

# International Legal Regime of the Deep Seabed Mineral Resources Exploration

## กฎเกณฑ์ระหว่างประเทศว่าด้วยการสำรวจ ทรัพยากรแร่ใต้ทะเลลึก



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### Abstract

This article deals with discussing and determining what is the legal status of the deep seabed mineral resources which are beyond the limits of national jurisdiction and how international legal regime can play important roles in managing, controlling, and sharing several benefits arisen from the deep seabed mineral resources exploration. According to the study, it is found that the deep seabed mineral resources can provide humans many benefits and be useful for commercial and industrial development. In order to avoid the conflict that may result from the deep seabed minerals exploration, international legal regime provides that the legal status of the deep seabed mineral resources must be recognized as the common heritage of mankind and any claim of national jurisdiction over the deep seabed must be prohibited. Nevertheless, it is unfortunate that the existing legal regime has remained controversial and might lead to the conflict of the deep seabed mineral resources exploration.

**Keywords:** The deep seabed mineral resources, Common Heritage of Mankind, International Legal Regime

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## บทคัดย่อ

บทความนี้มีวัตถุประสงค์ที่จะอภิปรายและค้นหาว่าทรัพยากรแร่ใต้ทะเลลึก (the deep seabed mineral resources) ซึ่งอยู่นอกเหนือออกไปจากเขตอำนาจรัฐมีสถานะทางกฎหมายอย่างไร และมีกฎเกณฑ์ในทางระหว่างประเทศใดที่มีบทบาทสำคัญในการจัดการ ควบคุม และแบ่งปันผลประโยชน์ที่เกิดจากการสำรวจทรัพยากรแร่ดังกล่าว จากการศึกษาพบว่า ทรัพยากรแร่ใต้ทะเลลึกนั้นก่อให้เกิดประโยชน์แก่มวลมนุษยชาติอย่างมหาศาล โดยทรัพยากรแร่ดังกล่าวถูกนำไปใช้ประโยชน์ในการพัฒนาอุตสาหกรรมและการพาณิชย์ ดังนั้น เพื่อหลีกเลี่ยงความขัดแย้งที่อาจเกิดขึ้นจากการสำรวจทรัพยากรแร่ใต้ทะเลลึก ควรมีการกำหนดกฎเกณฑ์ทางระหว่างประเทศขึ้น โดยกำหนดให้ทรัพยากรแร่ใต้ทะเลลึกมีสถานะทางกฎหมายเป็นสมบัติของมวลมนุษยชาติ และไม่ตกอยู่ภายใต้เขตอำนาจรัฐของรัฐใดรัฐหนึ่ง อย่างไรก็ตามกฎเกณฑ์ระหว่างประเทศดังกล่าวยังคงมีความไม่ชัดเจนและมีปัญหาอยู่บางประการ ซึ่งอาจนำไปสู่ความขัดแย้งระหว่างรัฐในการสำรวจทรัพยากรแร่ใต้ทะเลลึกได้

**คำสำคัญ:** ทรัพยากรแร่ใต้ทะเลลึก, สมบัติของมนุษยชาติ, กฎเกณฑ์ระหว่างประเทศ

## 1 Introduction

The international community has recently recognized that, on the deep seabed, it is significantly full of several mineral resources that are very useful for commercial and industrial development. It is also common that all states can exercise their own sovereignty in order to explore and exploit the deep seabed mineral resources in their own jurisdiction. Nevertheless, there have been the rise of debatable issue of what is the legal status of the deep seabed mineral resources which are beyond the limits of national jurisdiction, whether those resources can be explore and exploit, and who those resources belong to. In order to clearly

answer those questions, this article firstly aims to discuss and determine what is the legal status of the deep seabed mineral resources which are beyond the limits of national jurisdiction and how international legal regime can be dealt with managing and sharing benefits from the deep seabed mineral resources exploration. In the last section, the article is to provide the analysis of some key problems raised from the exploration.

