

# The Concept of Common Heritage of Mankind and the Genetic Resources of the Seabed beyond the Limits of National Jurisdiction

Tullio Scovazzi

## 1. The Concept of Common Heritage of Mankind

The main innovation included in the United Nations Convention on the Law of the Sea (Montego Bay, 1982; UNCLOS) is the concept of common heritage of mankind.<sup>1</sup> While other important new aspects of the UNCLOS, such as the exclusive economic zone or the regime relating to the protection of the marine environment, are the result of the natural evolution of international law of the sea, the concept of common heritage of mankind has a revolutionary character. It presupposes a third kind of regime which is different from both the traditional regimes of sovereignty, applicable in the territorial sea, and of freedom, applicable on the high seas.

The idea of the common heritage of mankind was launched in a memorable speech made at the United Nations General Assembly on 1 November 1967 by the representative of Malta, Mr. Arvid Pardo.<sup>2</sup> The practical opportunity for proposing a completely new regime was given by the technological developments which were

---

<sup>1</sup> On the UNCLOS see, in general, the contributions collected in NAMIHAS, Sandra (editora), *Derecho del mar. Análisis de la Convención de 1982*. Lima: Fondo Editorial de la Pontificia Universidad Católica del Perú, 2001.

<sup>2</sup> The only precedent is a proposal made by the Argentine jurist José León Suárez. He was entrusted by the League of Nations Experts Committee for the Progressive Codification of International Law with the drafting of a report on the international rules relating to the exploitation of marine living resources. In the report submitted in 1927, Mr. Suárez proposed that the living resources of the sea, and whales in particular, should be considered a heritage of mankind: «Les richesses de la mer, en particulier les richesses immenses de la région antarctique, constituent un patrimoine de l'humanité, et notre Commission, constituée par la Société des Nations, est tout indiquée pour proposer au Gouvernement un moyen d'action avant qu'il ne soit trop tard» (Société des Nations, *Comité d'experts pour la codification progressive du droit international, Rapport au Conseil de la Société des Nations*, Genève, 1927, p. 123).

expected to allow in a relatively short time the commercial exploitation of polymetallic nodules lying on the surface of the deep seabed and containing minerals such as manganese, nickel, cobalt and copper.

The application of the scheme of sovereignty was likely to lead to a series of competitive extensions of the limits of national jurisdiction on the sea bed. The application of the scheme of freedom was likely to lead to a rush towards the exploitation of economically and strategically valuable minerals falling under a «first-come-first-served» approach. According to Mr. Pardo, the consequences of both possible scenarios would have been equally undesirable. They would have ranged from political tension to economic injustice and risks of pollution. In a few words, «the strong would get stronger, the rich richer».<sup>3</sup>

The basic elements of the regime of common heritage of mankind, applying to the seabed beyond the limits of national jurisdiction, are the prohibition of national appropriation, the destination of the seabed for peaceful purposes, the use of the seabed and its resources for the benefit of mankind as a whole with particular consideration for the interests and needs of developing countries, the establishment of an international organization entitled to act on behalf of mankind in the exercise of rights over the resources.<sup>4</sup>

---

<sup>3</sup> «The known resources of the seabed and of the ocean floor are far greater than the resources known to exist on dry land. The seabed and ocean floor are also of vital and increasing strategic importance. Present and clearly foreseeable technology also permits their effective exploration for military or economic purposes. Some countries may therefore be tempted to use their technical competence to achieve near-unbreakable world dominance through predominant control over the seabed and the ocean floor. This, even more than the search for wealth, will impel countries with the requisite technical competence competitively to extend their jurisdiction over selected areas of the ocean floor. The process has already started and will lead to a competitive scramble for sovereign rights over the land underlying the world's seas and oceans, surpassing in magnitude and in its implications last century's colonial scramble for territory in Asia and Africa. The consequences will be very grave: at the very least a dramatic escalation of the arms race and sharply increasing world tensions, also caused by the intolerable injustice that would reserve the plurality of the world's resources for the exclusive benefit of less than a handful of nations. The strong would get stronger, the rich richer, and among the rich themselves there would arise an increasing and insuperable differentiation between two or three and the remainder. Between the very few dominant powers, suspicions and tensions would reach unprecedented levels. Traditional activities on the high seas would be curtailed and, at the same time, the world would face the growing danger of permanent damage to the marine environment through radioactive and other pollution: this is a virtually inevitable consequence of the present situation» (PARDO, Arvid. *The Common Heritage - Selected Papers on Oceans and World Order*. Valletta: Malta University Press, 1975, p. 31).

