Access and Benefit Sharing in Relation to Marine Genetic Resources from Areas Beyond National Jurisdiction

A Possible Way Forward

Study in Preparation of the Informal Workshop on Conservation of Biodiversity Beyond National Jurisdiction, Bonn, December 2011

Research Project of the Federal Agency for Nature Conservation

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Foreword

The urgent need to address the increasing degradation of biodiversity in marine areas beyond national jurisdiction has generally been recognized by the international community. Many States, however, consider resolution of the issues related to marine genetic resources to be of utmost concern. This perception was confirmed in the draft recommendations developed at the 4th Meeting 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 (AHWG), which took place from 31 May to 3 June, 2011, in New York. These draft recommendations request that *'…*

1. *A process be initiated, by the General Assembly, with a view to ensuring that the legal framework for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction effectively addresses those issues by identifying gaps and ways forward, including through the implementation of existing instruments and the possible development of a multilateral agreement under the United Nations Convention on the Law of the Sea;*

2. *This process would address the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, and environmental impact assessments, capacity-building and the transfer of marine technology;*

3. *This process would take place:*

   […]

   ii) In a format of intersessional workshops, aimed at improving understanding of the issues and clarifying key questions as an input to the work of the Working Group;…'

The IUCN Environmental Law Centre (IUCN ELC) developed the study ***'Access and Benefit Sharing in Relation to Marine Genetic Resources from Areas Beyond National Jurisdiction – A Possible Way Forward'*** as part of a larger research project on access and benefit sharing (ABS) in collaboration with the German Federal Agency for Nature Conservation (BfN). This study will provide a background document for the ***'Informal Workshop on Conservation of Biodiversity Beyond National Jurisdiction'*** which is jointly organized by IUCN ELC and BfN in Bonn, Germany, in October 2011. The objective of the paper is to inform all workshop participants about the currently existing legal framework related to the sharing of benefits derived from the utilization of marine genetic resources in areas beyond national jurisdiction, as well as practical options on how the existing governance gaps could be closed.

Ute Feit ***Thomas Greiber***

Federal Agency for Nature Conservation **IUCN Environmental Law Centre**

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List of Acronyms

ABNJ	Areas beyond national jurisdiction
ABS	Access to genetic resources and related benefit sharing
AHWG	Ad hoc Open-ended Informal Working Group
ATS	Antarctic Treaty System
CBD	Convention on Biological Diversity
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
EEZ	Exclusive economic zone
EIA	Environmental impact assessment
GBM	Global multilateral benefit-sharing mechanism
GEF	Global Environment Facility
IGC	Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
IPRs	Intellectual Property Rights
ISA	International Seabed Authority
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MAT	Mutually agreed terms
MLS	Multilateral System for access and benefit sharing
PIC	Prior informed consent
SMTA	Standard Material Transfer Agreement
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UNCLOS	United Nations Convention on the Law of the Sea
UNGA	United Nations General Assembly
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1. Introduction

While the exploration and exploitation of marine natural resources was long limited to coastal waters, this is no longer the case today. New uses of the oceans and their resources have emerged, which was possible due to technological progress that has made all parts of the ocean gradually accessible to humankind.[1] Especially over the last 20 to 25 years, the oceans have therefore experienced rapid and, in many cases, dramatic changes as a result of human activity.[2]

Scientific researchers and commercial bioprospectors now increasingly explore the world's oceans beyond the 200 mile limit from the coast of any nation. They more and more access and utilize natural resources found in marine areas beyond national jurisdiction (ABNJ), which comprise the seabed and ocean floor, including the subsoil thereof, as well as the high seas, i.e. the water column above (see section 3 below).[3] At the same time, humans are impacting all aspects of the ocean system in different ways, including through illegal, unreported and unregulated fishing, overfishing, destructive fishing practices, pollution (including ocean acidification), anthropogenic climate change, or the exploration and exploitation of genetic resources, among others.[4]

The overarching goal of this paper is to promote the conservation and sustainable use of marine biodiversity in ABNJ. Discussions under the United Nations Convention on the Law of the Sea (UNCLOS)[5], and in particular 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 (AHWG)[6], indicate that achieving this goal will require

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[1] J. Rochette. 2009. *Introduction*. OCEANIS, Volume 35-1/2 (2009). P. 13-17 (13).

[2] S. Arico, C. Salpin. 2005. *Bioprospecting of Genetic Resources in the Deep Seabed. Scientific, Legal and Policy Aspects*. United Nations University – Institute of Advanced Studies. P. 8.

[3] It is interesting to note that marine areas beyond national jurisdiction cover almost two thirds (or 64 %) of the world's oceans.

[4] The Global Forum on Oceans, Coasts, and Islands. 2008. *Report of Activities, 2005-2008 – GEF/MSP: Fostering a Global Dialogue on Oceans, Coasts, and SIDS, and on Freshwater-Coastal-Marine Interlinkages*. P. 14

[5] United Nations Convention on the Law of the Sea, Montego Bay, 10 December, 1982 (entry into force 16 November 1994). Available at www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf .

[6] The AHWG was established by the United Nations General Assembly according to para 73 of UNGA Resolution 59/24. UN doc. A/RES/59/24, of 17 November 2004. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 . The mandate of the AHWG is:

(a) To survey the past and present activities of the United Nations and other relevant international organizations with regard to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction;
(b) To examine the scientific, technical, economic, legal, environmental, socio-economic and other aspects of these issues;
(c) To identify key issues and questions where more detailed background studies would facilitate consideration by States of these issues;

the development and implementation of a number of appropriate conservation instruments, such as networks of protected areas on the high seas, or standards for environmental impact assessments (EIAs) with regard to activities undertaken in ABNJ. However, the current debate also shows that moving towards the adoption of such instruments is linked to finding a compromise for the fair and equitable sharing of benefits from the utilization of marine genetic resources accessed in ABNJ.

Para 165 of the United Nations General Assembly (UNGA) Resolution 65/37 on *'Oceans and the law of the sea'*, which was adopted on 7 December 2010, notes *'the discussion on the relevant legal regime on marine genetic resources in areas beyond national jurisdiction in accordance with the Convention, and calls upon States to further consider this issue,[…,] taking into account the views of States on Parts VII and XI of the Convention, with a view to making further progress on this issue'*.[7] In accordance with this, the 4th Meeting of the AHWG, which took place from 31 May to 3 June, 2011, recommended that

> *'1. A process be initiated, by the General Assembly, with a view to ensuring that the legal framework for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction effectively addresses those issues by identifying gaps and ways forward, including through the implementation of existing instruments and the possible development of a multilateral agreement under the United Nations Convention on the Law of the Sea;*
>
> *2. This process would address the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, and environmental impact assessments, capacity-building and the transfer of marine technology;'*[8]

The objective of this paper is therefore to facilitate the international process by exploring practical options for the equitable sharing of benefits derived from the utilization of marine

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(d) To indicate, where appropriate, possible options and approaches to promote international cooperation and coordination for the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction;

[7] UN doc. A/RES/65/37, of 7 December 2010. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 .

[8] Recommendations by 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 to the General Assembly, adopted on 3 June 2011 (advanced, unedited version, posted at the request of the Co-Chairs). Available at www.un.org/Depts/los/biodiversityworkinggroup/recommendations%203%20june_as%20adopted_for%20Co-Chairs.pdf .

genetic resource in ABNJ. Moving forward on this particular issue could lead to substantive progress on high seas environmental governance in general.[9]

The following sections will provide a brief understanding of the issue of marine genetic resources in ABNJ by discussing their peculiarities and socio-economic value, followed by an overview of the currently existing legal framework related to the sharing of benefits derived from the utilization of marine genetic resources in ABNJ, and a discussion on how the existing governance gaps could be closed from a procedural as well as substantial point of view.

2. The Issue: Marine Genetic Resources in Areas Beyond National Jurisdiction

Due to the gradual discovery of the diverse and exceptional flora and fauna living in marine ABNJ, genetic resources from marine organisms have received major attention by scientists and bioprospecting companies.[10] Specimen of marine flora, fauna and microorganisms are collected by biochemical oceanographers who describe their phenotype (i.e. observable characteristics), and identify and isolate their genotype (i.e. genetic functions).[11]

In its Resolution 65/37, the UNGA recognizes *'the abundance and diversity of marine genetic resources and their value in terms of the benefits, goods and services they can provide',* as well as *'the importance of research on marine genetic resources for the purpose of enhancing the scientific understanding, potential use and application, and enhanced management of marine ecosystems'*.[12] However, different questions remain open with regard to access to marine genetic resources in ABNJ and the sharing of the potential benefits arising from their utilization.[13]

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[9] In fact, a development similar to the policy process under the Convention on Biological Diversity could be imagined. Here, the adoption of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization after eight long years of negotiations was a huge step forward for the implementation of the Convention on Biological Diversity. It finally triggered the adoption of the Strategic Plan for Biodiversity for the Period 2011-2020 and the Strategy for Resource Mobilization in Support of the Achievement of the Convention's Three Objectives as a package deal.

[10] A. Proelss. 2009. *ABS in Relation to Marine GRs*. In E. C. Kamau and G. Winter (eds.). 2009. *Genetic Resources, Traditional Knowledge and the Law. Solutions for Access and Benefit Sharing.* Earthscan, London. P. 58.

[11] G. Montserrat, J. H. Jones. 2006. *International Law of the Sea, Access and Benefit Sharing Agreements, and the Use of Biotechnology in the Development, Patenting and Commercialization of Marine Natural Products as Therapeutic Agents.* Ocean Yearbook 20. P. 221-281 (221).

[12] UN doc. A/RES/65/37, of 7 December 2010, para 168 and 169. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 .

[13] S. Arico, S. Maqungo. 2008. *Co-chairs' Report of the Global Forum on Oceans, Coasts, and Islands – Working Group on Governance of Marine Ecosystems and Uses in Areas Beyond the Limits of*

In order to follow the current discussions, it is important to get a better understanding of what marine genetic resources are, why they are relevant from a socio-economic point of view, where they can be found in ABNJ, and where the actual governance problem lies.

2.1 Genetic Resources in General and Marine Genetic Resources in Particular

Defining what genetic resources are concretely has been a difficult exercise practiced by a large number of experts from international organizations, countries and nongovernmental organizations over the last 20 years.[14] Different ways of understanding biological resources, genetic resources, derivatives and products exist which have led to a variety of definitions of the term genetic resources.

However, Article 2 of the Convention on Biological Diversity (CBD)[15] provides definitions of the terms *'biological resources'*, *'genetic resources'* and *'genetic material'* and therefore serves as a starting point for a better understanding of marine genetic resources.

- *'Biological resources includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.'*
- *'Genetic material means any material of plant, animal, microbial or other origin containing functional units of heredity.'*
- *'Genetic resources means genetic material of actual or potential values.'*

According to these definitions, genetic resources are a subset of biological resources. While there is no agreed international definition of marine genetic resources so far, based on the CBD definitions, they can be defined as marine plants, animals and microorganisms, and parts thereof containing functional units of heredity that are of actual or potential value.[16]

National Jurisdiction at the 4th Global Conference on Oceans, Coasts, and Islands, April 7-11, 2008, Hanoi, Vietnam. P. 13.

[14] See, for example, the *Report of the Meeting of the Group of Legal and Technical Experts on Concepts, Terms, Working Definitions and Sectoral Approaches* which was submitted to the 7th Meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing under the CBD. UNEP/CBD/WG-ABS/7/2. Available at www.cbd.int/doc/?meeting=abswg-07 .

[15] United Nations Convention on Biological Diversity, Nairobi, 22 May, 1992 (entry into force 29 December 1993). Available at www.cbd.int/doc/legal/cbd-en.pdf .

[16] Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11. Para 10. Available at www.cbd.int/doc/meetings/sbstta/sbstta-11/official/sbstta-11-11-en.pdf .

2.2 Socio-economic Relevance of Marine Genetic Resources

Today, a host of exploration activities are being undertaken by scientific researchers as well as private companies to study marine organisms in ABNJ.[17] This general development and especially the vast financial expenses associated with such research activities[18] indicate a great interest in the resources, which again raises the question about the reason for the fascination of marine biodiversity in ABNJ.

Some of the marine organisms survive under extreme temperature and high hydrostatic pressure, thus presenting interesting metabolic, physiological and taxonomic characteristics. The discovery of creatures perfectly adapted to extreme conditions, including eternal darkness, has awakened first of all enormous scientific interest in how life emerged on Earth and how it flourishes in such extreme environments.[19]

Apart from this general „academic' interest, a purely commercial interest in these organisms also exists. Research indicates that marine organisms in ABNJ represent important raw material for genetic resources which could be used in the development of different types of commercial products.[20] Industry sectors that might benefit from the exploration and utilization of marine genetic resources include the health and cosmetics sectors, but also industrial processes or bioremediation.[21] For example, the DNA and RNA derivatives extracted from marine genetic resources can have antioxidant, antiviral, anti-inflammatory, anti-fungal, anti-

[17] Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11. Paras 11-12. Available at www.cbd.int/doc/meetings/sbstta/sbstta-11/official/sbstta-11-11-en.pdf .

[18] For example, the Japan Agency for Marine-Earth Science and Technology, one of the leading institutions conducting deep seabed research, has an annual budget of USD 300 million (see Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11. Para 12. Available at www.cbd.int/doc/meetings/sbstta/sbstta-11/official/sbstta-11-11-en.pdf).

The Harbor Branch Oceanographic Institution charges USD 12.000 per day for marine bioprospecting and an additional USD 4.500 per day for the diving itself (see D. J. Newman, G. M. Cragg. 2005 *Political, legal, scientific and financial aspects of marine discovery programmes*. FAO workshop on Marine Biopropsecting Synopsis. Available at www.fao.org/docrep/009/a0337e/A0337E15.htm).

[19] L. Ruth. 2006. *Gambling in the deep sea*. European Molecular Biology Organization Reports Vol. 7, No. 1, 2006. P. 17. Available at www.oglf.org/Ruth.EMBO.06.pdf .

[20] Due to the expected commercial value of the marine genetic wealth in ABNJ, the notion of *'blue gold'* is sometimes used in this context.

[21] Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11. Para 21. Available at www.cbd.int/doc/meetings/sbstta/sbstta-11/official/sbstta-11-11-en.pdf .

HIV, antibiotic, anti-cancer, anti-tuberculosis, and anti-malarial purposes which could lead to the development of blockbuster drugs worth millions, if not billions of income.[22]

Finally, it must be noted that both academic and commercial exploration of marine genetic resources also serves a greater sociological purpose, for example, the cultivation of life-saving pharmaceuticals which are for the benefit of the entire human being.

2.3 Target Ecosystems

So far, most, but not all commercial developments have originated from genetic resources obtained from sedentary species.[23] However, it is important to note that the focus of oceanographic expeditions is not limited to ecosystems of the benthic environment (i.e. those close to the seabed), but also comprises the pelagic zone (i.e. the water column above the seabed). In fact, different ecosystems in ABNJ are of interest to oceanographers exploring marine genetic resources, namely seamounts, cold water coral reefs, hydrothermal vents, and other ecosystems, such as pelagic habitats, sponge reefs, cold seeps, and abyssal plains.[24] The diversity of targeted ecosystems plays an important role in the discussion about the international legal framework applicable to access and benefit sharing related to marine genetic resources (see section 3 below).

Box 1: Understanding ecosystems in ABNJ[25]

- Seamounts are isolated mountains or mountain chains beneath the surface of the sea, generally formed over upwelling plumes and in island arc convergent settings. They are often highly productive ecosystems that can support high biodiversity and special biological communities with high levels of endemic species.
- Cold-water corals are widely distributed. To date, most of them have been discovered on the edges of the continental shelf or on seamounts where they build biodiversity hotspots in the open ocean.
- Hydrothermal vents occur along all active mid ocean ridges and back-arc spreading centres. They were the first ecosystem on Earth found to be independent from the sun as an original source of energy, relying instead on chemosynthesis. While biodiversity is generally low at vent sites, endemism is high.