## 2 The Deep Seabed Mineral Resources

The deep seabed in where covers more than seventy percent of the earth's surface composes of several volcanoes, the

largest mountains ranges, the deepest valleys, continental crust areas of the shelf and the slope, and the deep sea floor area.<sup>1</sup> The deep seabed's surface is also covered with sediments that are broken rocks of an older geological age; in addition, its subsoil is a part of the deep ocean floor.<sup>2</sup> It is significantly estimated that the deep seabed contains a large number of mineral resources.<sup>3</sup> In fact, such mineral resources have derived from three main origins: (1) the fundamental natural materials of the ocean floor, (2) the deposits of placers which have been laved from rivers and diverse parts of the seabed, and (3) the precipitates that have been formed within the seawater.<sup>4</sup>

Furthermore, the principle mineral resources of the deep seabed can be roughly categorized into four main categories: (1) Petroleum and Gas which deposit on the base of continental terrace or slope, (2) Phosphorites which are mainly

found in sand, mud and semi-consolidated tertiary bedrock at depths of 3,500 metres, (3) Metalliferous Brines which are mostly found at depths of 2,000 metres, and (4) Manganese Nodules which occur at depths of 1,500 metres and below.<sup>5</sup> These mineral resources are extremely important and valuable because they contain various minerals such as manganese, magnesium, bromine, iron, copper, phosphates, nickel, cobalt, zinc, lead, gold and silver.<sup>6</sup>

### *2.1 Manganese Nodules and their Utilization*

The outstanding mineral resources of the deep seabed are 'Manganese Nodules' because they have become the most important mineral resources which are probably being replenished by ocean chemistry at a rate faster than world annual consumption of these materials.<sup>7</sup> The Manganese Nodules that have been sometimes known as Polymetallic lumps of ore or Polymetallic Nodules can be normally

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<sup>1</sup> Evan Luard, *The Control of the Sea-bed: A New International Issue* (Heinemann, 1974) 3-4.

<sup>2</sup> Ibid 5.

<sup>3</sup> D. W. Bowett, 'Deep Sea-Bed Resources: A Major Challenge' (1972) 31 *Cambridge Law Journal* 50, 51.

<sup>4</sup> Evan Luard, above n 1, 11.

<sup>5</sup> D. W. Bowett, above n 3.

<sup>6</sup> David S. Browning, 'Exploitation of Submarine Mineral Resources Beyond The Continental Shelf' (1968) 4 *Texas International Law Forum* 1, 2.

<sup>7</sup> Ibid 3.

found in all the seas in the world.<sup>8</sup> The Manganese Nodules can be also described as the nodules that are around five centimetres in diameter, brown or black in colour, soft and crumbly, and round in shape like potatoes.<sup>9</sup>

In terms of significance and value, it is clearly indicated that commercially interesting Manganese Nodules should be at depths of 4,500-5,000 metres in the Clarion Clipperton area of the central eastern Pacific Ocean and in the Central Indian Basin of the Indian Ocean.<sup>10</sup> The deposits of Manganese Nodules should have nodule density around 10 kilograms per square metre, and nickel and copper at least 2.25 percent; furthermore, such nodules also consist of metallic and non-metallic elements such as nickel, cobalt, zinc, manganese and molybdenum.<sup>11</sup> It is noted that the significance and value are

directly concentrated on several minerals that are inside of Manganese Nodules. Consequently, it is concluded that these minerals can be widely utilized for commercial and industrial development.

## 2.2 The Deep Seabed Mining

Due to the significance and value of several mineral resources of the deep seabed, the deep seabed mining of Manganese Nodules and other metal deposits have been initially paid attention and developed since the early 1970s.<sup>12</sup> The interest of deep sea-bed mining has been also concentrated from diverse research groups because deep seabed mineral resources can be potential for the economical recovery of large reserves of minerals which can provide human an alternative resource of strategic metals for industrial development.<sup>13</sup> Additionally, over the past few years, there has been an

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<sup>8</sup> Wolfgang Hauser (translation by Frances Bunce Dielmann), *The Legal Regime for Deep Seabed Mining under the Law of the Sea Convention: Studies in Transnational Law of Natural Resources Volume 7* (Kluwer, 1983) 11.

<sup>9</sup> Evan Luard, above n 1, 14.

<sup>10</sup> Jan Magne Markussen, 'Deep Seabed Mining and the Environment: Consequences, Perceptions, and Regulations' in Helge Ole Bergesen and Georg Parmann (eds), *Green Globe Yearbook of International Cooperation on Environment and Development* (Oxford University Press, 1994) 31, 31

<sup>11</sup> *Ibid.*

<sup>12</sup> Jochen Halfar and Rodney M. Fujita, *Precautionary Management of Deep Sea Mining* <[http://cleartheair.edf.org/documents/736\\_DeepSeaMining.pdf](http://cleartheair.edf.org/documents/736_DeepSeaMining.pdf)> 3.