<sup>4</sup> The word «heritage» itself, which renders the idea of the sound management of a resource to be transmitted to the heritors, was preferred to the word «property», as the latter could have recalled the *jus utendi et abutendi* (right to use and misuse) that private Roman law gave to the owner (see the «Introduction» by Mann Borgese to PARDO, *Op. cit.*, p. X).

## 2. The Common Heritage of Mankind and the UNCLOS

All the basic elements mentioned above can be found in Part XI of the UNCLOS. The Area (that is, under Art. 1, para. 1, UNCLOS, «the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction») and its resources are the common heritage of mankind (Art. 136). No State can claim or exercise sovereignty over any part of the Area, nor can any State or natural or juridical person appropriate any part thereof (Art. 137, para. 1). The Area is open to use exclusively for peaceful purposes (Art. 141). All rights over the resources of the Area are vested in mankind as a whole, on whose behalf acts the International Sea-Bed Authority (ISBA), the international organization created by the UNCLOS (Art. 137, para. 2). Activities in the Area are carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States (Art. 140, para. 1). The ISBA provides for the equitable sharing of financial and other economic benefits derived from activities in the Area through an appropriate mechanism (Art. 140, para. 2).

For the first time in the historical development of international law of the sea a regime based on the management of resources by an international organization was established on a world basis. The common heritage of mankind is a third conceptual option, a *tertium genus*, which applies to a particular kind of resources located in a particular marine space. It does not replace the traditional regimes of sovereignty or freedom for the remaining resources and the remaining marine spaces. But it provides for a completely innovative and much more equitable approach.

However, the text of the UNCLOS was not adopted by consensus. It was submitted to vote after all efforts to reach consensus had been exhausted. It received 130 votes in favour, 4 against and 17 abstentions. Many developed States were among those which cast a negative vote or abstained. The main criticism was addressed to the regime of the Area. According to many industrialized States, the UNCLOS regime would have discouraged mining activities by individual States and private concerns, unduly favoured the monopoly of activities by the ISBA, burdened the contractors with excessive financial and other obligations relating also to the field of transfer of technology, and disregarded the interests of industrialized countries in the decision-making procedures of the Council, the executive organ of the ISBA.

In 1994 the UNCLOS was expected to formally enter into force without the participation of many developed countries, that is the only States having the technological and financial capability required to engage in deep seabed mining activities. To avoid the substantial failure of a regime based on the principle of common heritage of mankind, the United Nations promoted a new negotiation on Part XI of the UNCLOS

which resulted in the Agreement Relating to the Implementation of Part XI of the UNCLOS, as annexed to Resolution 48/263 adopted by the General Assembly on 17 August 1994.

The prudent label of «implementing agreement» covers the evident reality that in 1994 several aspects of the original concept of common heritage of mankind were changed in their form and substance. To meet the hope for universal participation in the UNCLOS, many provisions were adapted to a climate of growing reliance on market principles.<sup>5</sup>

Following the adoption of the 1994 Implementation Agreement, the UNCLOS has achieved an almost universal participation. However, the exception remains of the United States of America, the main industrialized country and the main potential investor in the field of deep seabed mining, which is not yet a party to it.

While adapted (or, under a less optimistic perspective, diluted) in 1994, the principle of common heritage of mankind remains in the UNCLOS. It is still a major source of inspiration for a codification treaty designed to «contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular the special interests and needs of developing countries, whether coastal or land-locked» (6th preambular paragraph).

### **3. The Uncertain Prospects for Commercial Mining in the Deep Seabed**

Since several years, the organs of the ISBA have been working to accomplish their mandate. On 13 July 2000 the Assembly approved the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (the so-called Mining Code). This has enabled the ISBA to sign contracts for exploration with seven pioneer investors (2001-2002). A plan of work submitted by an eight investor was approved in 2005.

The exploration for mineral resources different from polymetallic nodules is also being considered. In 2007 the ISBA Council completed the first reading of a second «Mining Code», that will govern the prospecting and exploration for metallic sulphides in the Area. Another code is being drafted for cobalt-rich ferromanganese crusts. Unlike polymetallic nodules which are found partially buried in areas of the deep seabed,<sup>6</sup>

---

<sup>5</sup> Resolution 48/263, while reaffirming that the Area and its resources are the common heritage of mankind, recognizes that «political and economic changes, including in particular a growing reliance on market principles, have necessitated the re-evaluation of some aspects of the regime for the Area and its resources».