[22] 62nd Session of the UN General Assembly. *Report from the Secretary General on Oceans and the Law of the Sea*. UN Doc. A/62/66. Para 164. Available at http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N07/266/94/PDF/N0726694.pdf?OpenElement .

[23] D. Leary, M. Vierros, G. Hamon, S. Arico, and C. Monagle. 2009. *Marine genetic resources: A review of scientific and commercial interest.* Marine Policy: Vol. 33, issue 2, P. 183-194.

[24] Strategic Planning Workshop on Global Oceans Issues in Marine Areas Beyond National Jurisdiction in the Context of Climate Change, January 23-25, 2008, Nice, France. *Briefing Volume on Key Sources of Information*. P. 1-5.

[25] Strategic *Planning Workshop on Global Oceans Issues in Marine Areas Beyond National Jurisdiction in the Context of Climate Change, January 23-25, 2008, Nice, France – Briefing Volume on Key Sources of Information*. P. 1-5.

- While species diversity in the pelagic habitats is generally lower than in the benthic environment, the pelagic ecosystem is far from uniform in terms of productivity with distinct hot spots.
- Sponge reefs are formed by glass sponges with three-dimensional silica skeletons, and are built in a manner similar to coral reefs, by new generations growing on previous ones. They can be found on the soft mud bottom of the deep sea where they provide habitat for many species.
- Cold seeps are deep soft-bottom areas where oil or gases seep out of the sediments. They are known to support relatively high diversity with a high rate of endemism.
- Abyssal plains cover almost 50 % of the deep seabed, and are mainly comprised of mud flats. A relatively high diversity of animals lives in and on deep-sea sediments.

2.4 The Governance Problem

While the exploration and utilization of marine genetic resources in ABNJ offers potential socio-economic benefits, it simultaneously poses environmental threats to the targeted ecosystems, and it also raises questions of fairness and equity. Both require improved governance as a response.

Deep seabed ecosystems, in particular, appear to be sensitive to human disturbance, as slight changes in environmental conditions can have a significant impact on key biological processes and might cause unforeseen damage.[26] Threats can arise from different activities, including unsustainable harvesting of biota, drilling activities which might lead to changes in fluid flow pathways, utilization of technological equipment which is placed on and damages fauna and flora, or disturbs photosensitive organisms through light-spots, etc.[27] Scientific research and commercial bioprospecting can thus result in destruction of habitats, overexploitation of resources, alteration of local hydrological and environmental conditions (including introduction of alien species), different forms of pollution, but also cumulate with impacts over time, such as those associated with deep sea trawling. This indicates the need for severe environmental standards which help to prevent future damage to the fragile ecosystems in ABNJ.

In addition to such environmental concerns, moral values of fairness and equity are at stake. Exploration and utilization of marine genetic resources in ABNJ generally requires sufficient financial resources. Oceanographic technology must also be available, as well as scientific expertise and lab capacity in order to undertake scientific research and/or bioprospecting. These conditions already limit the number of countries which may engage in and directly benefit from the exploration of marine genetic resources in ABNJ. At the same time,

[26] Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11. Para 27. Available at www.cbd.int/doc/meetings/sbstta/sbstta-11/official/sbstta-11-11-en.pdf .

[27] H. Korn, S. Friedrich, U. Feit. 2003. *Deep Sea Genetic Resources in the Context of the Convention on Biological Diversity and the United Nations Convention on the Law of the Sea. Federal Agency for Nature Conservation*, BfN-Skripten 79. P. 22.

intellectual property rights laws have the potential to create monopoly rights for scientists and/or the private sector over the outcomes of the genetic exploration and utilization. This situation creates a classic *'north-south divide'* in which developed and developing countries are struggling with a decision on how to manage the access to the so-called *'blue gold'* on the one hand, and how to share related benefits in an equitable and at the same time economically justifiable manner on the other hand.

Furthermore, it is highly important to be realistic about the potential ocean assets and the profitability of actions related to marine genetic resources from ABNJ.[28] The following points therefore need to be taken into consideration:

- Experiences from access and benefit-sharing discussions under the CBD have already put at least a question mark behind the great expectations of developing nations to receive substantive financial income from the utilization of their terrestrial biodiversity (the *'green gold'*).[29]

- The exploration of marine genetic resources in ABNJ requires enormous upfront investments, while possible monetary benefits from bioprospecting activities are far from being certain.

- Monetary benefits are generally less stable than non-monetary benefits which might accrue more directly to developing countries. The list of potential benefits listed in 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[30] is an important reference point in this regard.

Box 2: Potential non-monetary benefits[31]

- Sharing of research and development results;
- Collaboration and cooperation in, and contribution to scientific research and development programmes, particularly biotechnological research activities;
- Participation in product development;
- Collaboration and cooperation in and contribution to education and training;
- Admittance to ex situ facilities of genetic resources and to databases;

[28] M. C. Balgos, C. Snyder, B. Cicin-Sain, D. Freestone, C. Tompkins. 2008. Executive Summary – Workshop on Governance of Marine Areas Beyond National Jurisdiction: Management Issues and Policy Options, November 3-5, 2008, Singapore. P. 12.

[29] For a critical opinion on biodiversity access and benefit sharing, see K. D. Prathapan, P. D. Rajan. 2011. *Biodiversity access and benefit-sharing: weaving a rope of sand*. Current Science, Vol. 100, No. 3, 10 February 2011. P. 290-293.

[30] Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, Nagoya, 29 October, 2010 (not yet entered into force). Available at www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf .

[31] The following list is adapted from Annex 1 of the Nagoya Protocol.

- Transfer of knowledge and technology under fair and most favourable terms, in particular, knowledge and technology that make use of genetic resources, including biotechnology, or that are relevant to the conservation and sustainable utilization of biological diversity;
- Strengthening capacities for technology transfer;
- Institutional capacity-building;
- Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies;
- Research directed towards priority needs, such as health and livelihood security;
- Institutional and professional relationships that can arise from collaborative activities;
- Joint ownership of relevant intellectual property rights.

While full clarity about the „true' economics of marine genetic resources in ABNJ, including their associated monetary benefits, might still be lacking, the current debate clearly shows the need for a governance framework which is accepted by the international community as being equitable and fair. The following section will therefore take a closer look at the currently existing legal framework related to marine genetic resources in ABNJ.

3. Currently Existing Legal Framework

So far, marine genetic resources in ABNJ are not regulated through a specific legal instrument at the international level. However, different international instruments exist which are related to the marine environment and its biodiversity, as well as to access to genetic resources and related benefit sharing (ABS). These legal instruments include the United Nations Convention on the Law of the Sea (UNCLOS), the Convention on Biological Diversity (CBD) and its Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol), the Antarctic Treaty System (ATS), comprising the Antarctic Treaty[32], its Protocol on Environmental Protection (Madrid Protocol)[33] and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)[34], as well as international instruments related to intellectual property rights.

3.1 UNCLOS

The 1982 United Nations Convention on the Law of the Sea is the cornerstone of the currently existing international legal framework governing the oceans and seas. It *'sets out the legal frameworks within which all activities in the oceans and seas must be carried out*

[32] The Antarctic Treaty, Washington D.C., 1 December, 1959 (entry into force 23 June, 1961). Available at www.ats.aq/documents/ats/treaty_original.pdf .

[33] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October, 1991 (entry into force 14 January, 1998). Available at www.ats.aq/documents/recatt/Att006_e.pdf .

[34] Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May, 1980 (entry into force 7 April, 1982). Available at www.ats.aq/documents/ats/ccamlr_e.pdf .

and is of strategic importance as the basis for national, regional and global action and cooperation in the marine sector.'[35]

The UNCLOS foresees different degrees of ownership rights over natural resources for different maritime zones:

- **Internal waters:** According to Article 8 UNCLOS, all waters lying landward of the baselines[36] are the internal waters of the state (which invariably include harbour waters and estuaries). The sovereignty of a costal state extends beyond its land territory and internal waters to its territorial seas.

- **Territorial sea:** According to Article 3 UNCLOS, the territorial sea is a belt of sea adjacent to a coastal state, the breadth of which may not exceed 12 nautical miles measured from its baselines.

- **Contiguous zone:** According to Article 33 UNCLOS, the contiguous zone may not extend beyond 24 nautical miles from the baselines. Here, the coastal state has jurisdiction specifically related to outward and inward bound movement of ships.

- **Exclusive economic zone (EEZ):** According to Articles 55-57 UNCLOS, the EEZ is the zone immediately adjacent and beyond the territorial seas extending to a distance of 200 nautical miles from the baselines. In the EEZ the coastal state enjoys sovereign rights over the exploitation, conservation and management of living and non-living natural resources and exercises jurisdiction over marine scientific research and for the protection of the marine environment.

- **Continental shelf:** According to Article 76 UNCLOS, coastal states are entitled to a continental shelf (the seabed and subsoil of the submarine areas) out to a distance of 200 nautical miles irrespective of whether the continental margin extends this far.[37] The continental shelf extends at least 200 nautical miles from the baselines, and even more under specified circumstances, but it does not exceed 350 nautical miles from the territorial sea baselines or 100 nautical miles from the 2500 metre isobaths. According to Article 77 UNCLOS, costal states have sovereign and exclusive rights over their continental shelf for exploring and exploiting natural resources. However, they must share with the international community part of the revenue derived from exploiting resources from any part of their shelf beyond 200 miles (Article 82 UNCLOS).

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[35] UN doc. A/RES/65/37, of 7 December 2010. Preambular para 4. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 .

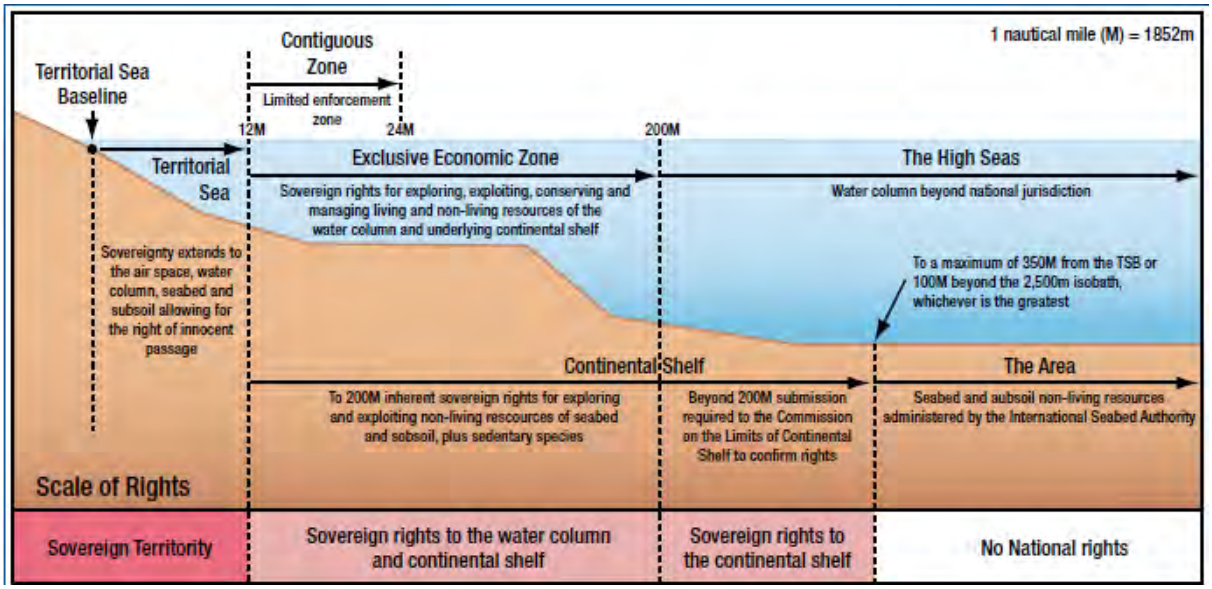
[36] According to Article 5 UNCLOS, the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast. According to Article 7 UNCLOS, where a coastline is heavily indented or where there is a fringe of islands in its immediate vicinity, straight baselines may be drawn connecting points on land.

[37] D. R. Rothwell, T. Stephens. 2010. *The International Law of the Sea*. Oxford and Portland, Oregon. P. 110.

- **High seas:** According to Article 86 UNCLOS, the high seas comprise all parts of the sea that are not included in the EEZ, the territorial sea or in the internal water of a state. All states enjoy the so-called freedom of the high seas, i.e. traditional freedoms of navigation, overflight, scientific research and fishing on the high seas (Article 87 UNCLOS).

- **The Area:** According to Article 1.1 (1) UNCLOS, the Area (international seabed area) consists of the seabed and ocean floor, and the subsoil thereof, beyond the limits of any state's jurisdiction. The resources of the Area (defined by Article 133 UNCLOS as *'all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules'*) are considered the common heritage of mankind (Article 136 UNCLOS).

Graph 1: Summary of sea claims structure under the UNCLOS[38]



While the UNCLOS defines different maritime zones, it does not explicitly regulate the issue of marine genetic resources in ABNJ. In fact, the specific term *'marine genetic resources'* is neither utilized nor described in the treaty text. Silence in this matter triggers the question whether a regulatory gap exists under the UNCLOS with regard to governance of marine genetic resources in ABNJ in general, and access to such resources and related benefit sharing in specific. Disagreement in this point currently exists between states due to different interpretations of those UNCLOS provisions which could be interpreted to cover the issue of marine genetic resources in ABNJ. Such provisions include mainly the ones related to the High Seas (Part VII of the UNCLOS), the Area (Part XI of the UNCLOS), or Marine Scientific Research (Part XIII of the UNCLOS).

In order to better understand the different arguments, a closer look at the respective UNCLOS parts and their provisions shall be taken in the following.

[38] Taken from Arctic Council. 2009. *Arctic Marine Shipping Assessment 2009 Report*. P. 52. Available at www.pame.is/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf .

3.1.1 The Area

Part XI of the UNCLOS regulates the Area, i.e. the seabed and subsoil beyond national jurisdiction, for which it establishes a regulatory and institutional framework for resource exploitation and exploration. According to Article 136 UNCLOS, the Area and its resources are considered to be the common heritage of mankind, which means that

- States cannot claim or exercise sovereignty over the Area nor its resources, nor appropriate any part of the Area (Article 137.1 UNCLOS);
- All rights in the resources of the Area are vested in mankind as a whole, i.e. they shall be explored and exploited for the benefit of mankind as a whole, irrespective of the geographical location of states (Preamble, as well as Articles 137.2 and 140.1 UNCLOS);
- The International Seabed Authority (ISA) shall act on behalf of mankind as a whole and provide for the equitable sharing of financial and other economic benefits derived from activities in the Area (Articles 137.2 and 140.2 UNCLOS).

Furthermore, Part XI of the UNCLOS promotes and encourages transfer of related technology so that all states benefit therefrom (Article 144.1 UNCLOS). Part XI of the UNCLOS thus establishes a specific ABS regime.

However, the scope of the benefit-sharing regime (benefit of mankind) is restricted to *'activities in the Area'* (Article 140.1 UNCLOS), which is defined in Article 1.1 (3) UNCLOS as *'all activities of exploration for, and exploitation of, the resources of the Area'*. The term *'resources'* is again defined in Article 133(a) UNCLOS as *'all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules'*. This limits the regime in two ways:

- First of all, mineral resources comprise only non-living resources and therefore no marine genetic resources.
- Secondly, only *'resources in situ in the Area at or beneath the seabed'* are included which leaves out those genetic resources which can be found in the water column above the seabed.

As a consequence, the ABS regime under Part XI of the UNCLOS does not directly apply to marine genetic resources in ABNJ.

