding Olimpiade Karya Tulis Inovatif (OKTI). Jurusan Teknik Geodesi, Fakultas Teknik Universitas Gadjah Mada. Yogyakarta.
- Kendis Gabriela Runtuuwu. (2014). *“Implementasi Pemanfaatan Laut Lepas Menurut Konvensi Hukum Laut 1982”*. *Lex et Societatis*, Vol. II/No. 3.
- Catherine Banet. (2020). *“The law of the Seabed: access, uses, and protection of seabed resources”*. Leiden, Boston: Brill Nijhoff. Series: Publications on ocean development, 0924–1922. Volume 90.
- Nico Schrijver. (2008). *“The Evolution of Sustainable Development in International Law: Inception, Meaning and Status”*. Martinus Nijhoff Publishers.
- Jon Van Dyke and Christopher Yuen. (1981). *“Common Heritage” v. “Freedom of The High Seas”*: Which Governs The Seabed? 19 San Diego Law Review 493–551.
- Rabone M, Harden-Davies H, Collins JE, Zajderman S, Appeltans W, Droege G, Brandt A, Pardo-Lopez L, Dahlgren TG, Glover AG and Horton T. (2019). *“Access to Marine Genetic Resources (MGR): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ)”*. *Front. Mar. Sci.* 6:520. doi: 10.3389/fmars.2019.00520.
- De Clercq E, Field HJ. (2006). *“Antiviral prodrugs - the development of successful prodrug strategies for antiviral chemotherapy”*. *Br J Pharmacol.* 147(1):1-11. doi: 10.1038/sj.bjp.0706446.
- D Burnett, D Freestone and T Davenport. (2014). *Submarine Cables in the Sargasso Sea: Legal and Environmental Issues in Areas Beyond National Jurisdiction*. Report from the Workshop held 23 October 2014 at George Washington Law School, Washington, D.C.

- Sagar S, Kaur M, Minneman KP. (2010). “*Antiviral lead compounds from marine sponges*”. *Mar Drugs*. 8(10):2619-38. doi: 10.3390/md8102619.
- Smith, D., and J. Jabour. 2018. “*MPAs in ABNJ: Lessons from Two High Seas Regimes.*” *ICES Journal of Marine Science* 75 (1): 417–25.
- Lyle Glowka Françoise Burhenne-Guilmin and Hugh Synge in collaboration with Jeffrey A. McNeely and Lothar Gündling, (1994). “*A Guide to the Convention on Biological Diversity*”. Environmental Policy and Law Paper No. 30, IUCN-ELC.
- Eric W. Welch, Margo Bagley, Todd Kuiken and Sélim Louafi. (2017). ‘*Potential Implications of New Synthetic Biology and Genomic Research Trajectories on the International Treaty for Plant Genetic Resources for Food and Agriculture*’. Emory Legal Studies Research Paper, Available at SSRN: <https://ssrn.com/abstract=3173781> or <http://dx.doi.org/10.2139/ssrn.3173781>
- Peter Johan Schei and Morten Walløe Tvedt. (2010). ‘*Genetic Resources*’ in the *CBD. The Wording, the Past, the Present and the Future*. Fridtjof Nansen Institute Report 4.
- Elisa Morgera. (2018). ‘*Fair and Equitable Benefit-Sharing in a New Treaty on Marine Biodiversity: A Principled Approach towards Partnership Building?*’. *Maritime Safety and Security Law Journal* 48–77.
- Jakub Ciesielczuk and Elizabeth A. Kirk. (2021). ‘*Sustainable Use of Marine Genetic Resources*’, in W. Leal Filho, A. M. Azul, L. Brandli, A. Lange Salvia and T. Wall (eds.), *Life below Water. Encyclopedia of the UN Sustainable Development Goals* (Cham: Springer 2021) 4–5.
- Vito De Lucia. (2018). ‘*The Concept of Commons and Marine Genetic in Areas Beyond National Jurisdiction*’, in *Maritime Safety and Security Law Journal*.
- John E. Noyes. (2011). “*The Common Heritage of Mankind: Past, Present, and Future*”. 40 *Denv. J. Int'l L. & Pol'y* 447.
- Benvenisti. (2013). ‘*Sovereigns as Trustees of Humanity: On the Accountability of State to Foreign Stakeholders*’, 107 *American Journal of International Law (AJIL)* (2013) 295.