<sup>13</sup> International Society of Offshore and Polar Engineers, *Deep Seabed Mining Environment: Preliminary Engineering and Environmental Assessment Special Report OMS-EN-1* (International Society of Offshore and Polar Engineers, 2002) 2.

increase of demands in metals that would be come from seabed mining.<sup>14</sup> This situation, therefore, led to the high prices of metals in 2006.<sup>15</sup>

In regard to the deep seabed mining technology, there are four fundamental methods to mine and recover mineral deposits: (1) scraping them from the deep sea-bed's surface, (2) excavating them from a hole (3) tunneling to a deposit under the surface, and (4) drilling into the deposit.<sup>16</sup> In focusing on the deep seabed mining process, it can be concisely elaborated through the following stages. First of all, the deep seabed minerals are to be carefully collected and gathered by four methods mentioned above; subsequently, such minerals must be transported elsewhere for concentration and then purified for sale.<sup>17</sup> Nonetheless, those processes are more complicated than land mining because it is essential to bring minerals out underwater by remote methods operated from a floating platform at the sea surface.<sup>18</sup>

### 3 International Legal Regime of the Deep Seabed Mineral Resources Exploration

It is very well known that the United Nations has become an important international organization which can play roles in the establishment of international legal regime of the deep seabed mineral resources exploration. This section is to discuss the key issue of what is the legal status of the deep seabed mineral resources and how international law can engage in the control of such exploration.

#### 3.1 *The Legal Status of The Deep Seabed Mineral Resources*

The legal status of the deep seabed mineral resources has been discussed since 1967. In the consideration of the First Committee of the United Nations General Assembly, Dr. Arvid Pardo, who was the representative of Malta, proposed that the seabed and its resources beyond the limits of national jurisdiction should be declared

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<sup>14</sup> International Seabed Authority, Prospects for Deep-Seabed Mining <<http://www.isa.org.jm/files/documents/EN/Brochures/ENG1.pdf>>.

<sup>15</sup> Ibid.

<sup>16</sup> International Seabed Authority, Seabed Technology <<http://www.isa.org.jm/files/documents/EN/Brochures/ENG10.pdf>>.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

to be part of the common heritage of mankind.<sup>19</sup> His proposal also became a part of the agenda of the Third United Nations Conference on Law of the Sea during 1973-1982.<sup>20</sup> With respect to his proposal, it is obviously explained that the seabed can be reserved for peaceful purposes and the promotion of marine research; in addition, Pardo also stated that any claim of national jurisdiction over the deep seabed must be prohibited.<sup>21</sup> It seems clearly that the Pardo's proposal is viewed as the significant beginning of the establishment of international legal regime of the deep seabed mineral resources exploration.

Nevertheless, the proposal might be questioned who has right or authority to utilize and manage the deep seabed resources.<sup>22</sup> According to the Pardo's

concept, it seems that Pardo attempted to support an international organ to administrate and allocate the deep seabed resources.<sup>23</sup> As a result, after the United Nations Convention on the Law of the Sea (UNCLOS) opened for signature on 10 December 1982<sup>24</sup>, the concept of common heritage of mankind proposed by Pardo has become reality and has been recognized as a key principle under UNCLOS.

Under Article 136 of UNCLOS, it provides that the Area and its resources are the common heritage of mankind.<sup>25</sup> The term "Area" is very important because it is where mineral resources such as Polymetallic Nodules are located.<sup>26</sup> The definition of the Area provided under Article 1 of UNCLOS is described as the seabed and ocean floor and subsoil thereof,

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<sup>19</sup> Ian Brownlie, *Principles of Public International Law* (Oxford University Press, 7th ed, 2008) 242.

<sup>20</sup> *Ibid.*

<sup>21</sup> Erkki Holmila, 'Common Heritage of Mankind in the Law of the Sea' (2005) 1 *Acta Societatis Martensis* 187, 189.

<sup>22</sup> *Ibid.*

<sup>23</sup> *Ibid.*

<sup>24</sup> Ocean and Law of the Sea United Nations, United Nations Convention on the Law of the Sea of 10 December 1982 Overview and Full Text <[http://www.un.org/Depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm)>.

<sup>25</sup> United Nations Convention on the Law of the Sea, opened for signature 10 December 1982, 1833 UNTS 3, 21 ILM 1261 (entered into force 16 November 1994) art 136.

<sup>26</sup> Bradley Larschan, 'The International Legal Status of the Contractual Rights of Contractors under the Deep Sea-Bed Mining Provisions (Part XI) of the Third United Nations Convention on the Law of the Sea' (1985-1986) 14 *Denver Journal of International Law and Policy* 207, 211.

beyond the limits of national jurisdiction.<sup>27</sup> Moreover, UNCLOS elaborates the meaning of resources of such Area that refer to all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules.<sup>28</sup> Consequently, it is explicitly said that the deep seabed mineral resources located in the Area are legally recognized as the common heritage of mankind.