3.1.2 The High Seas

However, marine genetic resources in ABNJ could be covered by Part VII of the UNCLOS which regulates the high seas, i.e. *'all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the international waters of a State, or in the archipelagic waters'* (Article 86 UNCLOS). This also includes the water column.

According to Article 87 UNCLOS, all states, whether costal or land-locked, benefit from the so-called „freedom of the high seas', which means that

- States enjoy different freedoms, including the freedom of fishing (Article 87.1(e) UNCLOS), or the freedom of scientific research Article 87.1(f) UNCLOS);

- Such freedoms must be exercised for peaceful purposes (Article 88 UNCLOS); and

- States must pay due regard to the interests of other states when exercising these freedoms (Article 87.2 UNCLOS).

As bioprospecting, i.e. the exploration and exploitation of genetic resources for commercial purposes, is not explicitly mentioned by Article 87 UNCLOS, it could be argued that such activities do not fall under the high seas regime. Indeed, the freedoms listed focus more on „traditional' kinds of marine activities. Fishing, for example, differs substantially from the „typical' bioprospecting, as it aims at catching large quantities of given living resources to produce the maximum yield from the species.[39] In contrast, bioprospectors usually have a different aim, namely securing material of plant, animal, microbial or other origin containing functional units of heredity of actual or potential value. For this they are more interested in the quality and difference of the harvested species than in their maximum yield.[40]

Scientific research again is often distinguished from so-called „applied' research whose focus is not primarily to enhance the scientific understanding of marine ecosystems, but to utilize the collected resources in order to develop commercial products on the basis of their genetic information.

Nevertheless, it has to be noted that

- Article 87.1 UNCLOS uses the term *„inter alia'* before listing the different freedoms of the high seas. This means that the given list is not exhaustive, but only an indicative list. As a consequence, it can be argued that bioprospecting activities are covered by the freedoms of the high seas even if they are not explicitly mentioned.

- While bioprospecting is surely different from fishing and „pure' scientific research, some commonalities can be determined. Like fishing, the collection and sampling of genetic resources may cause some risk to the preservation of biodiversity. In addition, in practice it is difficult to clearly distinguish between pure and applied scientific research as both might be part of a major collaborative research project.

- The freedom of the high seas is not absolute in its nature. Fishing activities, for example, must be subject to the conditions laid down in Articles 116-120 UNCLOS which aim at conserving and managing the living resources of the high seas, and

[39] T. Scovazzi. 2010. *Is the UN Convention on the Law of the Sea the Legal Framework for All Activities in the Sea? The Case of Bioprospecting*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 312.

[40] T. Scovazzi. 2010. *Is the UN Convention on the Law of the Sea the Legal Framework for All Activities in the Sea? The Case of Bioprospecting*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 312.

ensuring cooperation of states in that regard. Scientific research, again, is subject to the conditions established in Part VI and, especially Part XIII of the UNCLOS. Last but not least, according to Article 87.2 UNCLOS, the interests of other states in their exercise of the freedom of the high seas must be taken into consideration, which again limits the high seas freedom to some extent.

Still, Part VII of the UNCLOS does not provide for a specific regime which would regulate the access to and the sharing of the benefits derived from the utilization of marine genetic resources in ABNJ.

3.1.3 Marine Scientific Research

Finally, Part XIII of the UNCLOS which regulates marine scientific research could provide an ABS regime for marine genetic resources in ABNJ. Indeed, according to Articles 242 and 244 UNCLOS

- Information on proposed major marine scientific research programs and their objectives shall be made available by publication and dissemination (Article 244.1 UNCLOS);
- Knowledge resulting from marine scientific research shall also be made available by publication and dissemination (Article 244.1 UNCLOS);
- Data and information flow and the transfer of knowledge shall be actively promoted, in particular to developing states (Article 244.2 UNCLOS); and
- On the basis of mutual benefit, international cooperation in marine scientific research for peaceful purposes shall be promoted (Article 242 UNCLOS).

Furthermore, according to Article 256 UNCLOS, the provisions of Part XI of the UNCLOS apply to marine scientific research in the Area. Here, Article 143.1 UNCLOS states that scientific research in the Area *'shall be carried out exclusively for peaceful purposes and* ***for the benefit of mankind as a whole****, in accordance with Part XIII'* (emphasis added). Article 143.3 UNCLOS continues obliging states to promote international cooperation in marine scientific research in the Area, including by *'effectively disseminating the results of research and analysis'*. This clearly establishes a regime for the sharing of (non-monetary) benefits.

It can be argued that, in contrast to the ABS regime established under Part XI of the UNCLOS, which is limited to non-living resources (see section 3.1.1 above), the benefit-sharing regime related to marine scientific research also applies to genetic resources. The scope of Part XIII of the UNCLOS is not limited to any type of resource, and the „general' limitation of Part XI of the UNCLOS does not apply to scientific research in the Area. The latter becomes clear when looking at the exact formulations used in Article 143.1 and 143.3 UNCLOS: Referring to *'scientific research in the Area'* instead of *'scientific research concerning the Area* ***and its resources****'* (emphasis added), which is the formulation used in

Article 143.2 UNCLOS, implies that these provisions apply to any kind of marine scientific research and not only to research on mineral resources.[41]

However, marine scientific research and bioprospecting are usually not considered to be the same activities (even if both are difficult to distinguish in practice). Although both terms are not defined by the UNCLOS, marine scientific research is generally understood to have a non-commercial purpose while bioprospecting activities are commercially oriented. Such a differentiation is implied in Article 246 which regulates marine scientific research in the EEZ and on the continental shelf. Here, research *'to increase scientific knowledge of the marine environment for the benefit of all mankind'* is considered to be marine scientific research *'in normal circumstances'* (Article 246.3 UNCLOS). In contrast, Article 246.5 UNCLOS provides for a different rule in case a research project *'is of direct significance for the exploration and exploitation of natural resources, whether living or non-living'*, thus is for commercial gain. Furthermore, the publication and dissemination of data is delicate when the information is acquired in the course of commercially oriented research.[42]

As a consequence, Part XIII of the UNCLOS does not provide for a comprehensive ABS regime, i.e. a regime which applies to scientific research as well as commercial bioprospecting, and which foresees the sharing of monetary as well as non-monetary benefits.

3.2 Convention on Biological Diversity

According to its Article 1, the Convention on Biological Diversity has three main objectives: Conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The CBD introduced the concept of access to genetic resources and related benefit sharing, with Article 15 CBD containing the main ABS obligations. Article 15 CBD tries to balance between the interests of the users of genetic resources (which are mostly under the jurisdiction of developed countries) to continue having access to genetic resources, and the interests of the providers of such resources (primarily, the biodiversity rich developing countries) to receive an equitable share of the benefits, which may be derived from the use of such resources. In other words, according to the ABS concept, provider states shall facilitate access to their genetic resources, while user states must work towards the realization of benefit sharing.

Box 3: Summary of Article 15 CBD

- Article 15.1 CBD recognizes the sovereign right of states over their genetic resources, including the right of states to regulate and to control the use of their genetic resources.

[41] T. Scovazzi. 2010. *Is the UN Convention on the Law of the Sea the Legal Framework for All Activities in the Sea? The Case of Bioprospecting*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 313. Y. Tanaka. 2008. *Reflections on the Conservation and Sustainable Use of Genetic Resources in the Deep Seabed Beyond the Limits of National Jurisdiction*. Ocean Development & International Law, 39 (129-149). P. 131.

[42] S. Arico, C. Salpin. 2005. *Bioprospecting of Genetic Resources in the Deep Seabed. Scientific, Legal and Policy Aspects*. United Nations University – Institute of Advanced Studies. P.33.

Accordingly, genetic resources are not perceived as common heritage of humankind and cannot be treated per se as freely accessible.[43]

- The authority of a government to determine access to genetic resources is qualified by Article 15.2 CBD which requires the CBD contracting Parties to endeavour to create conditions which facilitate access to their genetic resources for environmentally sound uses, and do not impose restrictions that run counter to the objectives of the CBD.
- According to Article 15.5 CBD, access to genetic resources is subject to the prior informed consent (PIC) of the Party providing the genetic resources, unless otherwise determined by that Party. Where granted, access is further conditioned on reaching mutually agreed terms (MAT) between the Party providing genetic resources and a potential user (Article 15.4 CBD).
- Article 15.7 CBD requires each contracting Party – whether developed or developing – to take legislative, administrative or policy measures whose goal is the fair and equitable sharing of benefits with the contracting Party providing genetic resources. While the CBD does not provide a definition of the term *'benefits'*, these can, amongst others, include research and development results (Article 15.7), commercial or other benefits derived from utilizing the genetic resources provided (Article 15.7), access to and transfer of technology using the genetic resources (Article 16.3), participation in all types of scientific research based on genetic resources (Article 15.6), specifically in biotechnological research (Article 19.1), or priority access to the results and benefits arising from biotechnological use of the genetic resources (Article 19.2).

To further advance the implementation of the ABS objective, 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 (Nagoya Protocol) was adopted at the tenth meeting of the CBD Conference of the Parties on 29 October 2010, in Nagoya, Japan.[44] The question therefore arises how the CBD's ABS regime as well as the Nagoya Protocol relate to the UNCLOS.

3.2.1 Relationship between the CBD and the UNCLOS

The general relationship between the CBD and the UNCLOS is regulated in Article 22 CBD and Article 311 UNCLOS. Collectively, these articles call for consistency in the implementation of the CBD and the UNCLOS, as well as for superiority of the UNCLOS provisions in cases of conflicts between the two instruments.

Article 22.1 CBD creates a general rule whereby the rights and obligations under existing international conventions will not be affected by the CBD.[45] This provision refers to *'any*

[43] S. Carrizosa, S. B. Brush, B. D. Wright, and P. E. McGuire (eds.). 2004. *Accessing Biodiversity and Sharing the Benefits: Lessons from Implementation of the Convention on Biological Diversity*. IUCN, Gland, Switzerland and Cambridge, UK. P. 1.

[44] CBD COP 10 Decision X/1 *Access to genetic resources and the fair and equitable sharing of benefits arising from their utilization*. The Nagoya Protocol will enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession (Article 33.1 Nagoya Protocol). As of July 2011, 38 CBD Parties have already signed the Protocol.

[45] L. Glowka, et al. 1994. *A Guide to the Convention on Biological Diversity*. IUCN Gland and Cambridge. Xii + 161pp (P. 109).

existing international agreement' and therefore includes the UNCLOS. Article 22.2 CBD goes on to state that *'Contracting Parties shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea'*. In contrast to Paragraph 1, Article 22.2 privileges the existing conventional and customary law of the sea. Accordingly, the law of the sea, including the UNCLOS, shall prevail in cases where the CBD's implementation conflicts with it.[46]

Article 311.2 UNCLOS provides that the UNCLOS *'shall not alter the rights and obligations of States Parties which arise from other agreements compatible with it and which do not affect the enjoyment of other States Parties of their rights or the performance of their obligations under it'*. It thus requires existing and future agreements of the UNCLOS Parties, including the CBD, to be compatible with the UNCLOS. Article 311.3 further clarifies that between the UNCLOS Parties, the superiority of the law of the sea also extends to the basic principles and provisions contained therein from which derogation is incompatible with its object and purpose.[47]

In addition to Article 22 CBD and Article 311 UNCLOS, the decisions of the CBD Conference of the Parties (COP) which refer to marine genetic resources in ABNJ, need to be considered when analyzing the relationship between both legal instruments in this regard. The CBD COP repeatedly recognized that the law of the sea (and the UNCLOS) provides a legal framework for regulating activities in marine ABNJ.[48] Furthermore, the CBD COP invited Parties to raise their concerns regarding the issue of conservation and sustainable use of genetic resources of the deep seabed beyond limits of national jurisdiction in the UNGA, and it invited the UNGA to further coordinate work relating to conservation and sustainable use of these genetic resources.[49] At first glance, these CBD COP decisions indicate that the UNCLOS is considered to be the appropriate forum to deal with marine genetic resources in ABNJ and not the CBD.

3.2.2 Scope of the CBD and its Nagoya Protocol

The question, however, arises if the above interpretation still stands when taking a closer look at the scope of the CBD and its Nagoya Protocol.

Scope of the CBD

[46] L. Glowka, et al. 1994. *A Guide to the Convention on Biological Diversity*. IUCN Gland and Cambridge. Xii + 161pp (P. 109).

[47] A. Proelss. 2009. *ABS in Relation to Marine GRs*. In E. C. Kamau and G. Winter (eds.). 2009. *Genetic Resources, Traditional Knowledge and the Law. Solutions for Access and Benefit Sharing.* Earthscan, London. P. 59.

[48] CBD COP 7 Decision VII/5.31 *Marine and coastal biological diversity.* CBD COP 8 Decision VIII/21.6 *Marine and coastal biological diversity: conservation and sustainable use of deep seabed genetic resources beyond the limits of national jurisdiction.* CBD COP 9 Decision IX/20 *Marine and coastal biological diversity.*

[49] CBD COP 7 Decision VII/5.55 *Marine and coastal biological diversity*.

The scope of the CBD is defined in its Article 4. According to Article 4(a) CBD, the jurisdictional scope of the CBD applies to those components of biological diversity which are covered by a state's national jurisdiction. Thus, the CBD's ABS regime undoubtedly applies to those marine genetic resources which are found within the ambit of a costal state's territorial sovereignty, i.e. its internal waters and territorial sea (see section 3.1 above).

ABNJ are dealt with in Article 4(b) CBD. Accordingly, the CBD also applies to processes and activities taking place in ABNJ, provided that such processes or activities are carried out under the jurisdiction or control of a state. By express distinction to Article 4(a) CBD, Article 4(b) CBD defines the scope of the CBD by referring to types of activities rather than the place of activities. Bioprospecting in marine ABNJ could be considered to be an activity carried out under the control of a state (the flag state), and could thus fall within the scope of the CBD.

Scope of the Nagoya Protocol

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 significantly advances the CBD's ABS objective by providing a strong basis for greater legal certainty and transparency for both providers and users of genetic resources.[50] As a protocol to the CBD, the Nagoya Protocol is the instrument for the implementation of the ABS provisions of the CBD. In this regard, the CBD provides the substantive, institutional and procedural basis for the Nagoya Protocol.[51]

According to its Article 3, the Nagoya Protocol applies to genetic resources within the scope of Article 15 CBD and to the benefits arising from their utilization.[52] The Nagoya Protocol also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization. Strictly speaking, the wording of Article 3 does not clearly define the geographical scope of the Nagoya Protocol. Instead, it defines which resources are covered by the scope, i.e. the material scope (*ratione materiae*).

The scope of the Nagoya Protocol is thus defined by the scope of the access and benefit-sharing provisions of the CBD. As mentioned above, according to Article 4(b) CBD activities carried out under the control of a state in marine ABNJ could fall within the scope of the CBD. Nevertheless, it should be noted that Article 3 Nagoya Protocol does not refer to the „general' scope of the CBD (Article 4 CBD), but explicitly to the scope of Article 15 CBD. This poses the question if the formulation *'genetic resources within the scope of Article 15 of the Convention'* means that genetic resources in ABNJ are excluded from the scope of the

[50]CBD COP 10 Decision X/1 *Access to genetic resources and the fair and equitable sharing of benefits arising from their utilization*.

[51] Union of Ethical Bio Trade. 2010. *Nagoya Protocol on Access and Benefit Sharing – Technical Brief.* Available at http://ethicalbiotrade.org/news/wp-content/uploads/UEBT_ABS_Nagoya_Protocol_TB.pdf .

[52] Article 3 Nagoya Protocol states: *'This Protocol shall apply to genetic resources within the scope of Article 15 of the Convention and to the benefits arising from the utilization of such resources. This Protocol shall also apply to traditional knowledge associated with genetic resources within the scope of the Convention and to the benefits arising from the utilization of such knowledge'.*

Nagoya Protocol, or not. They would be excluded if genetic resources outside the areas of national jurisdiction were not within the scope of Article 15 CBD.