- Schroeder, D. (2007). *“Benefit sharing: it's time for a definition”*. Journal of Medical Ethics 33.
- G. Z. L. Dalmaso et al. (2015). *“Marine Extremophiles: A Source of Hydrolases for Biotechnological Applications,”* Mar Drugs. 2015 Apr; 13(4): 1925–1965.
- Juniper, S.K., 2013. *“Technological, Environmental, Social and Economic Aspects”*. Information Paper 3.
- Abbas Poorhashemi. (2023). *“Principle of International Environmental Law”*. CIFILE Journal of International Law, Vol. 4, No. 7, 80-106.
- S.A.Poorhashemi, B.Khoshmaneshzadeh, M.- Soltanieh & D.H.Bavand. (2012). *“Analyzing the individual and social rights condition of climate refugees from the international environmental law perspective”*. International Journal of Environmental Science and Technology, ISSN 1735-1472, Int. J. Environ. Sci. Technol, DOI 10.1007/s13762-011-0017-3, January 2012, Volume 9, Issue 1.
- Pieter Pauw, Steffen Bauer, et al. (2014). *“Different Perspectives on Differentiated Responsibilities: A State-of-The-Art Review of The Notion of Common But Differentiated Responsibilities in International Negotiations”*. Discussion Paper. Bonn: German Development Institute.
- Molinsky, T.F., Dalisay, D.S., Lievens, S.L. and Saludes, J.P. (2009). *“Drug development from marine natural products”*. Nat.Rev. Drug Discov. 8(1), 69-85.
- Laird, S. (2013). *“Bioscience at a Crossroads: Access and Benefit Sharing in a Time of Scientific, Technological and Industry Change: The Pharmaceutical Industry”*. Secretariat of the CBD, Toronto.
- Abhaya Ganashree, *“Who Owns Ocean Biodiversity? The Legal Status and Role of Patents as a Means to Achieve Equitable Distribution of Benefits,”* Case W. Res. J. Int'l L 53, <https://doi.org/10.2139/ssrn.3740038>.
- Konrad J. Marciniak. (2017). *‘Marine Genetic Resources: Do They Form Part of the Common Heritage of Mankind Principle?’*, JurisNet, LLC, Chapter 16.
- MS. Noorman, Gunarto, Maryanto. (2017). *“Efforts to Protect and Manage Natural*

- Resources of The Sea According to Islamic Law in order to Make Utilization*". International Journal of Business, Economics and Law, Vol. 14, Issue 5.
- Gjerden, K. M. (2008). *Regulatory and governance gaps in the international regime for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction*. Gland, Switzerland: IUCN.
- A.G. Siswandi. (2013). *Marine Bioprospecting: International Law, Indonesia, and Sustainable Development*. (Ph.D. Thesis, The Australian National University, 2013).
- Elisa Morgera. (2015). *Fair and equitable benefit-sharing at the cross-roads of the human right to science and international biodiversity law*. (2015) 4:4 Laws 803–831.
- De Clercq E, Field HJ. 2006. *Antiviral prodrugs - the development of successful prodrug strategies for antiviral chemotherapy*. Br J Pharmacol. 147(1):1-11. doi: 10.1038/sj.bjp.0706446.
- W. Bergmann and R. J. Feeney, J. Org. Chem.. 1951. *Contributions to the Study of Marine Products*. XXXII. The Nucleosides Of Sponges.
- Hansen, B.K., D. Bekkevold, L. Worsøe Clausen and E.E. Nielsen. 2018. "The Sceptical Optimist: Challenges and Perspectives for the Application of Environmental DNA in Marine Fisheries." Fish and Fisheries 19 (5).
- Martin et al. (2014). 'Just Conservation? On the Fairness of Sharing Benefits', in T. Sikor (ed.), *The Justices and Injustices of Ecosystem Services*. Routledge.
- Collins, J. E., Vanagt, T., & Huys, I. (2020). *Stakeholder Perspectives on Access and Benefit-Sharing for Areas Beyond National Jurisdiction*. *Frontiers in Marine Science*, 7, 265.
- Harrison, J. (2015). 'Who benefits from the exploitation of non-living resources on the seabed? Operationalizing the benefit-sharing provisions in the UN Convention on the Law of the Sea'.
- Sagar S, Kaur M, Minneman KP. 2010. *Antiviral lead compounds from marine sponges*. Mar Drugs. 8(10):2619-38. doi: 10.3390/md8102619.

- Kathryn J. Mengerink. (2013). *“The Deep Ocean: Advancing Stewardship of the Earth’s Largest Living Space”*. In Harry N. Scheiber et al., eds., *Science, Technology, and New Challenges to Ocean Law*. Leiden and Boston: Brill Nijhoff Publishers.
- Scovazzi, T. (2013). *“Open Questions on the Exploitation of Genetic Resources in Areas Beyond National Jurisdiction”*. Proceedings of the ASIL Annual Meeting. 107:119-122. doi: 10.5305/procanmeetasil.107.0119.
- Gerwick, W.H., and B.S. Moore. 2012. *“Lessons from the Past and Charting the Future of Marine Natural Products Drug Discovery and Chemical Biology.”* *Chemistry & Biology* 19 (1): 85–98.
- Leary, D., M. Vierros, G. Hamon, S. Arico and C. Monagle. 2009. *“Marine Genetic Resources: A Review of Scientific and Commercial Interest.”* *Marine Policy* 33 (2): 183–94.
- J. Mark Cock and others. (2006). *‘Marine Genomics and the Exploration of Marine Biodiversity’*, in Carlos M. Duarte (ed.), *The Exploration of Marine Biodiversity: Scientific and Technological Challenges*. (Bilbao: Fundación BBVA, 2006).
- Spiteri C., Senechal T., Hazin C., Hampton S., Greyling L., Boteler B. (2021). *“Study on the socio-economic importance of areas beyond national jurisdiction in the southeast Atlantic region,”* in Strong high seas project. doi: 10.48481/IASS.2021.010.
- Leary, D.K. (2007). *“International Law and the Genetic Resources of the Deep Sea”*. Leiden and Boston: Martinus Nijhoff.
- N Cooper and D French. (2018). *‘SDG 17: Partnerships for the Goals – Cooperation within the Context of a Voluntarist Framework’* in D French and L Kotzé (eds) *Sustainable Development Goals: Law, Theory and Implementation*.
- Hussein H, Menga F, Greco F. (2018). *“Monitoring transboundary water cooperation in SDG 6.5.2: how a critical hydropolitics approach can spot inequitable outcomes”*. *Sustainability* 10(10):3640. <https://doi.org/10.3390/su10103640>