<sup>6</sup> «Polymetallic nodules are lumps of metallic ore, between golf ball and soccer ball in size, scattered loosely in expansive fields on abyssal plains. Their quantity in a given area can be assessed simply by photographing the ocean bottom. They can be scooped up by mechanical harvesters with little physical damage to the seabed» (ISBA, *Press Release*, SB/9/1 of 23 July 2003, p. 2).

sulphides<sup>7</sup> and crusts<sup>8</sup> are localized in their deposits. Mining for this kind of resources may have a significant impact on the environment.<sup>9</sup> Concentrations of methane hydrates<sup>10</sup> are also found in the Area and may fall in the future under the regulatory powers of the ISBA.

However, the prospects for commercial mining of the deep seabed appear far less optimistic than they were in the past. A number of factors have inhibited progress towards commercial exploitation of polymetallic nodule deposits. These factors include the hostile environment in which exploration and mining will take place both as regards the open-ocean surface environment and the great depths at which polymetallic nodule deposits occur; the high costs involved in research and development of mining technology; the fact that, under current economic conditions, deep seabed mining remains uncompetitive compared to land-based mining.

Actually the concept of common heritage of mankind, that is a third and more equitable scheme different from both the schemes of sovereignty or freedom, has been elaborated in legal provisions and is being put in place under an international regime to manage certain marine economic resources. But what seems now to be missing is the concrete possibility to start the mining activities on a commercial scale within a reasonable delay.

---

<sup>7</sup> «Hydrothermal polymetallic massive sulphides occur typically in chimney-like structures, called smokers, surrounding undersea hot-spring vents. Their minerals come mainly from magma, the mass of molten rock deep beneath the earth's crust, where it breaches the ocean bottom in volcanic regions along the margins of ocean basins. Individual deposits are small and scattered. Mining would require the destruction of the smokers, with potentially catastrophic consequences for the exotic animal communities that live in the superheated, oxygen-deprived water and cannot exist in a normal environment dependent on sunlight» (ISBA, *Press Release*, SB/9/1 of 23 July 2003, p. 2).

<sup>8</sup> «Cobalt-rich ferromanganese crusts, derived like the nodules from metals precipitated out of seawater, are fused to the seabed in layers up to tens of centimetres thick, often buried beneath other seabed deposits. They are found on the flanks and ridges of globe-encircling, mid-ocean mountain range. Assessment of their occurrence and metal content and their eventual exploitation will require digging or drilling the ores out of a solid rock bed» (*ibidem*).

<sup>9</sup> In the explanatory notes to the Draft Regulations on Prospecting and Exploration for Polymetallic Sulphides and Cobalt-Rich Ferromanganese Crusts in the Area, the Legal and Technical Commission of the ISBA recalls «the way in which polymetallic sulphide and cobalt-rich ferromanganese crusts occur in parts of the marine environment that are now known to host complex —and, in many ways unique— marine ecosystems, and of a type that may be susceptible to major trauma. There is some potential for serious and permanent harm in these areas during the process of seabed mining. While this may also be, to some extent, the case for nodule mining (we are still not absolutely sure of this), the nodule deposit is one that, by its nature, covers so wide an area that the extent of such harm may be mitigated. For sulphides occurring at active sites, the deposits are very localized, hence the potential impact at a mine site is likely to be significant. For these reasons, there has been much more emphasis on the protection and preservation of the marine environment in the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area» (doc. ISBA/11/C/5 of 12 August 2005, para. 15).

<sup>10</sup> They are ice-like materials that occur in abundance in marine sediments and store immense quantities of methane.

#### 4. Bioprospecting in the Deep Seabed

While the prospects for commercial mining in the deep seabed are uncertain, it is questionable to what extent the search for commercially valuable genetic resources of the deep seabed (so-called bioprospecting), which is likely to become the most immediate and profitable activity taking place on the deep seabed, falls within the mandate of the ISBA.

A relatively recent discovery is that the remote environment of the deep seabed supports biological communities that present unique genetic characteristics. For instance, in 1977 it was found that some animal communities live in the complete absence of sunlight in the seabed where warm water springs from tectonically active areas (so called hydrothermal vents).<sup>11</sup> Several species of microorganisms, fish, crustaceans, polychaetes, echinoderms, coelenterates and molluscs have been found in hydrothermal vent areas. Many of them were new to science. These communities, which do not depend on plant photosynthesis for their survival, rely on specially adapted micro-organisms able to synthesize organic compounds from the hydrothermal fluid of the vents (chemosynthesis).<sup>12</sup> The ability of some deep seabed organisms to survive extreme temperatures (thermophiles and hyperthermophiles) and other extreme conditions (extremophiles) makes their genes of great interest to science and industry.