Article 15 CBD does not expressly exclude genetic resources in ABNJ. However, by implication Article 15 CBD could be understood as only referring to genetic resources that are subject to national sovereignty. Every paragraph of Article 15 CBD deals with states exercising their sovereign right to grant access to, and providing genetic resources. As states do not have sovereign rights over genetic resources in ABNJ, it can be argued that Article 15 as a whole does not address genetic resources in ABNJ.

On the one hand, the argument by implication is weak, not least because Article 4(b) CBD in principle applies to the whole of the CBD, including its Article 15. On the other hand, it has to be noted that the chapeau of Article 4 reads *'except as otherwise expressly provided in this Convention'*. This means that the general rule contained in Article 4(b) CBD only applies provided that no special rule exists. Article 15 CBD includes such a limitation of the scope for the CBD's ABS regime which is structured around a user/provider relationship that is based on the sovereign right of the provider to the genetic resources, and which is not the kind of scenario that occurs in ABNJ.

Furthermore, even if it was argued that ABNJ are in principle within the scope of the Nagoya Protocol, the practicality of such an interpretation is questionable. The Nagoya Protocol, as Article 15 CBD, is based on the concepts of PIC and MAT. According to Articles 5.1 and 6.1 Nagoya Protocol, MAT and PIC can only be negotiated with and obtained from a state. This becomes clear when taking a close look at the formulations used in both provisions, namely *'the Party providing such resources that is the country of origin of such resources or a Party that has acquired the genetic resources in accordance with the Convention'*. Furthermore, Article 6.1 Nagoya Protocol refers to *'the exercise of sovereign rights over natural resources'*. However, as explained under section 3.1 above, the UNCLOS does not foresee any state sovereignty over marine genetic resources in ABNJ. As a consequence, there is no state which could practically negotiate MAT or grant PIC in line with Articles 5.1 and 6.1 Nagoya Protocol.

In short, the concept of PIC and MAT under the Nagoya Protocol is not compatible with the inclusion of marine genetic resources in ABNJ under the general scope of the Nagoya Protocol. Such resources would need to be regulated by a different international instrument or mechanism.

Relationship clause of the Nagoya Protocol

This interpretation of the general scope is supported by Article 4 Nagoya Protocol which regulates the relationship between the Nagoya Protocol and other international agreements and instruments.

Article 4.1, Phrase 1 Nagoya Protocol regulates that the rights and obligations deriving from other already existing international agreements shall not be affected, with the disclaimer that no serious damage or threat to biological diversity must be caused. Phrase 2 continues by stating that no hierarchy is established between the Nagoya Protocol and other international instruments. Hence, Article 4.1 clarifies that the Nagoya Protocol is not supposed to prevail

(trump) any existing international agreement and instrument, including the UNCLOS, as long as it does not lead to serious damage or threat to biodiversity.

Furthermore, Article 4.3, Phrase 1 creates the obligation to implement the Nagoya Protocol *'in a mutually supportive manner'* with other relevant international instruments. It therefore aims at an amicable implementation of the Protocol and other ABS relevant international instruments, such as UNCLOS. Article 4.3, Phrase 2 goes even a step further by referring to *'useful and relevant ongoing work or practices under such international instruments and relevant international organizations'* which should be taken into consideration when implementing the Nagoya Protocol. Amongst others, this refers to the ABS discussions related to marine genetic resources in ABNJ under the UNCLOS and the AHWG which need to be considered as long as *'they are supportive of and do not run counter to the objectives'* of the CBD and the Nagoya Protocol.

Articles 4.2 and 4.4 Nagoya Protocol again clearly provide for the development and implementation of specialized international ABS instruments in the future, such as an ABS regime for marine genetic resources in ABNJ. Article 4.2 Nagoya Protocol gives the discretion to develop other specialized ABS agreements. While Article 4.4, Phrase 1 regulates that the Nagoya Protocol *'is the instrument for the implementation of the access and benefit-sharing provisions of the Convention'*, which sets the general norm, Article 4.4, Phrase 2 creates an exception where a specialized ABS instrument applies. In the latter case, the Protocol does not apply for the Party or Parties to the specialized instrument in respect of the specific genetic resource covered.

In summary, Article 4 Nagoya Protocol recognizes special sectoral ABS needs which may be addressed outside of the ABS regime established by the Nagoya Protocol. As mentioned before, marine genetic resources in ABNJ are such a special case, as they do not fall under the sovereignty of any state and therefore appear to be incompatible with the concept of PIC and MAT under the Nagoya Protocol.

Multilateral benefit-sharing mechanism under the Nagoya Protocol

Last but not least, Article 10 Nagoya Protocol needs to be considered when interpreting the general scope of the Nagoya Protocol. This provision introduces the idea of a global multilateral benefit-sharing mechanism which could be developed in order to address *'the fair and equitable sharing of benefits derived from the utilization of genetic resources [...] for which it is not possible to grant or obtain prior informed consent'*.

Marine genetic resources in ABNJ are such genetic resources for which no PIC by a state can be obtained. Therefore, the global multilateral benefit-sharing mechanism (if it is established[53]), would be the instrument of the Nagoya Protocol to cover these resources. In

[53] It must be noted that Article 10 Nagoya Protocol does not yet establish the global multilateral benefit-sharing mechanism. It only includes an obligation of the Parties to *'consider the need for and modalities of a global multilateral benefit-sharing mechanism'*. The need for and the potential modalities of such a mechanism will be discussed at the second meeting of the Ad Hoc Intergovernmental Committee for the Nagoya Protocol on ABS which is an interim governing body for the Nagoya Protocol until the first meeting of the Parties to the Protocol at which time it will cease to exist.

reverse, this means that marine genetic resources in ABNJ do not fall under the general scope of the Nagoya Protocol.

3.3 Antarctic Treaty System

The Antarctic Treaty System (ATS), including the 1959 Antarctic Treaty[54], the 1991 Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol)[55], as well as the 1980 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)[56], could be of further relevance for regulating the exploration and exploitation of marine genetic resources in ABNJ.

3.3.1 Relationship between the ATS and the UNCLOS

The geographical scope of the ATS is the Antarctic Treaty area, which is pursuant to Article VI Antarctic Treaty *'the area south of 60° South Latitude, including all ice shelves'*. The ATS therefore provides a legal regime not only for the Antarctic continent but also for the Southern Ocean. This raises the question about its relationship with the UNCLOS.

Article VI Antarctic Treaty does not explicitly regulate the relationship between both legal instruments. Instead, it states that it does not *'prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area'*. While the UNCLOS is clearly part of the current conventional international law, it did not yet exist when the Antarctic Treaty was adopted in 1959. Yet, excluding the UNCLOS and other recent instruments of international law would render the Antarctic Treaty an outdated regime and lead to a situation in which it was difficult to implement and coordinate with other international instruments. As a consequence, it can be argued that the ATS accepts the application of the UNCLOS, being the main international legal instrument regulating the high seas, to the waters around the Antarctic continent.

This leads to another fundamental question, namely which provisions of the UNCLOS are relevant to the Antarctic Treaty area, and what zones of maritime jurisdiction recognized by the UNCLOS are applicable to which states. Article VI Antarctic Treaty says nothing about the different zones of maritime jurisdiction. As shown above (section 3.1), the status of the different zones under the UNCLOS depends on the status of the adjacent land. Still, the legal status of and the sovereignty over the Antarctic continent are highly contested. One of the most important features of the Antarctic Treaty is that, in order to further peaceful scientific investigation, the substantial differences concerning territorial claims are put on hold. Article IV Antarctic Treaty which deals with territorial sovereignty safeguards the positions of three groups of states which are Parties to the Antarctic Treaty: those that had *'previously asserted rights of or claims to territorial sovereignty in Antarctica'*, those that consider themselves as having *'a basis of claim to territorial sovereignty in Antarctica'*, and those that do not

[54] The Antarctic Treaty, Washington D.C., 1 December, 1959 (entry into force 23 June, 1961). Available at www.ats.aq/documents/ats/treaty_original.pdf .

[55] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October, 1991 (entry into force 14 January, 1998). Available at www.ats.aq/documents/recatt/Att006_e.pdf .

[56] Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May, 1980 (entry into force 7 April, 1982). Available at www.ats.aq/documents/ats/ccamlr_e.pdf .

recognize *'any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica'*. In addition, paragraph 2 of Article IV goes on to provide that *'no acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force'.*

On the one hand, it can be argued that if there is no recognised sovereign state, there can be no zones of offshore jurisdiction, which again means that the high seas (and as a consequence the respective legal regime under UNCLOS) extend up to the edge of the Antarctic continent. On the other hand, it is questionable whether Article VI Antarctic Treaty should be interpreted as acknowledging the priority of the UNCLOS over the norms of the ATS concerning the management of marine areas and their resources. Such an interpretation would limit the scope of the ATS only to the natural resources of the Antarctic continent, i.e. terrestrial resources, and exclude all marine natural resources which also fall within the geographical scope of the ATS, namely the area south of 60° South Latitude including also parts of the Southern Ocean.

As the exact relationship between the ATS and the UNCLOS is not entirely clear, it is important to take a closer look at the legal framework established by the ATS and how this applies to ABS.

3.3.2 ABS-related Provisions

The ATS establishes a distinct international framework for governing activities in the Antarctic Treaty area. Sharing the benefits of Antarctica is an important aim of the ATS. Three main benefits can be mentioned here:

- Utilization of Antarctica exclusively for peaceful purposes and avoidance of international discord (Preamble of the Antarctic Treaty);
- Substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica (Article II Antarctic Treaty);
- Conservation of Antarctica's unique environment (Article 2 Madrid Protocol, Article II CCAMLR).

Mechanisms for sharing some of the benefits of biological prospecting exist within the ATS. According to Article III Antarctic Treaty, the contracting Parties agree that

- Information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy of and efficiency of operations;
- Scientific personnel shall be exchanged in Antarctica between expeditions and stations;
- Scientific observations and results from Antarctica shall be exchanged and made freely available.

Article VII CCAMLR establishes the Commission for the Conservation of Antarctic Marine Living Resources which, according to Article IX CCAMLR, is mandated to, inter alia,

- Facilitate research into Antarctic marine living resources;
- Compile and disseminate data on those resources;
- Formulate, adopt and revise conservation measures and the basis of the best scientific evidence available.

The Madrid Protocol also provides for cooperation among Parties when planning and conducting activities in the Treaty Area, including with regard to the development of scientific and technical programs, the choice of sites for prospective stations, and the understanding of joint expeditions and sharing information (Article 6 Madrid Protocol).

3.3.3 ABS-related Gaps

However, a recent analysis has identified important ABS gaps in the ATS which still need to be addressed:[57]

Definitions

The ATS lacks specific definitions of key ABS terms, such as biological resources, biological material, genetic resources and material, bioprospecting and how this distinguishes from harvesting activities, commercially confident information, or benefit sharing.[58]

Access

Collecting specimens from the Antarctic Treaty area for bioprospecting activities is subject to a number of access requirements, such as a permit to collect the specimens (Annex II, Article 3 and/or Annex V, Article 7 Madrid Protocol), an environmental impact assessment (Article 8 and Annex I Madrid Protocol), or compliance with the conservation measures formulated by the Commission for the Conservation of Antarctic Marine Living Resources (Article II, IX CCAMLR).

However, important gaps in these access regulations can be determined. While micro-organisms are of special interest for scientists and bioprospectors, access to such resources does not require a permit under Annex II Madrid Protocol. In addition, marine living resources are outside the scope of Annex II Madrid Protocol.[59]

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[57] XXXII Antarctic Treaty Consultative Meeting (ATCM). 2009. *A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting.* Working Paper 026.

[58] The 1988 Convention on the Regulation of Antarctic Mineral Resources Activities (CRAMRA) contains a number of definitions that may provide some assistance in developing some of the above definitions. However, CRAMRA was superseded by the 1991 Madrid Protocol and is therefore unlikely to enter into force.

[59] XXXII Antarctic Treaty Consultative Meeting (ATCM). 2009. *A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting.* Working Paper 026. P. 15.

Benefit sharing

Another concern regards the effect of increasingly commercial oriented science and bioprospecting on the freedom of science in Antarctic. The question arises whether commercialization, including the acquisition of intellectual property rights (IPRs), conflicts with the objective of Articles II and the obligations under Article III Antarctic Treaty. The rights conferred by an IPR might interfere with the freedom of scientific investigation in Antarctica, as a patent, for example, may result in excluding others from freely using an organism for further investigation and from exploiting it without a licence from the patent holder.[60] Furthermore, the degree of confidentiality required prior to the filing for patents and other IPRs in order to safeguard the novel character of an invention and to create a competitive advantage might be incompatible with the requirement that scientific observations and results be exchanged and made freely available.[61]

Another gap is the level of information about bioprospecting activities which is provided by the states. While the national reports only list brief details about research projects and not about research outcomes, more information is needed on the kind of bioprospecting activities, the environmental impact of those activities, the kind of association between governmental research organizations and industry, and the commercial developments which have taken place.[62]

3.4 International Instruments related to Intellectual Property Rights

As indicated above, the granting of intellectual property rights for inventions using marine genetic resources has the potential to limit the future utilization of such resources. This can conflict with ABS objectives, as some genetic resources can be too important, in terms of the present and future public benefit, to be subject to strong intellectual property protection. However, IPRs can also be part of the solution, as they provide a legal and commercial framework to generate benefits from the use of genetic resources, while licensing exploitation can help define how access is granted and benefits are shared.[63]

At the international level, two particular fora and their IPR instruments and processes need to be further examined: the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO).

3.4.1 World Intellectual Property Organization

[60] XXXII Antarctic Treaty Consultative Meeting (ATCM). 2009. *A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting.* Working Paper 026. P. 16.

[61] XXXII Antarctic Treaty Consultative Meeting (ATCM). 2009. *A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting.* Working Paper 026. P. 16.

[62] XXXII Antarctic Treaty Consultative Meeting (ATCM). 2009. *A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting.* Working Paper 026. P. 18.

[63] S. Arico, C. Salpin. 2005. *Bioprospecting of Genetic Resources in the Deep Seabed: Scintific, Legal and Policy Aspects.* United Nations University – Institute of Advanced Studies. P. 42.

The World Intellectual Property Organization is a specialised agency of the United Nations established by the WIPO Convention in 1967. This agency is dedicated to the promotion of the protection of intellectual property throughout the world. WIPO administers 24 treaties, including the WIPO Convention. Some of the conventions concluded under WIPO, especially the Paris Convention for the Protection of Industrial Property[64], set up protective rules for IPRs that can lead to conflict when implementing the objectives of ABS related to marine genetic resources in ABNJ.

Furthermore, current discussions in different WIPO Committees are of relevance for marine genetic resources in ABNJ, in particular the ones in the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). The WIPO IGC was established by the WIPO General Assembly in 2000 as a forum for discussions among Member States on the relationship between intellectual property and the following themes: access to genetic resources and benefit sharing; protection of traditional knowledge; and protection of expressions of folklore.[65] The IGC's mandate includes the possible development of an international instrument or instruments on IPRs and genetic resources which could become relevant for ABS related to marine genetic resources in ABNJ. While the discussions are slowly proceeding, three main clusters of substantive questions have been identified in the course of the IGC's work[66].

Defensive protection of genetic resources

The term „defensive protection' refers to a set of strategies to ensure that third parties do not gain illegitimate or unfounded IPRs over traditional knowledge/traditional cultural expression subject matter and related genetic resources.[67] In contrast to a positive protection strategy which is based on obtaining and asserting rights in the protected material, a defensive protection strategy is aimed at preventing others from gaining or maintaining adverse IPRs. Defensive strategies are well established in general intellectual property practice, with the

[64] The Paris Convention for the Protection of Industrial Property applies to industrial property in the widest sense, including patents, marks, trade names, geographical indications, etc.