- Kristina Gjerde. (2012). “*Challenges to Protecting the Marine Environment beyond National Jurisdiction*,” *International Journal of Marine and Coastal Law* (Special theme issue for the 30th anniversary of the Law of the Sea Convention) 27(4): 839-847.
- Ramesh, N., et. al. 2019. “*The Small World of Global Marine Fisheries: The Cross-Boundary Consequences of Larval Dispersal*.” *Science* 364 (6446): 1192–96. <https://doi.org/10.1126/science.aav3409>.
- Collins, J.E., H. Harden-Davies, M. Jaspars, T. Thiele, T. Vanagt and I. Huys. 2019. “*Inclusive Innovation: Enhancing Global Participation in and Benefit Sharing Linked to the Utilization of Marine Genetic Resources from Areas beyond National Jurisdiction*.” *Marine Policy* 109 (November): 103696. <https://doi.org/10.1016/j.marpol.2019.103696>.
- G Shimmield. (2013). “*Extent and Types of Research, Uses and Applications*”. In IUCN information papers for the intersessional workshop on marine genetic resources in ABNJ (IUCN Environmental Law Center, Bonn, 7–15.
- M.I. Jeffery Q.C. (2002). “*Bioprospecting: Access to Genetic Resources and Benefit-Sharing under the Convention on Biodiversity and the Bonn Guidelines*”. 6 *Sing. J. Int’l & Comp. L.* 747.
- K. Marciniak. (2017). “*Marine Genetic Resources: do they Form Part of the Common Heritage of Mankind Principle?*” In L. Martin, C. Salondia, C. Hioureas (eds.), *Natural Resources and the Law of the Sea: Exploration, Allocation, Exploitation of Natural Resources in areas under National Jurisdiction and Beyond*. JuristNet.
- A. Horna. (2017). “*Marine Genetic Resources, Including Sharing of Benefits*”. In *Proceedings of the ASIL Annual Meeting Books*. Cambridge University Press: Vol. 111.
- Efthymios Papastavridis. (2010). “*The Negotiations for A New Implementing Agreement under the Under Convention on the Law of the Sea Concerning Marine Biodiversity*,” *International and Comparative Law Quarterly* 69. <https://doi.org/10.1017/S0020589320000202>.

- Karin Mickelson. (2019). “*Common Heritage of Mankind as a Limit to Exploitation of the Global Commons*”. *European Journal of International Law* 30, No. 2: 635–63.
- M. Buck and C. Hamilton. (2011). “*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*”, 20 *Review of European, Comparative and International Environmental Law*, No. 1, 47–61.
- Aguon Julian and Hunter Julie. (2018). “*Second Wave Due Diligence: The Case for Incorporating Free, Prior, and Informed Consent into The Deep-Sea Mining Regulatory Regime*”. *Stan. Envtl. LJ* 38, No. Desember: 3–55.
- Abhaya Ganashree. (2021). “*Who Owns Ocean Biodiversity? The Legal Status and Role of Patents as a Means to Achieve Equitable Distribution of Benefits*,” *Case W. Res. J. Int’l L* 53, No. 1: 197–236.
- Arianna Broggiato, T. Vanagt, L.E. Lallier, et.al. (2018). “*Mare Geneticum: Balancing Governance of Marine Genetic Resources in International Waters*.” *The International Journal of Marine and Coastal Law*. Volume 33 (1): 3–33. <https://doi.org/10.1163/15718085-13310030>.
- Leandra R, DG Webster. (2020). “*The emergence of a new legally binding agreement for a marine complex system: are we going beyond panaceas?*”.
- Nele Matz-Lück. (2010). “*The Concept of the Common Heritage of Mankind: Its Viability as a Management Tool for Deep-sea Genetic Resources*”. In Alex G. Oude Elferink and Erik J. Molenaar (eds.) “*The International Legal Regime of Areas Beyond National Jurisdiction: Current and Future Developments*” Book. Koninklijke Brill.
- K Juniper. (2016). “*Use of Marine Genetic Resources*”. In M Banks, C Bissada, PE Araghi (eds), *The First Global Integrated Marine Assessment World Ocean Assessment I under the auspices of the United Nations General Assembly and its Regular Process for Global Reporting and Assessment of*