But what is the international regime of bioprospecting in the Area, also considering that neither the UNCLOS nor the 1992 Convention on Biological Diversity (CBD) provide any specific legal framework for bioprospecting? In this regard, the scope of the mandate of ISBA deserves a closer scrutiny, especially if it is to be understood not only as an entity involved in marine mining activities in competition with others, but as the international organization which bears the main responsibility to realize a just and equitable economic order of the oceans and seas.

The term «activities» in the Area is narrowly defined in the UNCLOS, as referred to «all activities of exploration for, and exploitation of the resources of the Area» (Art. 1, para. 1). The resources of the Area are limited to «all solid, liquid or gaseous mineral resources *in-situ* in the Area at or beneath the sea-bed, including polymetallic nodules» (Art. 133, a). Indeed genetic resources are quite different from mineral resources.

---

<sup>11</sup> Hydrothermal vents may be found both in the Area and on the seabed falling within the limits of national jurisdiction (according to the definition of continental shelf given by Art. 76 UNCLOS).

<sup>12</sup> The discovery of hydrothermal vent ecosystems has given rise to a new theory on life on earth. It could have originated and evolved in association with hydrothermal vents in the primeval ocean during the early Archaean period (about 4,000 million years ago).

However the mandate of the ISBA seems broader than it is commonly believed<sup>13</sup>. The legal condition of the Area, i.e. the common heritage of mankind, may have an influence also on the regime of matters and activities that, although different from minerals and mining activities, are located in that space. Besides the main field of competence, the mandate of the ISBA already encompasses in a general way matters and activities which are more or less directly related to mining activities, such as the protection of the underwater cultural heritage<sup>14</sup>, the protection of the marine environment<sup>15</sup>, marine scientific research.

For instance, as regards marine scientific research, Art. 143, para. 1, UNCLOS sets forth the general principle that «marine scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of the mankind as a whole». This provision refers to any kind of marine scientific research and is not limited to research on mineral resources. Para. 3 of Art. 143 grants to the States the right to carry out scientific research in the Area and binds them to co-operate with other States and the ISBA in various fields, including dissemination of results. Also this provision refers to any kind of marine scientific research in the Area.

Art. 143 contradicts the easy assumption that there is an absolute freedom to carry out scientific research in the Area. In this regard, the traditional concept of freedom of the sea («first-come-first-served» rule) and the innovative concept of common heritage of mankind have to be harmonized, bearing in mind that marine scientific research in the Area shall be carried out for the benefit of the mankind as a whole<sup>16</sup>.

As regards bioprospecting in the deep seabed, some matters of fact need to be stressed.

---

<sup>13</sup> See GLOWKA, L. «The Deepest of Ironies: Genetic Resources, Marine Scientific Research, and the Area». *Ocean Yearbook*, 12, 1996, p. 156; Armas Pflirter, Frida, «Legal Implications Related to the Management of Seabed Living Resources in «the Area» under UNCLOS». Study submitted in 2004 to the Legal and Technical Commission of the ISBA; LEARY, David Kenneth. «More than just Bugs and Bioprospecting in the Abyss: Designing an International Legal Regime for the Sustainable Management of Deep-Sea Hydrothermal Vents beyond National Jurisdiction». PhD Thesis, Macquarie University, 2005; MOLENAAR, Erik J. «Managing Biodiversity in Areas beyond National Jurisdiction». *International Journal of Marine and Coastal Law*, vol. 22, N° 1, 2007, p. 89; OUDE ELFERINK, Alex G. «The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas». *Ibidem*, p. 143.

<sup>14</sup> See Art. 149 UNCLOS.

<sup>15</sup> See Art. 145 UNCLOS. The deep seabed is not a desert despite extreme conditions of cold, complete darkness and high pressure. It is the habitat of diverse forms of life associated with typical features, such as hydrothermal vents, cold water seeps, seamounts or deep water coral reefs.

<sup>16</sup> It may be added that, under Art. 241 UNCLOS, «Marine scientific research activities shall not constitute the legal basis for any claim to any part of the marine environment or its resources».

First, there is an inextricable factual link between marine scientific research (either pure or applied)<sup>17</sup> and bioprospecting. It is impossible to establish a clear-cut distinction between one activity and the other and between one purpose and the other. A research endeavour organized with the intent to increase human knowledge may well result in the discovery of commercially valuable information and vice versa.