[65] World Intellectual Property Organization – General Assembly. 2000. *Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore*. WO/GA/26/6. Para 13. Available at www.wipo.int/edocs/mdocs/govbody/en/wo_ga_26/wo_ga_26_6.pdf .

[66] World Intellectual Property Organization – Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. 2010. *Genetic Resources: List of Options and Factual Update.* WIPO/GRTKF/IC/17/6. Available at www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_17/wipo_grtkf_ic_17_6.pdf .

[67] World Intellectual Property Organization – Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. 2011. *Glossary of Key Terms Related to Intellectual Property and Genetic Resources.* WIPO/GRTKF/IC/17/INF/13. Available at www.wipo.int/meetings/en/details.jsp?meeting_id=22093 .

possibility, for instance, of a practice of filing patent applications not with a view to gaining patent rights but to ensure later patents on the same subject matter are not granted.[68]

Intellectual property issues in mutually agreed terms

Furthermore, different options on intellectual property issues in mutually agreed terms for fair and equitable benefit sharing are being discussed. These include the preparation of databases and guidelines for the intellectual property content in ABS agreements.[69]

Disclosure requirements in patent applications

Particularly interesting in the context of ABS related to marine genetic resources in ABNJ is the issue of disclosure requirements. Patents typically confer on the patent holder exclusive rights to make, use, or sell an invention for a specified period. In exchange of the exclusive rights to exploit an invention the patent holder is obliged to disclose the invention to the public. In reality, however, only a limited amount of information is disclosed for confidentiality reasons. As this often applies also to the origin of genetic resources used for an invention, the development of benefit-sharing schemes can be difficult.[70]

As a consequence, disclosure requirements are part of current proposals to reform international, regional and national patent laws. Patent applicants shall be obliged to disclose different categories of information concerning genetic resources when these are used in developing the invention claimed in a patent or patent application. Three broad types of disclosure requirements can be differentiated:

- Disclosure of the actual source of the genetic resources, i.e. a descriptive or transparency requirement, relating to where the genetic resources was obtained;
- Disclosure of evidence of compliance with applicable ABS laws; and

[68] World Intellectual Property Organization – Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. 2003. *Overview of Activities and Outcomes of the Intergovernmental Committee.* WIPO/GRTKF/IC/5/12. Available at www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_5/wipo_grtkf_ic_5_12.pdf .For example, in Japan it is relatively common practice to apply for patents for inventions that the applicant does not intend to use, but which he or she does not want to fall in the hands of competitors who may independently reinvent them. A practical solution is to file a patent application, to wait for it to be published (or "laid open for public inspection") and not to request the subsequent examination. Such application thereby falls into public domain and as such it will necessarily be taken into account by patent examiners when assessing the patentability of claims filed by competitors.

[69] World Intellectual Property Organization – Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. 2010. *Genetic Resources: List of Options and Factual Update.* WIPO/GRTKF/IC/17/6. Available at www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_17/wipo_grtkf_ic_17_6.pdf .

[70] S. Arico. 2010. *Marine Genetic Resources and Intellectual Property Rights*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 387.

- Disclosure of any genetic resources actually used in the course of developing an invention, i.e. a descriptive or transparency requirement, pertaining to the genetic resources itself and its relationship with the invention.[71]

The latter type of disclosure requirement is of particular relevance to marine genetic resources in ABNJ which are extremely difficult to access *in situ*. It might provide a basis for developing a system of deposit of such resources with a recognized culture collection, which could be part of the obligation to give a full description of the invention.

All three themes are relevant for and have the potential to support ABS. However, the negotiations within the IGC have not led to any agreement, but are still ongoing at the moment. Therefore, WIPO does not yet provide an enabling framework for ABS related to marine genetic resources in ABNJ.

3.4.2 World Trade Organization

Established in 1995, the World Trade Organization is an international organization dealing with the rules of trade amongst its Members States through the implementation of trade agreements. Particularly one of the WTO agreements, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)[72], raises issues related to ABS. Adopted in 1994, TRIPS is considered to be one of the three pillars of the WTO which introduces intellectual property rules into the multilateral trading system in order to raise the national standards, close specific national legal gaps, and ensure quality control on the protection of intellectual property.

Some TRIPS provisions have direct consequences for the implementation of ABS. Under TRIPS, patent prerequisites are novelty, invention and utility for industrial application (Article 27.1 TRIPS). These prerequisites already provide a minimum safeguard against abuses of protecting entire forms of biodiversity from unrestricted uses.[73]

Furthermore, Article 27.1 TRIPS defines which inventions governments are obliged to make eligible for patenting and what they can exclude from patenting. Inventions that can be patented include both products and processes, and should generally cover all fields of technology. Articles 27.2 and 27.3 TRIPS deal with patentability and non-patentability of plant and animal inventions and the protection of plant varieties. According to Article 27.3(b) TRIPS, governments are allowed to exclude some kinds of inventions from patenting, i.e. plants, animals and „essentially' biological processes, but microorganisms and non-biological

[71] World Intellectual Property Organization – Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. 2011. *Glossary of Key Terms Related to Intellectual Property and Genetic Resources.* WIPO/GRTKF/IC/17/INF/13. Available at www.wipo.int/meetings/en/details.jsp?meeting_id=22093 .

[72] Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh, 15 April, 1994 (entry into force 1 January, 1996). Available at www.wto.org/english/docs_e/legal_e/27-trips.pdf .

[73] S. Arico. 2010. *Marine Genetic Resources and Intellectual Property Rights*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 388.

and microbiological processes have to be eligible for patents. However, plant varieties have to be eligible for protection either through patent protection or a system created specifically for the purpose (*sui generis*), or a combination of the two.

On the one hand, these prerequisites obviously limit the ability to simply patent a component of nature since it would be difficult to show that the subject is new, and that there has been some sort of inventive step (such as the development of an extraction process or a compound derived from a resource), even if commercial utility can be demonstrated. On the other hand, regarding marine genetic resources in ABNJ, TRIPS does not prohibit the patenting of the main source of novel compounds, i.e. microorganisms.[74]

Amendments to Article 27.3(b) TRIPS, as well as to Article 29 TRIPS dealing with conditions for patent applications, are being discussed under the WTO's Doha Development Agenda (also called the Doha Round). The latter amendment could introduce disclosure requirements in order to indicate the geographical origin of the material being patented. However, the Doha Round is still a work in progress.[75]

3.4.3 Relationship between the WIPO/WTO and the UNCLOS

As shown above, the regulation of IPRs under both WIPO and WTO have the potential to limit ABS related to marine genetic resources in ABNJ. Ongoing discussions include whether patenting resources comprises a „claim' to part of the marine environment and whether the degree of confidentiality required prior to obtaining a patent (to make sure the invention remains novel) goes against requirements to disseminate research and results. This raises the question about the relationship between both fora and their instruments and the UNCLOS.

The UNCLOS ensures that the rights and obligations of parties arising from other international agreements are not curtailed as long as they are compatible with the party's ability to perform its rights and obligations under UNCLOS (Article 311). Thus, UNCLOS should co-exist with IPR instruments, such as TRIPS or the ones under WIPO. The challenge, however, is that the current IPR framework is still under development which results in lack of sufficient legal clarity and security in relation to marine genetic resources in ABNJ.

[74] S. Arico. 2010. *Marine Genetic Resources and Intellectual Property Rights*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 389. S. Arico, C. Salpin. 2005. *Bioprospecting of Genetic Resources in the Deep Seabed: Scintific, Legal and Policy Aspects.* United Nations University – Institute of Advanced Studies. P. 43.

[75] At their Fourth Ministerial Conference in Doha, Qatar, in November 2001 WTO member governments agreed to launch new negotiations. They also agreed to work on other issues, in particular the implementation of the present agreements. The entire package is called the Doha Development Agenda.

It can thus be concluded that the currently existing legal frameworks under the UNCLOS, the CBD, the ATS, and the IPR related instruments and processes manifest a lack of

- Harmonization amongst the different fora, as well as
- Clear and comprehensive regulation of ABS related to marine genetic resources in ABNJ.

The following sections will focus on potential substantive and procedural options for closing the existing regulatory gap.

4. Closing the Gap: Substantive Options

A range of options exist for developing an ABS regime for marine genetic resources in ABNJ. The following section will briefly present different options and analyze their positive and negative sides.

4.1 Expanding the Mandate of the International Seabed Authority

A first option for closing the legal gap would be to expand the mandate of the International Seabed Authority so that it manages ABS related to marine genetic resources in ABNJ. For this, the scope of Part XI of UNCLOS could be changed by defining *'resources'* under Article 133 UNCLOS not only as mineral resources but as „all living and non-living resources *in situ* in the Area'. As a consequence,

- All resources of the Area, including marine genetic resources, would need to be explored and exploited for the benefit of mankind as a whole, irrespective of the geographical location of states (Preamble as well as Articles 137.2 and 140.1 UNCLOS).
- The ISA would be obliged to provide for the equitable sharing of financial and other economic benefits derived from activities in the Area (Articles 137.2 and 140.2 UNCLOS).
- Furthermore, the transfer of related technology would need to be promoted and encouraged so that all states would benefit therefrom (Article 144.1 UNCLOS).

The mandate of the ISA could also be expanded by broadening the scope of Article 82 UNCLOS. This provision already establishes an international royalty system for the exploitation of non-living resources of the continental shelf beyond 200 nautical miles. It is important to note that Article 82 UNCLOS refers to payments, as well as to contributions in kind. The latter is of particular interest for the development of a „realistic' benefit-sharing mechanism which cannot solely focus on monetary benefits, but also has to recognize and promote the sharing of non-monetary benefits (such as research and development results, technology transfer, etc.). The scope of Article 82 UNCLOS could thus be extended to include marine genetic resources accessed on the outer continental shelf and the seabed Area. As a consequence,

- Payments and contributions in kind would become mandatory (Article 82.1 UNCLOS),
- The exploiters of the resources would be allowed a grace period of five years to enable some initial cost-recovery (Article 82.2 UNCLOS), and
- The ISA would be in charge of distributing the payments and contributions on the basis of equitable sharing criteria (Article 82.4 UNCLOS).

On the one hand, making use of the ISA would be advantageous in different respects: The institution is already operational, has a mandate relating to the protection and preservation of the Area's marine environment (Article 145 UNCLOS), takes measures to promote and encourage marine scientific research (Art. 143 UNCLOS), and shall be set up based on an evolutionary approach. Moreover, enlarging the institution's scope to include genetic resources would allow an integrated management of the Area, as called for under the Jakarta Mandate in respect of marine and coastal biodiversity and the related decision by the Conference of the Parties to the Convention on Biological Diversity (CBD Decision II/10: Conservation and sustainable use of marine and coastal biological diversity). Using an existing institution and expanding and adjusting its responsibility as necessary would be more efficient and effective than setting up a new institution which would need to collaborate with the ISA anyway.

On the other hand, expanding the current scope and mandate of the ISA may be opposed by those states arguing against the notion that marine genetic resources from the seabed Area are part of the common heritage of mankind. It may thus not be perceived as a real compromise solution. Furthermore, it would not address the issue of marine genetic resources found in the water column above the continental shelf and the deep seabed, and therefore not provide a fully comprehensive ABS regime.

Nevertheless, the benefit-sharing mechanism set up under Article 82 UNCLOS, and the institutional framework already set up by the ISA provide interesting examples to learn from, as well as opportunities for exploring synergies.

4.2 Expanding the Scope of Marine Scientific Research

Also, the scope of the regime applicable to marine scientific research under Part XIII of the UNCLOS could be expanded. Marine scientific research would need to be defined as including not only „pure' scientific research but also applied research/commercial bioprospecting. For this in particular, Article 240 UNCLOS which establishes general principles for the conduct of marine scientific research could be amended.

Indeed, Part XIII of the UNCLOS provides for a benefit-sharing regime. Accordingly,

- Information on proposed major marine scientific research programs and their objectives shall be made available by publication and dissemination (Article 244.1 UNCLOS);
- Knowledge resulting from marine scientific research shall also be made available by publication and dissemination (Article 244.1 UNCLOS);

- Data and information flow and the transfer of knowledge shall be actively promoted, in particular to developing States (Article 244.2 UNCLOS); and
- International cooperation in marine scientific research for peaceful purposes shall be promoted (Article 242 UNCLOS).

In contrast to the ABS regime established under Part XI of the UNCLOS, the scope of Part XIII is not limited to any type of resource, such as mineral resources or resources of the deep seabed (see section 3.1.3). Furthermore, expanding the scope of Part XIII would solve a practical problem, namely the distinction between scientific and applied/commercial research. Due to their high financial costs, initiatives exploring marine genetic resources in ABNJ are sometimes undertaken by a consortium of commercial and non-commercial researchers, which means that their activities and findings are often interrelated and hard to distinguish in practice.

However, any ABS regime must not discourage the further exploration of marine genetic resources in ABNJ in the future. Especially private scientists and bioprospectors still need to be rewarded for their exploration efforts and for their risk of making upfront investments. In this regard, certain aspects are not yet sufficiently taken into consideration under Part XIII, such as the competition between researchers and developers; pressure on researchers to publish first; transaction costs of sharing; high complexity of material transfer agreements; market interests; intellectual property rights (IPRs), etc.

4.3 Using the Global Multilateral Benefit-sharing Mechanism under the Nagoya Protocol

Another option would be to make use of the multilateral mechanism foreseen in Article 10 Nagoya Protocol which states:

> *'Parties shall consider the need for and modalities of a global multilateral benefit-sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent. The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally.'*

During the negotiations of the Nagoya Protocol the instrument of a global multilateral benefit-sharing mechanism (GBM) was initially presented by the African Group as a possible solution to difficult ABS issues at global level, such as benefits from the utilization of genetic resources, or temporal and geographical scope of the Protocol.

Graph 2: Structure of the GBM as explained by the African Group in an informal non-paper circulated during the negotiations of the Nagoya Protocol

Benefits in cash/in kind arising from the use of genetic resources (GR) or associated traditional knowledge (ATK) which cannot be clearly dealt with **on a bilateral level**

Potential special provisions	**INDICATIVE EXAMPLES**
a) Temporal Scope	• GR accessed pre-CBD/pre-Protocol

b) Geographical Scope & Exclusions	• *Ex situ* collections, country of origin unknown
	• GR outside of national jurisdictions
	  ○ High seas
	  ○ Antarctic Treaty System

c) ATK	• TK whose origin is unclear and is shared across boundaries
d) Pathogens	• Human/plant/animal pathogens accessed under Article 6 emergency exceptions
e) Serendipitous discoveries from non-commercial research	• Standard Material Transfer Agreement with high benefit-sharing obligation to create level playing field and prevent non-commercial research access being used as loophole
e) Voluntary contributions **(e.g.)**	• Benefits from uses which already exist • Benefits from uses of the 97% of the genome that is common across evolution • *? Benefits from human GR?*

Multilateral Global Biodiversity Benefit-sharing Fund

- Administration of benefits and contributions in cash and in kind resulting from special cases listed under a)-e)
- Examines project proposals with regard to relevance (national & international) and according to clearly established selection criteria
- Follows clear guidelines and is subject to control through a governing body (e.g. a regionally balanced board of trustees)
- Linked to an existing institution (to avoid structural duplications and to promote synergies) – probably Secretariat of the CBD
- Plays an active role in the monitoring of new uses of GR and in the exchange of experiences and lessons learned
- Facilitates communication and information (e.g. help-desk function), in coordination with existing institutions and mechanisms
- Cost-neutral in the medium-term (self-financing through benefit-sharing payments) – an „innovative financial mechanism' as referred to in the CBD's draft post-2010 Strategic Plan

Financing and support of measures

(in cash or in kind), which contribute to ABS and to the implementation of the CBD:

Capacity Development, Technology Transfer, Research & Development	**Projects & Programmes for 'Sustainable Use' and 'Conservation' of Biodiversity**	**Office of the Ombudsperson/Financing of Access to Justice**

In order to achieve a last minute compromise in the ABS negotiations at CBD COP 10, the Nagoya Protocol was finally adopted including the idea of a GBM as a potential parallel mechanism to complement the bilateral ABS approach under the CBD. However, the text of Article 10 Nagoya Protocol was not negotiated which indicates the need for thorough exploration and discussion before anything can be agreed.[76]

Going through Article 10 Nagoya Protocol, which explicitly provides for a GBM, would have a number of advantages: First of all, the GBM (if established[77]) aims to address *'the fair and equitable sharing of benefits derived from the utilization of genetic resources [...] for which it is not possible to grant or obtain prior informed consent'*. Throughout the ABS negotiations, different regional groups, including the EU, constantly argued that marine genetic resources in ABNJ are such genetic resources for which no prior informed consent by a state can be obtained. Making use of the GBM would thus be in line with and further support their argumentation that ABNJ are not covered by the CBD's ABS regime (Article 15 CBD) and the general scope of the Nagoya Protocol (Article 3 Nagoya Protocol), but need to be regulated differently.