- the State of the Marine Environment, including Socioeconomic Aspects. United Nations, New York. Chapter 29.
- E Morgera. (2017). *“Fair and equitable benefit-sharing: history, normative content and status in international law”*. BENELEX Working Paper N. 12 (April 2017). Working Paper No. 12.
- David Leary. (2010). *“International Law and the Genetic Resources of the Deep Sea”*. In Davor Vidas (ed.), *Law, Technology and Science for Oceans in Globalisation Book*. Martinus Nijhoff Publishers.
- R Warner. (2012). *“Oceans beyond Boundaries: Environmental Assessment Frameworks”*. *The International Journal of Marine and Coastal Law* 481–499.
- M.H. Nordquist et al. (eds.). (2002). *“United Nations Convention on the Law of the Sea 1982: A Commentary”*. Vol. VI, Martinus Nijhoff Publishers.
- Santos BS, Devereaux SG, Gjerde K, Chand K, Martinez J and Crowder LB. (2022). *“The diverse benefits of biodiversity conservation in global ocean areas beyond national jurisdiction”*. *Front. Mar. Sci.* 9:1001240. doi: 10.3389/fmars.2022.1001240.
- Owen McIntyre, 2020. *“The current state of development of the no significant harm principle: How far have we come?”* *International Environmental Agreements: Politics, Law and Economics*, Springer, December. Vol. 20(4).
- A.D. Stasi. (2014). *“The Normative Force of the Outcome Document ‘The Future We Want’”*, in: Fitzmaurice, Maljean-Dubois, and Negri (eds.), *Environmental Protection and Sustainable Development from Rio to Rio+20* (Leiden and Boston, Brill Nijhoff).
- RABONE, Muriel; et al. (2019). *Access to Marine Genetic Resources (MGR): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ)*. *Front. Mar. Sci.*, 12 Sept. 2019. Available at: <https://doi.org/10.3389/fmars.2019.00520>.
- Michael W Lodge. (2002). *‘International Seabed Authority’s Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area’*. 20 *J Energy and Natural Resources*.

- Mayol, E., J.M. Arrieta, M.A., et al. (2017). “*Long-Range Transport of Airborne Microbes over the Global Tropical and Subtropical Ocean.*” *Nature Communications* 8 (1): 1–9. <https://doi.org/10.1038/s41467-017-00110-9>.
- Erwin, P.M., Lopez-Legentil, S., Schuhmann, P.W. (2010). “*The pharmaceutical value of marine biodiversity for anti-cancer drug discovery*”. *Ecological Economics* 70, 445-451.
- G. Wright, J. Rochette, S. Unger, K. Gjerde and J. Ardron. (2014). “*The scores at half time: An update on the international discussions on the governance of marine biodiversity in areas beyond national jurisdiction*”. Institute for Sustainable Development and International Relations (IDDRI) Issue Brief, No 2.
- Abdul Haseeb Ansari and Parveen Jamal. (2002). “*Toward an Islamic Jurisprudence of Environment: An Expository Study*”. *Religion and Law Review*. Vol X-XI.
- Fazlun M Khalid. (2002). *Islam and the Environment*. In Peter Timmerman (ed), *Encyclopedia of Global Environmental Change, Vol. 5: Social and Economic Dimensions of Global Environmental Change* Chichester: John Wiley & Sons, Ltd.
- Baqir al-Hasani & Abbas Mirakhor. (1998). *Essays on Iqtishad: The Islamic Approach to Economic Problems*.
- Iqbal, Zamir; Mirakhor, A. (2011). “*An Introduction to Islamic Finance: Theory and Practice*”. John Wiley & Sons.
- Shihadah, ‘Abd al-Karim. (2005). “*Safahat min Tarikh al-Turath al-Tibb al-Isami*”. *Pages from the History of the Arab-Islamic Medical Heritage*. Geneva: World Health Organization.
- Askari, H., & Arfaa, N. (2007). “*Social safety net in Islam: The case of Persian Gulf oil exporters*”. *British Journal of Middle Eastern Studies*, 34(2), 177–202. <https://doi.org/10.1080/13530190701427925>
- Kailani, K. (2013). “*Islam Dan Hubungan Antarnegara*”. *Jurnal Ilmu Agama: Mengkaji Doktrin, Pemikiran, dan Fenomena Agama*, 14(2).

- Safa, Muza. 2010. *Himayat al-Bi'ah al-Tabi'iyya fî al-Shari'ah al-Islamiyya: Dirasah Muqaranah (Protection of the Natural Environment in Islamic Law: A Comparative Jurisprudence Study)*. Amman: Dar al-Nawadir.
- Al-Siryani. (2006). "*Al-Manzour al-Islami l-Qadaya al-Bi'ah: Dirasah Muqaranah (The Islamic Perspective on Environmental Issues, a Comparative Study)*". Riyadh: Jami'ah Nayif.
- Abu Zant, & Othman. (2006). "*Al-Tanmiyya al-Mustad'imah: Dirasah Nazariyyah fi al-Mafhum wa-l-Muhtawa (Sustainable Development: A Theoretical Study of Concept and Content)*". Vol. 12. Al-Manara.