Second, at the time when the UNCLOS was being drafted, very little was known about the genetic qualities of deep seabed organisms. For evident chronological reasons, the potential value of genetic resources was not considered by the UNCLOS negotiators. The lack of regulation for the search of the almost «intangible» units of heredity of seabed organisms has arisen by accident rather than design. But today this kind of activity calls for a specific international legal framework applying at the intergovernmental level, different from sets of voluntary guidelines that may have been adopted by those entities already involved in bioprospecting.

Third, while a specific regime for bioprospecting is lacking, some general principles can be drawn from both the UNCLOS and the CBD, such as the principle of common heritage of mankind (UNCLOS)<sup>18</sup> and the principle of fair and equitable sharing of the benefits arising out of the utilization of genetic resources (Art. 1 CBD).

Also in the field of bioprospecting it is likely that the abstract application of the principle of freedom of the sea (that is the «first-come-first-served» rule) would lead to hardly acceptable consequences. New cooperative schemes have to be envisaged at the international level. Since the final objective is to achieve a sustainable management of the deep ocean space as a whole, sectoral approaches are not likely to lead to coherent and cost-effective results. All the stakeholders should play a role in the

---

<sup>17</sup> The UNCLOS does not provide any definition of «marine scientific research». Art. 246, which applies to the exclusive economic zone and the continental shelf, makes a distinction between two kinds of marine scientific research projects, namely those carried out «to increase scientific knowledge of the marine environment for the benefit of all mankind» (para. 3) and those «of direct significance for the exploration and exploitation of natural resources, whether living or non-living» (para. 5, a). This distinction supports the conclusion that, under the UNCLOS regime, also research activities directly related to the purpose of commercial exploitation of resources, such as bioprospecting, fall under the general label of «marine scientific research».

<sup>18</sup> «The principle of common heritage in its substantive aspect is, like any norm of international law, capable of being applied in a decentralised manner by states. Even in the absence of *ad hoc* institutions every state is under an obligation to respect and fulfil the principle of the common heritage by ensuring that subjects within its jurisdiction do not act contrary to its object and purpose. This would be the case if a state authorised or negligently failed to prevent biotechnological activities in common spaces that had the effect of causing severe and irreversible damage to the unique biodiversity of that space. Similarly, a state would fail the common heritage if it authorised exclusive appropriation of genetic resources without requiring equitable sharing of pertinent scientific knowledge and without ensuring that a fair portion of economic benefits accruing from their exploitation be devoted to the conservation and sustainable development of such common resources»; FRANCIONI, Francesco. «Genetic Resources, Biotechnology and Human Rights: The International Legal Framework». In Francesco Francioni (ed.). *Biotechnologies and International Human Rights*. Oxford: Hart Publishing, 2007, p. 14.



game, including the ISBA, which is already entitled to exercise a broad range of preferential or cooperative responsibilities in the field of marine scientific research and protection of the environment in the deep seabed.<sup>19</sup>

This does not mean that the ISBA shall become the overarching regulatory body in the field of bioprospecting. Nor does it mean that the merits acquired by public and private entities which have made consistent investments and developed a sophisticated technological capacity in the field of bioprospecting shall be neglected. It simply means that the ISBA, the principles that it represents, as well as its already existing competences and cooperative role, need to be taken into consideration when the States and the other relevant entities decide to fill the legal gap of the regime of deep seabed genetic resources.

## 5. The Main Open Questions

The question of bioprospecting on the deep seabed is today becoming the main subject of discussion among States in the field of international law of the sea. The terms of the question were clearly pointed out in a document issued in 2005 by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the CBD.<sup>20</sup>

Only few States and private entities have access to the financial means and sophisticated technologies needed to reach the deep seabed:

Reaching deep seabed extreme environments and maintaining alive the sampled organisms, as well as culturing them, requires sophisticated and expensive technologies. (...) Typically, the technology associated with research on deep seabed genetic resources involves: oceanographic vessels equipped with sonar technology, manned or unmanned submersible vehicles; *in situ* sampling tools; technology related to culture methods; molecular biology technology and techniques; and technology associated with the different steps of the commercialization process of derivatives of deep seabed genetic resources. With the exception of basic molecular biology techniques, most of the technology necessary for accessing the deep seabed and studying and isolating its organisms is owned

---

<sup>19</sup> «(...) the issue of which regulatory model should govern access to and exploitation of genetic resources located in common spaces cannot be laid to rest with either the 'sovereign rights' model or the free-for-all regime. The correct solution, therefore, must be found in a public common regime, based on the recognition that genetic material found in such spaces constitutes the common estate of humanity, for the conservation and exploitation of which international mechanisms are needed, ensuring co-operation and institutional oversight. No such specific mechanism exists today. However, if we were to follow a simple criterion of competence *ratione loci*, it would be logical to identify the competent institution for marine genetic resources as the International Sea Bed Authority» (FRANCIONI, *Op. cit.*, p. 14).