Placing marine genetic resources in ABNJ under the GBM could also send an important signal to other fora where ABS-related negotiations are currently taking place (such as the Antarctic Treaty System, the World Health Organization, the World Intellectual Property Organization and the Food and Agricultural Organization). It would indicate the need for merging and streamlining different ABS regimes in order to promote synergies, and to overcome a serious problem that every ABS mechanism will have to deal with, namely the need to reduce overhead and transaction costs.

Furthermore, according to Article 10 Nagoya Protocol, the benefits shared through the GBM *'shall be used to support the conservation of biological diversity and the sustainable use of its components globally'*. They could thus be invested, amongst others, to support the implementation of marine conservation initiatives, such as the designation and management of marine protected areas in ABNJ, the implementation of EIAs, the building of capacities, or the transfer of technology related to ABNJ. This would ensure the necessary connection between ABS and other aspects of high seas governance.

Regardless of such positive aspects, important arguments can be held against joining the GBM. At this point in time, Article 10 Nagoya Protocol „only' requests Parties to consider the need for and modalities of a GBM, which will be done at the 2nd meeting of the Open-ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol (ICNP) in April 2012. Whether a GBM will be created, and when it would be realised, is therefore unpredictable.

[76] M. W. Tvedt. 2011. *A Report from the First Reflection Meeting on the Global Multilateral Benefit-Sharing Mechanism.* FNI Report 10/2011. P. 2.

[77] It must be noted that Article 10 Nagoya Protocol does not yet establish the global multilateral benefit-sharing mechanism. It only includes an obligation of the Parties to *'consider the need for and modalities of a global multilateral benefit-sharing mechanism'*. The need for and the potential modalities of such a mechanism will be discussed at the second meeting of the Ad Hoc Intergovernmental Committee for the Nagoya Protocol on ABS which is an interim governing body for the Nagoya Protocol until the first meeting of the Parties to the Protocol at which time it will cease to exist.

Furthermore, the potential design of the GBM is an open question. Currently, it is being discussed

- Whether the GBM, if established, should be a mechanism or a fund;
- Whether benefit sharing should be voluntary or mandatory;
- Which situations should be covered;
- What should be the concrete triggers for benefit sharing; or
- Who should be the recipients of benefits?[78]

Apart from such lack of technical clarity, political and institutional reasons seem to speak against the GBM as an option for developing an ABS regime for marine genetic resources in ABNJ. Having its legal basis in the Nagoya Protocol, there is a strong possibility that the administration and management of the GBM could be established within the CBD framework. For example, the mechanism could be hosted by or linked to the Secretariat of the CBD, and the COP/MOP of the Nagoya Protocol could serve as its decision-making body. Thus, joining the GBM could be interpreted as a forum choice, i.e. the recognition of the CBD and its Nagoya Protocol as the legal instrument under which ABS related marine genetic resources in ABNJ is regulated. This again could lead to a situation where the UNCLOS is disconnected from and loses influence on ABS related to marine genetic resources in ABNJ. The UNCLOS process would have no direct influence on how potential monetary benefits shared to the mechanism would be used, what types of projects could be supported under the mechanism, etc. This again would contradict the general perception of the UNCLOS as the cornerstone of the currently existing international legal framework governing the oceans and seas.

As a consequence, the GBM could only become a realistic option if it was properly linked to the UNCLOS. A first link could be created through a joint forum where CBD and UNCLOS are brought together. However, so far the UNCLOS is neither part of the joint liaison group for the three Rio conventions, nor the six biodiversity related conventions. Furthermore, it has to be noted that setting up a joint forum would only be a preliminary step to create the necessary linkage between the GBM on the one hand, and the CBD, the UNCLOS and probably other international instruments related to ABS on the other hand. The institutional set-up of the GBM would still need to be developed in a way that allowed joint administration and decision-making.

4.4 Using the Multilateral System under the ITPGRFA as a Role Model

The question arises whether the multilateral system established under the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)[79] could serve as a role model.

[78] M. W. Tvedt. 2011. *A Report from the First Reflection Meeting on the Global Multilateral Benefit-Sharing Mechanism.* FNI Report 10/2011. P. 3-13.

[79] The ITPGRFA entered into force in 2004 and now has 123 Parties.

The multilateral system

The scope of the ITPGRFA covers all plant genetic resources for food and agriculture (Article 3 ITPGRFA). According to Article 11 ITPGRFA, a Multilateral System for access and benefit sharing (MLS) was established to deal with a subset of those resources, which are listed in Annex I to the ITPGRFA (35 food crops and 29 genera forages). The MLS

- Provides access to the diversity of genetic resources of 64 crops for anyone: Resources may be obtained from the MLS solely for utilization and conservation in research, breeding and training for food and agriculture, and to continue the global system of exchange (Article 12.3 ITPGRFA).

- Facilitates access through a Standard Material Transfer Agreement (SMTA) and through the optional use of modern information technologies: The MLS is now a day-to-day operational system with hundreds of transfers of genetic resources made on a daily basis using the SMTA. The SMTA includes all relevant terms with respect to access, benefit sharing, enforcement, dispute resolution, etc. (Article 12.4 ITPGRFA). In response to this large volume of transfers and related activities the Secretariat of the ITPGRFA is establishing, in collaboration with key stakeholders, information technology systems to support the implementation of the MLS.

- Ensures multilateral benefit sharing: Article 13.1 ITPGRFA recognizes that facilitated access to plant genetic resources itself constitutes already a major benefit of the MLS. Further benefits are mentioned in Article 13.2 ITPGRFA, including exchange of information, access to and transfer of technology, capacity building, and the sharing of benefits from commercial utilization. According to Article 13.2(d) ITPGRFA, when a commercial product is developed using these resources, the ITPGRFA provides for payment of an equitable share of the resulting monetary benefits (1.1 % of gross sales minus 30 %) into the International Benefit-sharing Fund, if this product may not be used without restriction by others for further research and breeding. Where no such restrictions are in place on further availability for research and breeding, the recipient is not under any obligation to make such a payment, but is „only' encouraged to do so.

- Applies the same terms and conditions for everyone – be it farmers, university researchers, breeders or agro-industry.

In addition, the ITPGRFA provides for special provisions for the genetic resources held by International Agricultural Research Centres (IARCs), including Annex I and non-Annex I resources (Article 15.1 ITPGRFA). All the IARCs of the Consultative Group on International Agricultural Research (CGIAR) have signed agreements with the Governing Body of the ITPGRFA, bringing resources referred to in Article 15.1(b) under the purview of the ITPGRFA, such that they are made available under the same conditions as genetic resources included in Annex I.

Problems of using the MLS as a role model

Since the beginning of agriculture, crops have been exchanged and improved in order to adapt the wild species to the human or animal needs for food/feed. Today, all countries are

interdependent. In contrast, there is no such history of exchange of marine genetic resources from ABNJ, and therefore no comparable interdependence of states.

Furthermore, the MLS under the ITPGRFA deals with a limited number of genetic resources listed in its Annex I which are subject to national jurisdiction. These resources were selected based on their importance for food security and their interdependence, including most of the major food crops. Developing such a list for marine genetic resources from ABNJ seems to be difficult as no comparable selection criteria exist yet. This is even more so, as the same marine genetic resources are sometimes found in ABNJ but also in the Exclusive Economic Zone of coastal states. Also, resources may be obtained from the MLS solely for utilization and conservation in research, breeding and training for food and agriculture, and to continue the global system of exchange (Article 12.3 ITPGRFA). The MLS thus does not cover chemical, pharmaceutical and other non-food/feed industrial uses which are particularly interesting in relation to marine genetic resources.

Last but not least, almost 7 years after its entry into force the ITPGRFA is still struggling with raising sufficient funds for the MLS. This is due to the MLS funding strategy which refers to obligatory contributions stemming from the use of MLS germplasm and additionally to voluntary contributions. A comparable financial situation could be imagined for a future multilateral mechanism dealing with marine genetic resources from ABNJ. Building such an instrument on payments to be made for the commercial utilization of marine genetic resources would require sufficient time. Additional voluntary contributions neither present a reliable nor a sustainable financial resource as they can be subject to changing political priorities and changing economic environments, in particular economic crises. As a consequence, the MLS of the ITPGRFA does not serve as a direct model, but it does provide some interesting lessons learned and practical approaches.

4.5 Developing a 'Needs-based' Multilateral Benefit-sharing Mechanism

Nevertheless, certain features of the MLS, as well as instruments and concepts already existing within and outside of the UNCLOS might provide ideas for the development of a multilateral mechanism responding to the needs of ABS related to marine genetic resources in ABNJ.

Public trust of marine genetic resources from ABNJ

A multilateral system would first of all need to overcome the currently polarized discussion about the legal status of marine genetic resources in ABNJ. This could be done by building a public trust for marine genetic resources from ABNJ. Such a trust would mean that

- Open access to marine genetic resources in ABNJ was still given;
- Those accessing the resources needed to comply with rules for sustainable management and benefit sharing;

- Monetary benefits could go either to a single global oceans trust or specific regional trusts in order to support marine conservation and protection.[80]

The concept of public trust would reflect both the common interests in marine genetic resources from ABNJ, and the common concern of humanity for the conservation of marine biodiversity. Therefore, it could present a promising compromise between the proponents of open access to marine genetic resources in ABNJ on the one side, and those defending the common heritage of mankind principle on the other side.

The MLS under the ITPGRFA could provide an example in this regard. Here, countries grant each other facilitated access to their genetic material of a number of the most important crops for food security in the exercise of the sovereign rights that they hold over their genetic resources.[81] In other words, the Contracting Parties have agreed in advance, and on a multilateral basis, on the terms that are to govern the exchange of resources with other Contracting Parties and have provided their PIC to that exchange. Applying the same approach to marine genetic resources in ABNJ would mean that the politically sensible issue of ownership of marine genetic resources in ABNJ would not need to be directly decided. The resources covered by a multilateral benefit-sharing mechanism would not explicitly be considered to be common heritage. At the same time, they would not be subject to the absolute unconstrained (first-come first-served) interpretation of the freedom of the high seas.

Mutual benefits

In order to ensure the necessary political support for a multilateral benefit-sharing mechanism, it would also be important to show that the beneficiaries of the system are not limited to one group of stakeholders, i.e. researchers, the private sector, or consumers from developing or industrialized states only.

In this regard, the MLS under the ITPGRFA provides again an interesting approach, as it recognizes a broad spectrum of beneficiaries including: Present and future generations, because of increased food security; farmers and their communities, through Farmers' Rights; consumers, because of a greater variety of foods, and of agriculture products, as well as increased food security; the scientific community, through access to the plant genetic resources crucial for research and plant breeding; International Agricultural Research Centres, whose collections the ITPGRFA puts on a safe and long-term legal footing; both the public and private sectors, which are assured access to a wide range of genetic diversity for agricultural development; and the environment, and future generations, because the ITPGRFA will help conserve the genetic diversity necessary to face unpredictable environmental changes, and future human needs.

[80] M. C. Balgos, C. Snyder, B. Cicin-Sain, D. Freestone, C. Tompkins. 2008. Executive Summary – Workshop on Governance of Marine Areas Beyond National Jurisdiction: Management Issues and Policy Options, November 3-5, 2008, Singapore. P. 10

[81] Food and Agricultural Organization. 2011. *Introduction to the International Treaty on Plant Genetic Resources for Food and Agriculture.* Rom. IX + 155 pp. P. 49.

Box 4: Beneficiaries of the MLS under the ITPGRFA[82]

Farmers

Farmers are the primary custodians and developers of genetic diversity for food and agriculture. The ITPGRFA recognizes this through its provisions on Farmers' Rights (Article 9), which recognize the rights of farmers to benefit from the resources they develop, to protect associated traditional knowledge, and to participate in relevant decision-making regarding these resources. In addition, through the ITPGRFA farmers can get access to desirable traits from outside their immediate location, to enhance the productivity and resilience of their production systems.

Farmers will also benefit from the new crop varieties produced by dedicated plant breeders. Improved varieties can give the farmer a range of benefits that may go beyond the particular crop itself. For example, drought-resistant varieties can both contribute to food security and result in scarce water resources being more available for other crops that need them.

Breeders

All plant breeding is based on bringing together favourable combinations of traits that meet the needs of farmers. Under the ITPGRFA, a range of the genetic resources most important for food security will be available under agreed standard terms for breeding and research. In addition, the ITPGRFA provides for the development and strengthening of a Global Information System that will make it easier for breeders to access and use such resources.

Processors

Farmers are generally the target market for breeders' efforts, but food processors also benefit from the provisions of the ITPGRFA. Improved varieties may, for example, possess qualities that result in less energy being required to process them, a cost saving for food processors that may be passed on to the final consumers, benefiting them too. Entirely new products are another possible benefit.

Consumers

In the literal sense of „those who eat', consumers are probably the most important group that will benefit from the ITPGRFA. More secure food supplies, potentially at lower cost, will benefit all. The ITPGRFA can also help to deliver enormous benefits by making diets more nutritious. Genetic resources can be used both to increase dietary diversity through new crops, and to increase the nutrient value of existing crops. The ITPGRFA will help breeders and farmers to gain access to genetic resources that contain improved nutritional characteristics and to incorporate them into locally adapted varieties.

Equally, a multilateral mechanism for marine genetic resources from ABNJ could provide a range of benefits.

Non-monetary benefits

[82] Food and Agricultural Organization. *ITGPRFA Fact Sheet No.1.* Available at ftp://ftp.fao.org/ag/agp/planttreaty/factsheets/fs01_en.pdf .

As mentioned before, Part XIII of the UNCLOS already provides for a non-monetary benefit-sharing regime applicable to non-commercial utilization of marine genetic resources from ABNJ. Accordingly,

- Information on proposed major marine scientific research programs and their objectives shall be made available by publication and dissemination (Article 244.1 UNCLOS);
- Knowledge resulting from marine scientific research shall also be made available by publication and dissemination (Article 244.1 UNCLOS);
- Data and information flow and the transfer of knowledge shall be actively promoted, in particular to developing States (Article 244.2 UNCLOS); and
- International cooperation in marine scientific research for peaceful purposes shall be promoted (Article 242 UNCLOS).

As indicated before, the problem of distinguishing between scientific and applied/commercial research could be overcome by expanding the scope of marine scientific research. Marine scientific research could thus be defined as including not only „pure' scientific research but also applied research/commercial bioprospecting. For this in particular Article 240 UNCLOS, which establishes general principles for the conduct of marine scientific research, could be amended or just supplemented.

Scientific researchers as well as commercial bioprospectors from the north and south could benefit from access to and a free exchange of marine genetic resources. Such facilitated access would be first of all an important non-monetary benefit. However, it would also have monetary implications, as the ability to mine databases of marine genetic resources from ABNJ and use such data commercially or non-commercially could become more important in the future than mere physical access to the resources themselves.[83] At the same time, consumers in all parts of the world could benefit from the development of new products.