C. TREATIES AND CONVENTION

- United Nations Convention on the Law of the Sea (UNCLOS), adopted 10 December 1982, entered into force 16 November 1994, 1833 UNTS 396.
- United Nations Convention on Biological Diversity (CBD), adopted 15 June 1992, entered into force 29 December 1993, 1760 UNTS 107.
- 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, adopted 29 October 2010, entered into force 12 October 2014.
- Agreement Under The United Nations Convention on The Law Of The Sea on The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement, has not come into force).
- Rio Declaration on Environment and Development.
- The United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107.
- General Agreement on Tariffs and Trade (adopted 30 October 1947, entered into force provisionally 1 January 1948) 55 UNTS 187.
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) 2001, 2400 UNTS 303.
- Vienna Convention on the Law of Treaties of 23 May 1969 (1155 UNTS 331).

International Treaty on Plant Genetic Resources for Food and Agriculture, opened for signature 3 November 2001, 2400 UNTS.

Convention on the Conservation of Antarctic Marine Living Resources, opened for signature 1 August 1980, 1329 unts 47 (entered into force 7 April 1982).

International Covenant on Economic, Social and Cultural Rights, 6 ILM 360 (1967).

UNESCO Convention for the Protection of World Cultural and Natural Heritage.

Universal Declaration on Human Rights, UN Doc. A/810 (1948).

UN Declaration on the Right to Development, GA Res 41/128, 4 December 1986.

International Labour Organization's (ILO) Convention no. 169 Concerning Indigenous and Tribal Peoples in Independent Countries 1989, 28 ILM 1382.

High Seas Convention 1958.

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies 1979, 1363S 21.

D. DICTIONARY

Kamus Besar Bahasa Indonesia

Oxford Dictionary

Miriam and Webster Dictionary

E. WEBPAGE

IUCN "Governing areas beyond national jurisdiction".

<https://www.iucn.org/resources/issues-brief/governing-areas-beyond-national-jurisdiction>

National Oceanic and Atmospheric Administration, U.S. Department of Commerce "Marine Scientific Research" <https://www.noaa.gov/marine-scientific-research>

Midwestern University, 'Clinical Pipeline: Marine Pharmacology: Approved Marine Drugs'

<https://www.midwestern.edu/departments/marinepharmacology/clinical-pipeline.xml>

Kelly Macnamara. 2023. Drugs from the deep: scientists explore ocean frontiers.

<https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>

MarinLit. 2020. "A Database of Marine Natural Products Literature."

<http://pubs.rsc.org/marinlit/>.

Global Environment Facility. "Areas Beyond National Jurisdiction".

[https://www.thegef.org/what-we-do/topics/areas-beyond-national-](https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-)

[jurisdiction#:~:text=Results-](https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-)

[.Main%20Issue,has%20sole%20responsibility%20for%20management.](https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-)

Global Genome Biodiversity Network, Letter to the CBD on Digital Sequence

Information (7 September 2017), 1, available at [www.cbd.int/abs/DSI-](http://www.cbd.int/abs/DSI-views/GGBN-DSI.pdf)

[views/GGBN-DSI.pdf](http://www.cbd.int/abs/DSI-views/GGBN-DSI.pdf)

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem

Services: Definition of Access and Benefit-Sharing. Available at

<https://www.ipbes.net/glossary-tag/access-and-benefit-sharing>

About the Nagoya Protocol: Why is the Nagoya Protocol is important

(<https://www.cbd.int/abs/about/default.shtml/>).

Opinio Juris. "Memorandum on the Common Heritage of Mankind and

Biodiversity Beyond National Jurisdiction (Part II)".

[https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-](https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-of-mankind-and-biodiversity-beyond-national-jurisdiction-part-ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries%20across%20the%20globe.)

[of-mankind-and-biodiversity-beyond-national-jurisdiction-part-](https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-of-mankind-and-biodiversity-beyond-national-jurisdiction-part-ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries%20across%20the%20globe.)

[ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries](https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-of-mankind-and-biodiversity-beyond-national-jurisdiction-part-ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries%20across%20the%20globe.)

[%20across%20the%20globe.](https://opiniojuris.org/2023/02/24/memorandum-on-the-common-heritage-of-mankind-and-biodiversity-beyond-national-jurisdiction-part-ii/#:~:text=A%20regime%20of%20common%20heritage,all%20countries%20across%20the%20globe.)

MarinLit. 2020. "A Database of Marine Natural Products Literature."

<http://pubs.rsc.org/marinlit/>.

Midwestern University, 'Clinical Pipeline: Marine Pharmacology: Approved

Marine

Drugs'[https://www.midwestern.edu/departments/marinepharmacology/clin](https://www.midwestern.edu/departments/marinepharmacology/clinical-pipeline.xml)

[ical-pipeline.xml](https://www.midwestern.edu/departments/marinepharmacology/clinical-pipeline.xml)

Global Environment Facility. "Areas Beyond National

Jurisdiction”. <https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results->

[.Main%20Issue,has%20sole%20responsibility%20for%20management](https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-.Main%20Issue,has%20sole%20responsibility%20for%20management)

Kelly Macnamara. (2023). “Drugs from the deep: scientists explore ocean frontiers”. <https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>