<sup>20</sup> *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*, doc. UNEP/CBD/SBSTTA/11/11 of 22 July 2005.

by research institutions, both public and private. To date, only very few countries have access to these technologies.<sup>21</sup>

The prospects for commercial application of bioprospecting activities are promising:

Deep seabed resources hold enormous potential for many types of commercial applications, including in the health sector, for industrial processes or bioremediation. A brief search of Patent Office Databases revealed that compounds from deep seabed organisms have been used as basis for potent cancer fighting drugs, commercial skin protection products providing higher resistance to ultraviolet and heat exposure, and for preventing skin inflammation, detoxification agents for snake venom, anti-viral compounds, anti-allergy agents and anti-coagulant agents, as well as industrial applications for reducing viscosity.<sup>22</sup>

Prospects for profits are promising as well:

The commercial importance of marine genetic resources is demonstrated by the fact that all major pharmaceutical firms have marine biology departments. The high cost of marine scientific research, and the slim odds of success (only one to two percent of pre-clinical candidates become commercially produced) is offset by the potential profits. Estimates put worldwide sales of all marine biotechnology-related products at US \$ 100 billion for the year 2000.<sup>23</sup>

An important element to take into consideration in assessing the present condition of deep seabed bioprospecting is that the patent legislation of several States does not compel the applicant to disclose the origin of the materials used:

Assessing the types and levels of current uses of genetic resources from the deep seabed proves relatively difficult for several reasons. First, patents do not necessarily provide detailed information about practical applications, though they do indicate potential uses. Moreover, information regarding the origin of the samples used is not always included in patent descriptions.<sup>24</sup>

The SBSTTA agreed that there is an urgent need to clarify the status and nature of activities relating to genetic resources in the deep seabed, within the framework of UNCLOS and other relevant international legal instruments and based on scientific information. It also took note of technical options for protecting these resources, such as «(i) the use of codes of conduct, guidelines and principles; (ii) management of threats through permits and environmental impact assessments; and (iii) area-based management of uses, including through establishment of marine protected areas».

---

<sup>21</sup> *Ibidem*, paras. 12 and 13. «A limited number of institutions worldwide own or operate vehicles that are able to reach areas deeper than 1,000 meters below the oceans' surface, and can therefore be actively involved in deep seabed research» (*ibidem*, para. 16).

<sup>22</sup> *Ibidem*, para. 21.

<sup>23</sup> *Ibidem*, para. 22.

<sup>24</sup> *Ibidem*, para. 22.

In February 2006 the matter of a future international regime, if any, for deep seabed bioprospecting was discussed within the United Nations 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, established under United Nations General Assembly Resolution 59/24 of 17 November 2004. It is not surprising that opposite views were put forward by the States concerned.

Some States took the position that the principle of common heritage of mankind and the mandate of the ISBA should be extended to cover also bioprospecting:

Several delegations reiterated their understanding that the marine genetic resources beyond areas of national jurisdiction constituted the common heritage of mankind and recalled Article 140 of the Convention, which provides that the activities in the Area shall be carried out for the benefit of mankind and that particular consideration shall be given to the interests and needs of developing States, including the need for these resources to be used for the benefit of present generations and to be preserved for future generations. The provisions under Article 145 of the Convention, regarding the protection of the marine environment in the Area, were also recalled. Several delegations suggested that urgent cooperation was needed to consider a new or improved legal and/or institutional mechanism in this regard and to develop options and approaches to address genetic resources in the Area, in particular current and possible modalities for access to them and sharing of benefits arising from their use. A number of delegations also mentioned that the International Seabed Authority constituted an existing mechanism in this area and that consideration should accordingly be given to the possibility of broadening its mandate.<sup>25</sup>

Other States relied on the principle of freedom of the high seas, which would imply a right of freedom of access to, and unrestricted exploitation of, deep seabed genetic resources:

Other delegations reiterated that any measures that may be taken in relation to genetic resources in areas beyond national jurisdiction must be consistent with international law, including freedom of navigation. In their view, these resources were covered by the regime of the high seas, which provided the legal framework for all activities relating to them, in particular marine scientific research. These delegations did not agree that there was a need for a new regime to address the exploitation of marine genetic resources in areas beyond national jurisdiction or to expand the mandate of the International Seabed Authority.<sup>26</sup>

The latter position is hardly acceptable. At the basis of international law of the sea is the principle of freedom of the sea, which originated in the 17th century and was

---

<sup>25</sup> *Report 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*, doc. A/61/65 of 20 March 2006, para. 71.