Monetary benefits

In addition, an obligation to share direct monetary benefits from the utilization of exchanged and/or harvested marine genetic resources could be introduced by a multilateral mechanism. Such benefit sharing could be handled differently than is the case under the MLS of the ITPGRFA. The financial resources collected by the MLS do not go back to individual suppliers or countries of origin of the material, but to the fund itself. They are then spent on helping farmers, particularly those in developing countries, who conserve and sustainably use plant genetic resources for food and agriculture.

In contrast, it could be imagined that under a multilateral mechanism for marine genetic resources from ABNJ, the individual or entity that provided a resource and/or related data had a right to a fair share of the financial profits made through a subsequent commercial

[83] L. Glowka. 2010. *Evolving Perspectives on the International Seabed Area's Genetic Resources: Fifteen Years after the 'Deepest of Ironies'*. In Vidas (ed.). *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* 2010. Leiden. P. 387

utilization of the resource. In other words, a commercial developer whose product is based on a resource and/or data received through the multilateral mechanism would retain the bulk of the profits made by his product; at the same time, he would face the obligation to pay royalties directly to the scientist or bioprospector who explored the resource/data and included it in the mechanism. This could provide a necessary reward for researchers and bioprospectors and an important incentive to exchange their information under the multilateral mechanism. The remaining financial resources could then be used to fund the implementation of other conservation instruments (i.e. MPAs, EIAs, etc.).

In this regard, Article 82 UNCLOS, which provides for an international royalty system for the exploitation of non-living resources of the continental shelf beyond 200 nautical miles, could serve as a model. Based on this concept,

- Annual payments or contributions in kind in respect of the commercial utilization of marine genetic resources from ABNJ could become mandatory (see Article 82.1 UNCLOS);
- The users of marine genetic resources from ABNJ could be allowed a grace period of five years to enable some initial cost-recovery (see Article 82.2 UNCLOS); and
- The ISA (or other institutions) could be in charge of distributing the payments and contributions on the basis of equitable sharing criteria (see Article 82.4 UNCLOS).

Special interests of investors

The interests of those investing in the exploration of marine genetic resources in ABNJ, including scientific researchers as well as the private sector, could be further incorporated by a multilateral mechanism through different means, such as

- Rules of confidentiality when submitting data;
- A sui generis system of IPRs, i.e. a system that is unique, or of its own kind, and especially tailored to the needs of scientists and bioprospectors exploring marine genetic resources in ABNJ; and/or
- So-called „ABS licenses' to protect and/or reward the findings made by scientists and bioprospectors.

Different sui generis systems related to genetic resources already exist in practice, such as the concept of so-called „Farmers' Rights' under the ITPGRFA, or the „Plant Breeders' Rights' under the International Union for the Protection of New Varieties of Plants (UPOV). Farmers' Rights under the ITPGRFA, for example, are seen as a means to reward farmers and their communities for their contributions to modern agriculture in the past, to encourage them to continue in their efforts to conserve and improve plant genetic resources for food and agriculture, and to allow them to participate in the benefits derived, at present and in the

future, from the improved use of plant genetic resources, through plant breeding and other scientific methods.[84]

Box 5: Farmers' Rights under Article 9 ITPGRFA

According to Article 9.2 ITPGRFA, *'each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:*

a) *protection of traditional knowledge relevant to plant genetic resources for food and agriculture;*

b) *the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and*

c) *the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.'*

Farmers' Rights as laid down in Article 9 ITPGRFA are further backed by other provisions related to the benefit sharing under the MLS, including

- Article 13.3 ITPGRFA: Accordingly, benefits arising from the use of genetic resources that are shared under the MLS should *'flow primarily, directly and indirectly, to farmers in all countries...'*
- Article 18.5 ITPGRFA: Accordingly, priority will be given to the implementation of agreed financial plans and programs for farmers.

The concept of „Plant Breeders' Rights' under the 1991 UPOV Convention shall provide an incentive for the development of new plant varieties. Investment in plant breeding shall be rewarded through the granting of an exclusive property right over the commercialization of new plant varieties to the plant breeder. According to Article 14 of the 1991 UPOV Convention, the following acts in respect of the propagating material of the protected variety shall require the authorization of the breeder which can be made subject to conditions and limitations: production or reproduction (multiplication); conditioning for the purpose of propagation; offering for sale; selling or other marketing; exporting; importing; stocking for any of the purposes mentioned before. Such property rights facilitate the cost-recovery associated with breeding new plant varieties. At the same time, the Plant Breeders Rights are only granted for a limited period of time, at the end of which the variety passes into the public domain. Furthermore, the 1991 UPOV Convention foresees certain exceptions to and restrictions on the Breeders' Rights. For example, according to Article 15.1 of the 1991 UPOV Convention, the Plant Breeder's Right shall not extend to acts done privately and for non-commercial purposes, acts done for experimental purposes and acts done for the purpose of breeding other varieties.

Similar rewards and incentives would need to be given to scientists and bioprospectors who explore marine genetic resources in ABNJ and include their findings in a multilateral mechanism. Specific rights could be granted to scientists and bioprospectors for their past,

[84] G. Moore, W. Tymowski. 2005. *Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture.* IUCN, Gland, Switzerland and Cambridge, UK. Xii + 212 pp. P. 67.

present and future contributions in conserving, improving, and making available marine genetic resources from ABNJ.

ABS licenses provide another interesting tool which allows for uses of absolute rights (such as property rights) by others than the rights holder under identified conditions set out in the license. In principle, licenses constitute contracts under private law, which means that they could be part of a standard material transfer agreement for marine genetic resources from ABNJ. Inspired by the concept of „creative commons licenses', such ABS licenses could create a protected ABS commons which[85]

- Provides sufficient certainty with respect for rights to encourage wide participation;
- Offers providers a range of choices on the terms and conditions under which knowledge and resources are made available to encourage wide participation;
- Provides clarity for users on permitted uses;
- Enables participants seeking access for non-commercial purposes to signal acceptance of a non-commercial license to a potential provider in advance;
- Covers material in multiple forms under one system (material samples, compounds, electronic sequence data, publications etc.) and facilitate sharing between participants;
- Provides for change of use through separate additional agreements to accommodate unforeseen developments including commercial use directed to public goods based on new PIC and MAT.

Last but not least, under the ITPGRFA a SMTA regulates all transfers of plant genetic resources included in the MLS. As the terms of the SMTA are fixed, there is no need for costly bilateral negotiations which limits the transaction costs and further facilitates access. A SMTA tailored to marine genetic resources from ABNJ could bring similar cost-benefits for all potential users.

Monitoring and enforcement

Monitoring the flow of genetic resources and enforcing related rights and obligations is a critical issue for all ABS regimes. This is even more so for ABS related to marine genetic resources from ABNJ, as such resources are not under the control and supervision of any state or authority.

In its Articles 15 – 18, the Nagoya Protocol established innovative monitoring and enforcement instruments, such as disclosure requirements and national checkpoints. Once these instruments are implemented at the national level, they could also be applied to

[85] P. Oldham. 2009. *An Access and Benefit-Sharing Commons? The Role of Commons/Open Source Licenses in the International Regime on Access to Genetic Resources and Benefit Sharing – Discussion Paper*. UNEP/CBD/WG-ABS/8/INF/3. P. 3. Available at www.cbd.int/doc/meetings/abs/abswg-08/information/abswg-08-inf-03-en.pdf .

monitor marine genetic resources from ABNJ and to enforce the benefit-sharing obligations of a multilateral mechanism.

Further transparency could be achieved if the multilateral mechanism introduced a „passport' for marine genetic resources from ABNJ. This passport could build on the experiences with the so-called „Internationally Recognized Certificate of Compliance' under the Nagoya Protocol, which shall accompany genetic resources in order to prove their origin at any stage of research, development, innovation, pre commercialization or commercialization (Article 17 Nagoya Protocol). However, such a passport would need to be issued by a competent authority whose role could be filled by different existing institutions.

Institutional frameworks

Another prerequisite for a functioning multilateral mechanism would be an appropriate institutional framework. One existing institution that could probably host such a mechanism is the Global Environment Facility (GEF). The GEF could qualify as host for a number of reasons, such as:

- Amongst other activities, the GEF serves as the financial mechanism for a number of international instruments, including the CBD.
- The GEF has extensive experience in engaging with the private sector, for example through the development of public-private partnerships, or the development and management of the GEF Earth Fund.
- The GEF's work focuses on a limited number of main areas, including biodiversity and international waters. The latter was established to help countries work together to overcome tensions in large water systems, and collectively manage their transboundary surface water basins, groundwater basins, and coastal and marine systems in order to share the benefits from them.

The International Seabed Authority would be another existing institution whose mandate could be expanded to support the implementation of a multilateral mechanism. For example, the ISA could be in charge of managing the issuing of passports, the exchange of resources and related data, as well as the collection and sharing of benefits. As explained before, making use of the ISA would have different advantages. However, expanding the current scope and mandate of the ISA could be opposed by some as too close to the concept of common heritage of mankind. It might not present enough compromise and thus face strong resistance by those industrialized states who argue in favour of applying the high seas regime. Furthermore, the mandate of the ISA would have to be expanded to cover the water column above the continental shelf and the deep seabed, as this is currently not the case.

As a consequence, regional mechanisms and their institutions could present an alternative to the ISA. Such a regional institutional approach would provide a means to adapt management measures to the specific nature, needs and opportunities presented by given ocean spaces, and to establish common pools of marine genetic resources found in areas under national sovereignty, as well as in ABNJ, which again could solve the problem of transboundary genetic resources. However, a regional approach would require at least:

- Expanding the coverage of existing and/or establishing new Regional Seas Agreements;
- Coordinating among the different regional instruments; and
- Applying a coherent global approach using regional measures.

As shown in this section, different options exist for the development of an ABS regime for marine genetic resources from ABNJ. While it is not possible to simply copy an already existing benefit-sharing regime, such as the one under the ITPGRFA, a plethora of instruments, concepts and approaches is already available providing interesting ideas which could be adapted to the needs and special circumstances of marine genetic resources from ABNJ. This raises the question about the procedural way forward.

5. Closing the Gap: The Procedural Way Forward

As mentioned before, the 4th Meeting of the AHWG recommended, amongst others, the initiation of a process to identify ways forward in dealing with the gaps in the legal framework for the conservation and sustainable use of marine biodiversity in ABNJ, including through the implementation of existing instruments and the possible development of a multilateral agreement under the United Nations Convention on the Law of the Sea. As a consequence, different procedural ways for developing an ABS regime for marine genetic resources from ABNJ shall be explored in the following.

5.1 Interpretation

A first procedural option would be to focus on the further interpretation of the UNCLOS and how it could deal with marine genetic resources in ABNJ. One way of interpreting an international agreement is by looking at state practice which might have developed into customary rules. Nevertheless, the development of customary rules requires a consistent practice over a considerable period of time. So far, ABS is not consistently practiced (if at all) with regard to marine genetic resources from ABNJ.

A possible alternative could be for a meeting of the states Parties to adopt an „agreed interpretation' of the UNCLOS.[86] However, such an instrument is not foreseen by the UNCLOS, and thus does not provide a serious option.

Another means to trigger an interpretation of the UNCLOS text can be through the peaceful settlement of disputes (Part XV UNCLOS). States Parties may submit to, inter alia, the International Tribunal for the Law of the Sea or the International Court of Justice any dispute concerning the interpretation or application of the UNCLOS (Article 288.1 UNCLOS), or of an

[86] CBD Subsidiary Body on Scientific, Technical and Technological Advice. 2003. *Marine and Coastal Biodiversity: Review, Further Elaboration and Refinement of the Programme of Work.* UNEP/CBD/SBSTTA/8/INF/3/Rev.1. Para 123.

international agreement related to the purposes of the UNCLOS (Article 288.2 UNCLOS).[87] However, according to Article 296.2 UNCLOS any such decision shall have no binding force except between the Parties and in respect of that particular dispute. The peaceful settlement of disputes therefore does not provide an appropriate means to trigger a general interpretation of UNCLOS with regard to marine genetic resources in ABNJ.

5.2 UNGA Resolution

Another option could be the adoption of a UNGA resolution addressing the issue of governance of marine ABNJ in general, and/or ABS related to its marine genetic resources in particular. However, according to the UN Charter, the UNGA does not have the legal power to make laws or to adopt binding decisions except for certain organizational matters. Furthermore, UNGA resolutions are not a formal source of law within the explicit categories of Article 38.1 Statute of the International Court of Justice and therefore not legally binding.

Yet it can be argued that in the past, UNGA resolutions have had a formative influence in the development of international law. As they express common interests and the general will of the international community, they can convey a negotiating mandate, be used as a basis for the preparation of treaties by the UNGA itself or by a diplomatic conference, or even be seen as evidence of developing customary law. Still, annual resolutions on the law of the sea and on oceans and the law of the sea, as well as other relevant resolutions concerning the UNCLOS are already being adopted. Although these resolutions address high seas governance, including the issue of marine genetic resources in ABNJ, they usually do not agree on concrete instruments and rules. So far, the practice has been to simply refer to the AHWG which shall further study the issue and make recommendations.

5.3 UNGA Declaration

The UNGA could also adopt a declaration on oceans governance in ABNJ with the objective to establish a common understanding of modern principles for ABS in ABNJ. However, like UNGA resolutions, declarations are not legally binding and cannot be enforced. Being a soft law instrument, declarations „only' provide guidance for states to develop and/or assess their regional and national regulatory frameworks, as well as to adjust their practices. While it is true that UNGA declarations can be an important step in the development of customary international law, their real influence ultimately depends on the recurrence or repetition of acts in line with the declared principles after their adoption.

5.4 New Agreement outside of UNCLOS

In theory, it is also possible to develop a new agreement for ABNJ outside of the UNCLOS framework. Such a specialized agreement including ABS rules would be in compliance with Article 4 Nagoya Protocol which regulates the relationship between the Nagoya ABS Protocol and other international agreements and instruments. Articles 4.2 and 4.4 Nagoya Protocol provide for the development and implementation of specialized international ABS instruments in the future as long as *'they are supportive of and do not run counter to the objectives'* of the CBD and the Nagoya Protocol. It can be argued that a specialized ABS

[87] Para 39 of UNGA Resolution 65/37. UN doc. A/RES/65/37, of 7 December 2010. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 .

instrument is needed for marine genetic resources in ABNJ as they do not fall under the sovereignty of any state and therefore appear to be incompatible with the concept of PIC and MAT under the Nagoya Protocol.

A new agreement could have the advantage of avoiding the polarized discussions about ownership of marine genetic resources in ABNJ under the UNCLOS and providing a „fresh' start for the negotiating parties. Still, a new agreement outside of the UNCLOS framework does not seem to be practical for several reasons: The UNCLOS is generally considered to be the cornerstone of the currently existing international legal framework governing the oceans and seas. According to the UNGA Resolution 65/37, it *'sets out the legal framework within which all activities in the oceans and seas must be carried out and is of strategic importance as the basis for national, regional and global action and cooperation in the marine sector.'*[88] Addressing the issue of ABS in ABNJ in an independent agreement would be an artificial separation from the UNCLOS. It could lead to further scattering of the international legal framework applicable to marine issues and create confusion about the relationship with the UNCLOS. Furthermore, it would neither be cost-efficient, nor would there be the necessary political will to start a new negotiation process outside of the existing political and institutional framework, which becomes clear from the latest recommendations from the AHWG.

5.5 Amendment of UNCLOS

Instead of developing an independent agreement, carefully amending and complementing certain UNCLOS parts, such as Part VII on the high seas, Part XI on the Area, as well as the related Deep Seabed Agreement, Part XII on protection and preservation of the marine environment, and/or Part XIII on marine scientific research, could be a more realistic and cost-efficient option.