High Seas Alliance: Ten Governance Principles for an International Legally Binding Instrument on Marine Biodiversity in Areas Beyond National Jurisdiction. Available at <https://highseasalliance.org/ten-governance-principles-for-an-international-legally-binding-instrument-on-marine-biodiversity-in-areas-beyond-national-jurisdiction/>

African Natural Resources Centre, available at <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/african-natural-resources-centre>

Explanation towards SDG 14.A and the development of developing countries, in particular small island developing States and least developed countries. Available at <https://sustainabledevelopment.un.org/sdg14>

United Nations Industrial Development Organization (UNIDO). “South-South Cooperation”. Available at <https://www.unido.org/south-south-cooperation>

Global Environment Facility. “Areas Beyond National Jurisdiction”. <https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results->

[.Main%20Issue,has%20sole%20responsibility%20for%20management](https://www.thegef.org/what-we-do/topics/areas-beyond-national-jurisdiction#:~:text=Results-.Main%20Issue,has%20sole%20responsibility%20for%20management)

About the Authority of ISA. Available at <https://www.isa.org.jm/about-isa/>

Kelly Macnamara. (2023). “Drugs from the deep: scientists explore ocean frontiers”. <https://phys.org/news/2023-03-drugs-deep-scientists-explore-ocean.html>

Museum Health Care at Kingston: Vira-A Ophthalmic Ointment No. 1677.

Available at <https://mhc.andornot.com/en/permalink/artifact4290>

The Sponge Guide: A Picture Guide to Caribbean Sponge. Available at:

<https://spongeguide.org/>

Trabectedin Yondelis 1mg Injection (PharmaMar)

<https://www.yondelis.com/hcp/dosing-admin.html>

Intergovernmental Commission on Genetic Resources, Traditional Knowledge and Folklore, available at www.wipo.int/tk/en/igc/

PharmaMar: Yondelis® is a synthetic compound derived from the colonial sea squirt *Ceteinascidia turbinata*. Available at <https://pharmamar.com/en/products/yondelis/>

High Seas Alliance: Ten Governance Principles for an International Legally Binding Instrument on Marine Biodiversity in Areas Beyond National Jurisdiction. Available at <https://highseasalliance.org/ten-governance-principles-for-an-international-legally-binding-instrument-on-marine-biodiversity-in-areas-beyond-national-jurisdiction/>

Ministry of Foreign Affairs of The Republic of Indonesia. Indonesia For the World: Through BBNJ Agreement, Indonesia Pushes to Accelerate Global Ocean Protection and Utilisation. Available at <https://kemlu.go.id/portal/en/read/4872/berita/through-bbnj-agreement-indonesia-pushes-to-accelerate-global-ocean-protection-and-utilisation>

Sustainable Development Goal 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”. In: United Nations General Assembly Resolution 70/1 ‘Transforming our world: the 2030 Agenda for Sustainable Development’, 25 September 2015, at p. 14. Available at http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/70/1

F. MISCELLANEOUS

Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations (1982) United Nations Convention on the Law of the Sea.

National Oceanic and Atmospheric Administration, U.S. Department of Commerce “Marine Scientific Research” <https://www.noaa.gov/marine-scientific-research>

Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the

Limits of National Jurisdiction, vol. 8, Subcommittee III, A/AC.138/SC.III/L.31 (Bulgaria, Poland, Ukrainian SSR and USSR).

United Nations General Assembly, Resolution Adopted by the General Assembly, 'International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction', GA Res 72/249, 72nd sess, Agenda Item 77, A/Res/72/249 (24 December 2017).

Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (the BBNJ Working Group), established by UNGA A/RES/59/24 (17 November 2004).

United Nations General Assembly, Resolution Adopted by the General Assembly, 'International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction', GA Res 72/249, 72nd sess, Agenda Item 77, A/Res/72/249 (24 December 2017).

United Nations. Revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. Intergovernmental conference on an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction Fourth session New York, 23 March-3 April 2020. Available at: [Available at: https://undocs.org/en/a/conf.232/2020/3](https://undocs.org/en/a/conf.232/2020/3)

Report from the United Nations Development Program (UNDP), 'The New Gold Rush: Bioprospecting', June 30, 2022.

EU Regulation 511/2014 expresses that the States maintain their obligations under the EU's ABS regulation by exercising "best practice" according to Article 8.

General comment No. 25 (2020) on science and economic, social and cultural rights

(article 15 (1) (b), (2), (3) and (4) of the International Covenant on Economic, Social and Cultural Rights/

UNGA, A/CONF.232/2022/5 (2022), 'Further revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction'.

UN General Assembly "Moratorium Resolution" 2574. Available at https://legal.un.org/diplomaticconferences/1973_los/docs/english/res/a_res_2574_xxiv.pdf

UN General Assembly "Declaration of Principles Governing the Sea-bed and Ocean Floor and the Subsoil Thereof, beyond the Limits of National Jurisdiction". Resolution 2749.

Council on the submissions to the draft regulations on exploitation of mineral resources in the Area, Advance Text, 21 February 2018, UN Doc. ISBA/24/C/CRP.1.

Arvid Pardo's speech, UNGA 22nd session, 1 November 1967, Agenda Item 92.