<sup>26</sup> *Ibidem*, para. 72.

mostly linked to interest in navigation. However, when the principle of freedom of the sea was elaborated, nobody had in mind the problems posed by super-tankers, nuclear-propelled vessels, off-shore drilling, mining for polymetallic nodules, fishing with driftnets, bioprospecting and many other activities which take place in the marine environment today. This obvious consideration leads to an equally obvious consequence. We cannot today evoke the same concepts that Hugo Grotius used in the 17th century<sup>27</sup> and give them the same intellectual and legal strength that Grotius gave them.

To rely in an absolute way on the principle of freedom of the sea was perhaps justified in the circumstances existing in the past. But this is no longer possible. Today it cannot be sustained that a State has the right to engage in a specific marine activity simply because it enjoys freedom of the sea, without giving any further explanations and without being ready to consider the opposite positions, if any, of the other interested States. Also the concept of freedom of the sea is to be understood in the context of the present range of marine activities and in relation to the other potentially conflicting uses and interests.

Another consideration should be added. Not only does the principle of freedom of the sea have a relative character, as any other legal principle. But, far from being an immutable theological dogma, it has also undergone a process of progressive weakening. The erosion of the principle of freedom of the sea, as far as new interests and activities required a specific regulation, has been the main trend in the evolution of international law of the sea.<sup>28</sup> The successful outcome of innovative legal concepts, such as the continental shelf, the exclusive economic zone and the common heritage of mankind, can only confirm how a «first-come-first-served» regime, based on exclusive flag State jurisdiction, was felt to be inadequate to regulate the exploitation of different kinds of natural resources (oil, fish, polymetallic nodules).

In 1982 the results of the evolutionary trends in international law of the sea were embodied in the UNCLOS. Among them, there was the concept of common heritage of mankind, basically designed to regulate the Area in order to share among all States the benefits drawn from its resources. It would be contrary to the spirit of the UNCLOS to refuse to negotiate an equitable extension of the regime to the new commercially valuable resources, different from mineral resources, which have been discovered in the Area after the adoption of the UNCLOS; and it would be unrealistic to rely on a

---

<sup>27</sup> Anonymous (but GROTIUS), *Mare liberum sive de jure, quod Batavis competit ad Indicana commercia, dissertatio*, Lugduni Batavorum, 1609.

<sup>28</sup> See, in general, SCOVAZZI, *The Evolution of International Law of the Sea: New Issues, New Challenges*. Hague Academy of International Law. *Recueil des cours*, vol. 286, 2001, p. 39.

first-come-first-served approach which is in total contradiction with the evolution of international law of the sea.

The principle of common heritage of mankind has already been diluted by the 1994 Implementing Agreement to meet the concerns of industrialized States. It is difficult to understand why the same principle should not be extended today to cover the genetic resources of the deep seabed and to meet the concerns of countries different from the industrialized States.

## 6. The Present Discussion on Bioprospecting in the Deep Seabed

By Resolution 61/222 of 20 December 2006, the United Nations General Assembly decided to convene in 2008 a second meeting of the above mentioned *Ad Hoc* Working Group with the mandate to consider:

- (a) The environmental impacts of anthropogenic activities on marine biological diversity beyond areas of national jurisdiction;
- (b) Coordination and cooperation among States as well as relevant intergovernmental organizations and bodies for the conservation and management of marine biological diversity beyond areas of national jurisdiction;
- (c) The role of area-based management tools;
- (d) Genetic resources in areas beyond national jurisdiction;
- (e) Whether there is a governance or regulatory gap, and if so, how it should be addressed» (para. 91).

The issue of «marine genetic resources» was discussed also at the 2007 meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS). As stated in the report of the two Co-Chairpersons, the meeting «was unable to proceed to reach overall agreement on the elements to be suggested to the General Assembly» as regards the regime of marine genetic resources in areas beyond national jurisdiction.<sup>29</sup> Again, two opposite views were expressed, one based on the extension of the regime of the common heritage of mankind<sup>30</sup> and

---

<sup>29</sup> See *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at Its Eight Meeting*, Advance and unedited text, para. 121.