The UNCLOS can be amended according to Articles 312 and 313 UNCLOS. Article 312.1 UNCLOS foresees that a state Party proposes specific amendments of the UNCLOS text and requests a conference to consider the proposed amendments. This proposal/request shall be made in writing to the UN Secretary General who shall circulate it to all states Parties and convene the conference, if within 12 months after the circulation, at least 50 % of the states Parties reply favourably to the request. According to Article 312.2 UNCLOS, agreement on the proposed amendments has to be by consensus. Furthermore, a state Party may propose amendments to be adopted according to a simplified procedure, i.e. without convening a conference (Article 313.1 UNCLOS). In this case, if within 12 months from the date of the circulation of the proposed amendments by the Secretary General, no state Party has objected, the amendments shall be considered adopted (Article 313.3 UNCLOS).

According to Articles 312 and 313 UNCLOS, only amendments *'other than those relating to activities in the Area'* can be made. „Activities in the Area' is defined as all activities of exploration for and exploitation of, the resources of the Area (Article 1.1 (3) UNCLOS).

[88] UN doc. A/RES/65/37, of 7 December 2010. Preambular para 4. Available at www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm#2010 .

Hence, Articles 312 and 313 UNCLOS only prohibit amendments with regard to mining activities, but not with regard to marine scientific research and/or commercial bioprospecting.

However, given the sensitivity of the discussions on governance of ABNJ, and in particular the issue of ABS, reaching consensus or having no objection against proposed amendments to the UNCLOS is not very likely at this stage. Last but not least, an attempt to amend the UNCLOS text might lead to an unwanted chain reaction where other parts of the UNCLOS could be opened and re-negotiated, and not only those related to governance of ABNJ. An amendment of the UNCLOS therefore does not seem to be a satisfying option either.

5.6 Expansion or Development of Related Regional Agreements

Most regions of the world now have binding framework conventions which coordinate and implement marine environmental management, such as regional seas agreements, regional fisheries agreements, or regional marine resources management agreements.[89] Regional fisheries agreements address mainly fish stocks and therefore do not cover other important issues, such as marine genetic resources. In contrast, regional seas conventions (or agreements) as well as regional marine resources management agreements take a broader ecosystem approach.

So far there is only limited coverage of ABNJ by the existing regional agreements. However, recent practice of, for example, the North East Atlantic Fisheries Commission (NEAFC), the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention), or the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) show that these organizations or instruments have already started to protect certain vulnerable high seas areas through the designation of marine protected areas.[90] As a consequence, the mandate of such regional agreements could be expanded or new regional agreements could be developed in order to regulate and/or implement ABS in certain parts of the ABNJ.

Nonetheless, expanding the scope of each regional agreement and developing new ones might lead to a scattered governance framework comprising different regional approaches, instruments and/or standards. Such a lack of harmonization could again complicate the applicable regime, decrease its transparency, and in the end threaten successful implementation.

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[89] For a list of regional seas agreements as well as regional fisheries/marine resources management agreements, see Schwarte, C; Siegele, L. 2008. *Marine protected areas on the high seas? An introductory guide to the legal issues surrounding the establishment of marine protected areas on the high seas.* Annex 1, at www.field.org.uk/files/Marine_protected_areas_screen.pdf .

[90] Schwarte, C; Siegele, L. 2008. *Marine protected areas on the high seas? An introductory guide to the legal issues surrounding the establishment of marine protected areas on the high seas.* p 19 - 20, at www.field.org.uk/files/Marine_protected_areas_screen.pdf; Proelss, A. *ABS in Relation to marine GRs*. In Kamau, E.; Winter, G. (ed). 2009. *Genetic Resources, Traditional Knowledge and the Law. Solutions for Access and Benefit Sharing*. p. 69.

5.7 Implementing Agreement

As obtaining the necessary political support for an amendment of the UNCLOS is difficult (if not unlikely), and a harmonized approach is preferable, an implementation agreement (or protocol) may serve as a compromise. Currently, no generally accepted definition of the term „implementation agreement' or „implementing agreement' exists under international law. The term implementing agreement can be understood in a broad or narrow sense. In the first case, any later agreement that is concluded by some or all of the parties to an original treaty for the purpose of adapting the general rules of that treaty to a specific region or to a specific topic can be regarded as an implementation agreement of the original treaty.[91] If the creation of such an agreement is not foreseen by the original treaty, there is no direct relationship between the two instruments, although the implementing agreement arguably enhances the effectiveness of the original treaty. In the second case, an implementation agreement is directly linked to the original treaty as it is usually envisaged by the original treaty and aims to supplement this, with regard to both substantive and procedural rules.[92] It may be negotiated and signed together with the original treaty or separately. The difference between an implementing agreement and a protocol therefore does not need to be great in practice.[93]

Under the UNCLOS two implementing agreements have already been adopted, namely the Deep Seabed Agreement (disciplining seabed mining) and the Straddling Fish Stocks Agreement (regulating use of such fish stocks). Technically, both agreements do not qualify as amendments or revisions of the UNCLOS, as they were not developed according to the amendment procedures under the UNCLOS. However, it has to be noted that the Deep Seabed Agreement in effect amends or modifies the UNCLOS, and the Straddling Fish Stocks Agreement supplements the UNCLOS with provisions that, according to some, are compatible with the convention, and, according to others, go beyond some of its rules.[94]

Although the entry into force of an implementing agreement also requires its adoption and ratification by states Parties, such an implementing agreement could provide a flexible instrument offering a few advantages: As Article 37 Straddling Fish Stocks Agreement shows, an implementing agreement may remain open for signature, whereas amendments and revisions are normally confined to the UNCLOS states Parties. Joining an implementing

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[91] C. Kojima, V. S. Vereshchetin. 2006. *Implementation Agreements*. In Max Plank Institute. *Encyclopedia of Public International Law*. Oxford University Press. Available at www.mpepil.com/sample_article?id=/epil/entries/law-9780199231690-e1419&recno=30& .

[92] C. Kojima, V. S. Vereshchetin. 2006. *Implementation Agreements*. In Max Plank Institute. *Encyclopedia of Public International Law*. Oxford University Press. Available at www.mpepil.com/sample_article?id=/epil/entries/law-9780199231690-e1419&recno=30& .

[93] J. Hyvarinen, C. Schwarte. 2009. *An implementing agreement under the UN Framework Convention on Climate Change - the US proposal and experience with the UN Convention on the Law of the Sea.* FIELD Briefing Note. P. 4. Available at www.field.org.uk/files/FIELDImplAgreementsBriefingNoteJune2009_0.pdf .

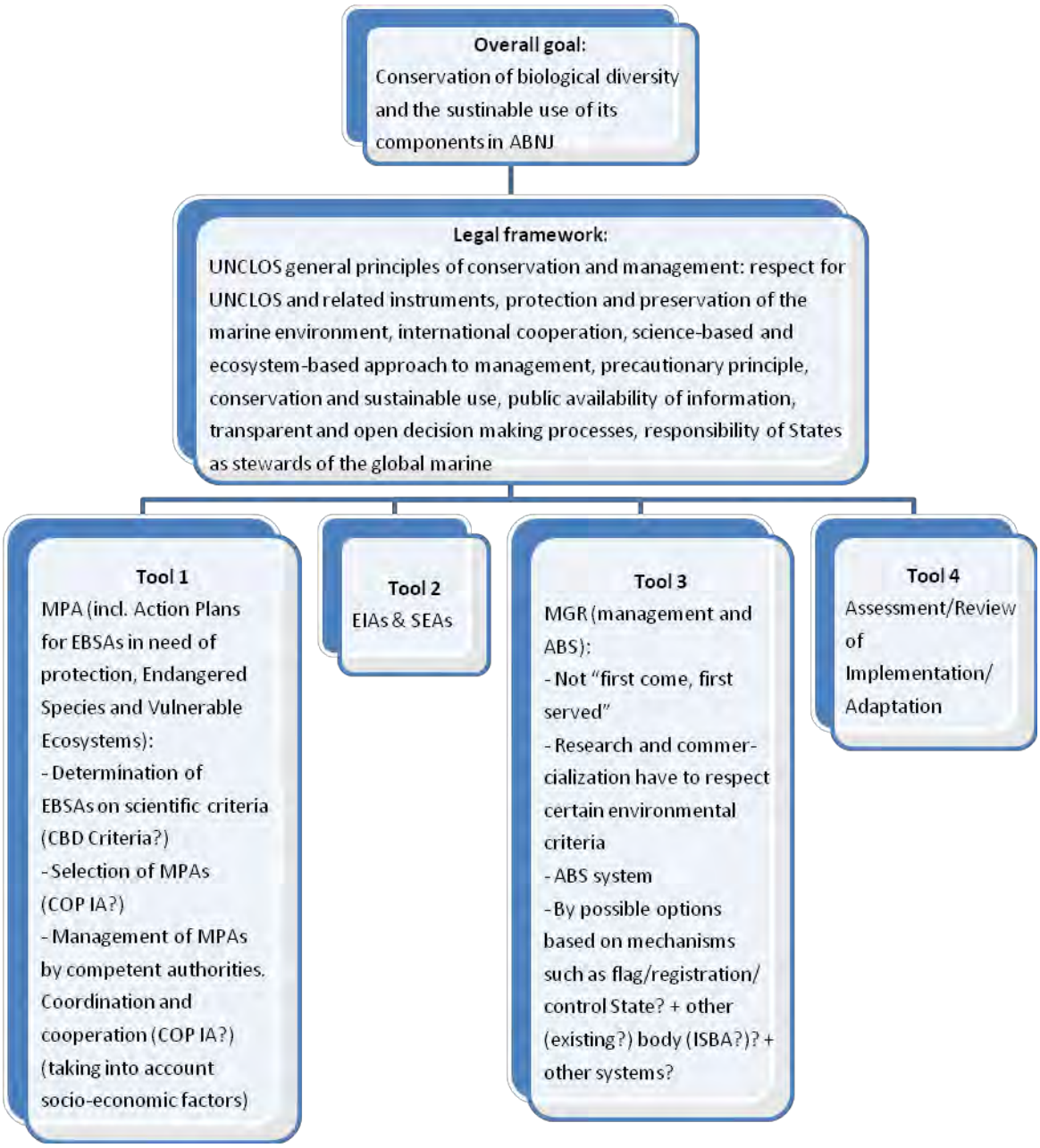
[94] J. Hyvarinen, C. Schwarte. 2009. *An implementing agreement under the UN Framework Convention on Climate Change - the US proposal and experience with the UN Convention on the Law of the Sea.* FIELD Briefing Note. P. 4. Available at www.field.org.uk/files/FIELDImplAgreementsBriefingNoteJune2009_0.pdf .

agreement would thus not necessarily require being a Party to the UNCLOS, which again provides at least in theory the chance to bring the United States on board. Equally important, an implementing agreement regulating governance of ABNJ as a whole and at a global level would give the possibility to develop harmonized standards and instruments, and to apply an ecosystem based approach. Such a holistic view is preferable to fragmented amendments in different UNCLOS parts.

In summary, it can be said that the development of an implementing agreement appears to be the most realistic, flexible and therefore practical procedural way forward. The objective of such an implementing agreement could be to ensure the conservation of biological diversity in marine ABNJ, as well as the sustainable and equitable utilization of their resources.[95] The legal basis for the development of such an agreement could be Articles 117, 118, 192 and 197 UNCLOS. These call for the conservation of living resources of the high seas, the protection and preservation of the marine environment in general, as well as cooperation between states on a global or regional level in those regards. To meet this broad objective, an implementing agreement could foresee several conservation instruments, namely networks of marine protected areas in ABNJ, EIAs, general governance principles, and ABS.

[95] S. Hart. 2009. Elements of a Possible Implementation Agreement to UNCLOS for Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction. IUCN, Gland, Switzerland. X + 21 (p. 9).

Graph 4: Potential structure of an implementing agreement[96]



6. Conclusion

This paper has shown that a range of options exist for developing an ABS regime for marine genetic resources in ABNJ. One of these options is a multilateral benefit-sharing mechanism for marine genetic resources which could be established by an UNCLOS implementing agreement in order to conserve the biological diversity in marine ABNJ, and to ensure the

[96] Taken from a non-paper presented by the European Union at the 4th Meeting of the AHWG.

sustainable and equitable utilization of their resources. Such a multilateral mechanism could have the following features:

- Access to marine genetic resources in ABNJ would remain subject to the freedom of the high seas, limited only by the obligations to respect marine protected areas and their management plans, to conduct EIAs, and to observe general governance principles.

- Parties to the multilateral mechanism would provide assurance that scientific researchers and commercial bioprospectors under their jurisdiction are obliged to put marine genetic resources harvested in ABNJ as well as related data under the multilateral system (the public trust). The submission of resources and data would be subject to certain rules of confidentiality and a sui generis system of IPRs.

- An SMTA including ABS licenses could then foresee the following basic ABS conditions: Marine genetic resources could be accessed from the multilateral system free of charge for different purposes, such as scientific research or commercial utilization. A researcher or commercial bioprospector would be obliged to provide his results to the multilateral mechanism where access to others would be again free of charge. If a commercial product was developed using a resource from the open source, the developer would be obliged to pay an equitable share of the resulting monetary benefits (comparable to Article 82 UNCLOS), if the utilization of his product for further research and development was restricted. Where the utilization of his product or innovation was not restricted but freely available for further research and development, he would be encouraged to make a voluntary payment.

- A fair share of the payments would go to the researcher or bioprospector who originally put the marine genetic resource in the system. The rest of the payments would go into a multilateral fund through which the management of marine protected areas in ABNJ, the implementation of EIAs, the institutional structure of the multilateral system, or capacity-building and technology transfer could be supported.

- The GEF and/or the ISA and/or regional institutions would host the multilateral mechanism, manage the fund, and provide a passport for each marine genetic resource in order to facilitate disclosure and thereby monitoring and enforcement.

Further Information

Websites:

- UN Division for Ocean Affairs and the Law of the Sea: Oceans and law of the sea

www.un.org/Depts/los/index.htm

- CBD Secretariat: The Nagoya Protocol on Access and Benefit Sharing

www.cbd.int/abs/

- The International Treaty on Plant Genetic Resources for Food and Agriculture

www.planttreaty.org/

- Global Forum on Oceans, Coasts and Islands

www.globaloceans.org

- Patent Lens: A free public resource for patent system navigation worldwide

www.patentlens.net/

Literature:

- Vidas (ed.). 2010. *Law, Technology and Science for Oceans in Globalisation: fishing, oil pollution, bioprospecting, outer continental shelf.* Leiden.
- S. Hart. 2008. *Elements of a Possible Implementation Agreement to UNCLOS for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction.* IUCN, Gland, Switzerland.
- K. M. Gjerde et al. 2008. *Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas Beyond National Jurisdiction. IUCN, Gland, Switzerland.*
- K. M. Gjerde et al. 2008. *Options for Addressing Regulatory and Governance Gaps in the International Regime for the conservation and Sustainable Use of Marine Biodiversity in Areas Beyond National Jurisdiction*. IUCN, Gland, Switzerland.
- S. Arico, C. Salpin. 2005. *Bioprospecting of Genetic Resources in the Deep Seabed. Scientific, Legal and Policy Aspects*. United Nations University – Institute of Advanced Studies.
- Convention on Biological Diversity. 2005. *Status and trends of, and threats to, deep seabed genetic resources beyond national jurisdiction, and identification of technical options for their conservation and sustainable use*. UNEP/CBD/SBSTTA/11/11.

- H. Korn, S. Friedrich, U. Feit. 2003. *Deep Sea Genetic Resources in the Context of the Convention on Biological Diversity and the United Nations Convention on the Law of the Sea. Federal Agency for Nature Conservation*. BfN-Skripten 79.