Resumed Fifth Session of The Intergovernmental Conference. (2023). "Information Note by The Secretariat of The International Seabed Authority on The Relevance of The Role and Mandate of The Authority Under UNCLOS and The 1994 Agreement In The Context of The Revised Draft of An Implementing Agreement Under UNCLOS on The Conservation And Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction".

The 'Jakarta Mandate' agreed to by the Parties to the Convention on Biological Diversity at their Second Conference in Jakarta in November 1995. UNEP/CBD/COP/2/19 (30 November 1995).

ICC, Report on Digital Sequence Information, 1, available at <https://iccwbo.org/content/uploads/sites/3/2017/05/ICC-IP-position-paper-on-digital-sequence-information.pdf>

India's submission on Digital Sequence Information on Genetic Resources in

response to CBD notification 2019-012 dated 5 February 2019 pursuant to decisions 14/20 and NP-3/12, available at www.cbd.int/abs/DSI-views/2019/India-DSI.pdf

Submissions of views and information on Digital Sequence Information on Genetic Resources on Digital Sequence Information on Genetic Resources in response to CBD notification 2019-012 dated 5 February 2019 pursuant to decisions 14/20 and NP-3/12, available at www.cbd.int/dsi-gr/2019-2020/submissions/

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Digital Sequence Information on Genetic Resources: Concept, Scope and Current Use' CBD/DSI/AHTEG/2020/1/3 (29 January 2020).

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources' CBD/DSI/AHTEG/2020/1/7 (20 March 2020), 66.

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources'.

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Fact-Finding and Scoping Study on Digital Sequence Information on Genetic Resources in the Context of the Convention on Biological Diversity and the Nagoya Protocol' CBD/DSI/ AHTEG/2018/1/3 (12 January 2018), 14.

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources, 'Synthesis of views and information on the potential implications of the use of digital sequence information on genetic resources for the three objectives of the Convention and the objective of the Nagoya Protocol' CBD/DSI/AHTEG/2018/1/2 (9 January 2018), 13; Welch, 'Potential Implications'.

The recommendation of the Subsidiary Body on Scientific, Technical and Technological

Advice of the CBD (SBSTTA) as recalled by Decision VIII/21 of the Eighth CBD Conference of the parties, “Marine and coastal biological diversity: conservation and sustainable use of deep seabed genetic resources beyond the limits of national jurisdiction” “3.

Programme of Action for the Establishment of a New International Economic Order, GA Res. 3202, 1 May 1974.

ISA. (2013). “Towards the development of a regulatory framework for polymetallic nodule exploitation in the Area”. UN Doc ISBA/19/C/5; and Issues Associated with the Implementation of Article 82 of the United Nations Convention on the Law of the Sea, International Seabed Authority Technical Study No. 4 (2009).

World Health Organization (WHO), Pandemic Influenza Preparedness Framework for the Sharing of Influenza Viruses and Access to Vaccines and Other Benefits, WHO Doc. WHA64.5, 24 May 2011.

CBD Secretariat. (2012). How tasks 7, 10 and 12 could best contribute to work under the Convention and to the Nagoya Protocol, UN Doc. UNEP/CBD/WG8J/8/4/Rev.2.

Report of the UN Special Rapporteur on Indigenous Peoples Rights, UN Doc. A/HRC/15/37 (2010).

UN Special Rapporteur on Indigenous Peoples’ Rights, Victoria Tauli-Corpuz, Report to the General Assembly, UN Doc. A/71/229 (2016).

Secretariat of the Convention on Biological Diversity (2002). Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization. Montreal: Secretariat of the Convention on Biological Diversity.

Trail Smelter Arbitration (United States of America/Canada), Final Award, 11 March 1941, Reports of International Arbitral Awards, Vol. III, 65.

Corfu Channel (UK vs Albania), Merits, Judgment of 9 April 1949, ICJ Reports 1949, 22.

Obligations *erga omnes* has been recognized in other cases for the principle of self-determination in the Case Concerning East Timor (Portugal v. Australia) ICJ Reports 1995, p. 90, in the Advisory Opinion on the Legal Consequences of the Construction of a Wall in Occupied Palestinian Territory, ICJ Reports, 2003.

International Chamber of Commerce (ICC) Commission on Intellectual Property, Report on

Digital Sequence Information, 2017, 1 ICC Commission on Intellectual Property, Report on Digital Sequence Information, 2017, available at <https://iccwbo.org/content/uploads/sites/3/2017/05/ICC-IP-positionpaper-on-digital-sequence-information.pdf>

Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources,

‘Fact-Finding and Scoping Study’.

Fridtjof Nansen Institute. (2010). ‘The Concept of “Genetic Resources” in the Convention on Biological Diversity and How It Relates to a Functional International Regime on Access and Benefit-Sharing’ UNEP/CBD/WG-ABS/9/INF/1.

Kim Juniper, IUCN Information Papers for the Intersessional Workshop on Marine Genetic Resources 2-3 May 2013, United Nations General Assembly Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction’, International Union for Conservation of Nature (IUCN) Environmental Law Centre. Bonn, Germany.