<sup>30</sup> «With regard to MGRs [= marine genetic resources] located in areas beyond national jurisdiction, several States reiterated their view that all resources of the Area, including MGRs were part of the 'common heritage of mankind'. These States argued that activities related to biological resources, including MGRs, of the deep seabed beyond areas of national jurisdiction should be carried out for the benefit of mankind as a whole on the basis of UNCLOS relevant principles and its provisions governing MSR [= marine scientific research] and the Area» (*ibidem*, para. 71).

the other on the (untenable) «first-come-first-served» approach<sup>31</sup>. Also a third option was presented, based on the goodwill to discuss all the aspects of the matter, including the existence of environmental concerns,<sup>32</sup> in an open and comprehensive way:

Although sharing the view that MGRs [= marine genetic resources] in areas beyond national jurisdiction did not fall within the definition of the resources of the Area, several delegations however considered that UNCLOS did not provide a clear comprehensive framework for the management of MGRs in areas beyond national jurisdiction. They proposed that a comprehensive and practical framework for exploring and exploiting all MGRs in areas beyond national jurisdiction should be developed by the international community within the framework of UNCLOS in order to protect and preserve these resources and for access and benefit-sharing. They stated that they were willing to consider, without prejudice to the sovereign rights and jurisdiction of coastal States in maritime areas under their jurisdiction, a more formal regulation of all MGRs in areas beyond national jurisdiction (both for the water column and for the deep seabed area) within a broader, integrated approach to conservation and sustainable use of marine biodiversity, taking into account the legitimate interests of all States,<sup>33</sup>

Such an approach, which does not pre-empt a «common heritage of mankind» option, seems an appropriate way to address the new issue of marine genetic resources of the deep seabed.<sup>34</sup>

---

<sup>31</sup> «A different view was expressed by other delegations with regard to activities related to MGRs in areas beyond national jurisdiction, namely that these were governed by customary international law of the sea as reflected in UNCLOS. They stated that living marine resources were not covered by the provisions of Part XI pertaining to the Area, and fell outside the mandate of the International Seabed Authority, except insofar as these resources are part of the marine environment that must be protected in connection with mining activities. For these states, the relevant provisions in UNCLOS applicable to MGRs are contained in Part VII on the high seas, and in particular section 2, articles 117-118, as well as Parts XII, XIII and XIV» (*ibidem*, para. 74).

<sup>32</sup> «Delegations pointed out that the conservation and sustainable use of these resources presented a multitude of challenges. Several States expressed concern regarding the vulnerability of MGRs to direct and indirect threats, including in areas beyond national jurisdiction, *inter alia*, from: pollution, climate change, habitats destruction, physical degradation, over-exploitation of living resources, and cumulative effects of repeated research on and exploitation of MGRs in certain sites» (*ibidem*, para. 82). «In response, some delegations noted that MSR activities relating to MGRs generally posed a minimal risk to the marine environment given new technology. It was explained that since in most cases further *in situ* collection was not necessary once the genetic information was extracted from microbes, micro-organisms would not be depleted. In addition, sampling involved small amounts of material or the species themselves quickly repopulated» (*ibidem*, para. 84).

<sup>33</sup> *Ibidem*, para. 75.

<sup>34</sup> This article is an abridged and updated version of the following studies: SCOVAZZI, «Mining, Protection of the Environment, Scientific Research and Bioprospecting: Some Considerations on the Role of the International Sea-Bed Authority». In *International Journal of Marine and Coastal Law*, 2004, p. 383; SCOVAZZI, «Some Considerations on Future Directions for the International Seabed Authority». In *Proceedings of the Tenth Anniversary Commemoration of the Establishment of the International Seabed Authority*. Kingston: ISA, 2005, p. 162; SCOVAZZI, «Bioprospecting on the Deep Seabed: A Legal Gap Requiring to Be Filled». In Francioni & Scovazzi (eds.), *Biotechnology and International Law*, Oxford: Hart Publishing, 2006, p. 81; SCOVAZZI, *The Principle of Common Heritage of Mankind in International Law of the Sea: Problems and Prospects*. In *Innovations and Technologies in Oceanography for Sustainable Development*. Kuala Lumpur: University of Malaya Maritime Research Centre, 2006, p. 327.