IUCN, Suggestions for elements of a draft text of an international legally binding instrument under UNCLOS for the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction: A Tool for Negotiators (Bonn, Germany, IUCN Environmental Law Centre, 2015).

Transforming Our World: The 2030 Agenda for Sustainable Development, UN Doc A/RES/70/1 (21 October 2015).

The Future We Want, UN Doc A/RES/66/288 (11 September 2012).

IOC/UNESCO, IMO, FAO, UNDP, A Blueprint for Ocean and Coastal Sustainability (Paris, IOC/UNESCO, 2011).

United Nations Development Group, “A Million Voices: The World We Want-A Sustainable Future with Dignity for All”.

Our Ocean, Our Future: Call for Action, UN Doc A/RES/71/312, Seventy-first session, Agenda Items 19 and 73 (a) (14 July 2017).

Summary report, 20 February – 4 March 2023: Resumed 5th Session of the Intergovernmental Conference (IGC) on BBNJ. Available at <https://enb.iisd.org/marine-biodiversity-beyond-national-jurisdiction-bbnj-igc5-resumed-summary>

Mox Plant case (ITLOS: UK v. Ireland), Request for Provisional Measures, ITLOS Reports 2001, 82.

Chair’s Non-paper on Elements of a Draft Text of an International Legally-binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction” (28 February 2017).

The UN Committee on Economic, Social and Cultural Rights states that the right to health “extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment”. CESCR General Comment No. 14 (2000): The Right to the Highest Attainable Standard of Health (Art. 12).

UNGA Resolution, A/RES/69/29 of 19 June 2015. “Development of an international legally-binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.”

Outcome of the Ad Hoc Open-ended Informal Working Group to study issues

relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction and Co-Chairs' summary of discussions, A/69/780.

Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (BBNJ Working Group). Reports of the bbnj Working Group. Available at: [Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction \(un.org\)](#)

Development of an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction, UN Doc GA Res. 69/292 Agenda item 74 (a) (6 July 2015).

Statement on behalf of the Group of the Group of 77 and China at the Ad Hoc Open ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction' (New York, 31 May 2011).

Report of the Preparatory Committee Established by General Assembly Resolution 69/292: Development of an Internationally Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (Advance, Unedited Version).

EJ Tirpak, Practices of States in the Fields of Marine Scientific Research and Transfer of Marine Technology: An Update of the 2005 Analysis of Member State Responses to Questionnaire No. 3, UN Doc. IOC/ABE-LOS VIII/8 (19 March 2008).

UNU-IAS REPORT (United Nations University-Institute of Advanced Studies), Bioprospecting of Genetic Resources in the Deep Seabed: Scientific, Legal and Policy Aspects (2005), available at: <http://www.ias.unu.edu/binaries2/DeepSeabed.pdf>.

UNGA, A/RES/66/119, Letter dated 30 June 2011 from the Co-Chairs of the Ad

Hoc Open-ended Informal Working Group to the President of the General Assembly (2011 Report of the UNGA Working Group).

United Nations SSC/18/1. (2014). South-South cooperation for development:

Review of progress made in implementing the Buenos Aires Plan of Action, the new directions strategy for South-South cooperation and the Nairobi outcome document of the High-level United Nations Conference on South-South Cooperation, taking into account the complementary role of South-South cooperation in the implementation of relevant major United Nations conferences in the social, economic and related fields. High-level Committee on South-South Cooperation Eighteenth session.

Convention on Biological Diversity. UNEP/CBD/BM-SSC/1/2/Rev. 2 23 October 2006. Brainstorming Meeting on South-South Cooperation on Biodiversity: Elements for A Multi-Year Plan of Action For South-South Cooperation on Biodiversity For Development.



Lampiran



FAKULTAS
HUKUM

Gedung Fakultas Hukum
Universitas Islam Indonesia
Jl. Kalurangkun 14,5 Yogyakarta 55584
T. (0274) 7070222
E. fh@uii.ac.id
W. law.uui.ac.id

SURAT KETERANGAN BEBAS PLAGIASI

No. : 170/Perpus-S1/20/H/V/2024

Bismillaahirrahmaanirrahaim

Yang bertanda tangan di bawah ini:

Nama : **M. Arief Satejo Kinady, A.Md.**
NIK : **001002450**
Jabatan : **Kepala Divisi Adm. Akademik Fakultas Hukum UII**

Dengan ini menerangkan bahwa :

Nama : Salza Farikah Aquina
No Mahasiswa : 20410798
Fakultas/Prodi : Hukum
Judul karya ilmiah : Legal Analysis Of The Equitability Access To
Marine Genetic Resources In Areas Beyond National
Jurisdiction: In The Perspective Of Developing
Countries

Karya ilmiah yang bersangkutan di atas telah melalui proses uji deteksi plagiasi dengan hasil **20%**.

Demikian surat keterangan ini dibuat agar dapat dipergunakan sebagaimana mestinya.

Yogyakarta, 27 Mei 2024 M
19 Dzulqoidah 1445 H

Kepala Divisi Adm. Akademik


M. Arief Satejo Kinady, A.Md