### 3.2 International Seabed Authority

International Seabed Authority (ISA) is an organ established under UNCLOS and can play important roles in the management and control of the deep seabed mineral resources exploration in the Area. The ISA was established under the UNCLOS and the Agreement relating to the Implementation of Part XI of UNCLOS.<sup>29</sup> Under Part XI of UNCLOS, it also provides the structure and function of ISA.<sup>30</sup> The ISA is composed of three key organs: (1) the

Assembly which is the supreme body that is responsible for the establishment of general policies, (2) the Council which is the executive body providing more specific policies and approving or declining the applications for mining exploration, and (3) the Secretariat.<sup>31</sup> Furthermore, the ISA can supervise the implementation of the UNCLOS and the Agreement relating to the Implementation of Part XI of UNCLOS.<sup>32</sup> The ISA also established its subsidiary organ known as the Enterprise for carrying out activities in the Area and transporting, processing and marketing of minerals recovered from the Area.<sup>33</sup>

### 3.3 The Legal Regime for the Development of The Deep Seabed Mineral Resources Exploration

The deep seabed mineral resources are embedded in the Area where is beyond the exclusive economic zone and overlaps the areas of continental shelf which extend

<sup>27</sup> UNCLOS art 1.

<sup>28</sup> Ibid art 133.

<sup>29</sup> International Seabed Authority, About US <<http://www.isa.org/jm/en/about>>.

<sup>30</sup> UNCLOS art 158.

<sup>31</sup> Jason C. Nelson, 'The Contemporary Seabed Mining Regime: A Critical Analysis of the Mining Regulations Promulgated by the International Seabed Authority' (2005) 16 Colorado Journal of International Environmental Law and Policy 27, 34-35.

<sup>32</sup> Ibid, 35.

<sup>33</sup> UNCLOS art 170.

beyond the 200-mile limit.<sup>34</sup> UNCLOS provides the legal regime for the development of the deep seabed mineral resources exploration as common heritage of mankind through six key elements.<sup>35</sup> First of all, no state shall claim or exercise sovereignty over any part of the Area and its resources.<sup>36</sup> Secondly, any activity related to the resources of the Area shall be organized and controlled by International Seabed Authority (ISA) and shall be carried out for benefits of mankind.<sup>37</sup> Thirdly, all state parties shall have responsibility to ensure that activities in the Area shall be carried out in consistency with Part XI of UNCLOS.<sup>38</sup> Fourthly, the system of exploration and exploitation includes parallel activities that are operated by the Enterprise which is a subsidiary organ under the ISA.<sup>39</sup> Additionally, the equitable sharing of economic benefits resulting from activities in the Area shall be provided and allocated by the ISA.<sup>40</sup>

Lastly, the ISA shall avoid discrimination in the exercise of its powers and functions, including the granting of opportunities for activities in the Area.<sup>41</sup>

### *3.4 The Legal Regime for the Exploration of The Deep Seabed Mineral Resources*

Because the deep seabed mineral resources in the Area specified under Part XI of UNCLOS are recognized as the common heritage of mankind which no state can claim sovereign right over them, Article 153 of UNCLOS provides that any state which needs to explore and exploit the deep seabed mineral resources in the Area, have to be under contract from the ISA.<sup>42</sup> In other words, all activities about the deep seabed mineral resources exploration in the Area shall be carried out in accordance with a formal written plan of work issued in the form of such contract.<sup>43</sup> As a result, the contract will be made

<sup>34</sup> Ian Brownlie, above n 19, 243.

<sup>35</sup> Ibid.

<sup>36</sup> UNCLOS art 137(1).

<sup>37</sup> Ibid art 137(2), 140, 150, 153, 156 and 157.

<sup>38</sup> Ibid art 139(1).

<sup>39</sup> Ian Brownlie, above n 19, 246.

<sup>40</sup> UNCLOS art 140.

<sup>41</sup> Ibid. art 152.

<sup>42</sup> Bradley Larschan, above n 26, 215.

<sup>43</sup> Satya Nandan, 'Administering the Mineral Resources of the Deep Seabed' in David Freestone, Richard Barnes and David M. Ong (eds), *The Law of the Sea: Progress and Prospects* (Oxford University Press, 2006) 75, 86.

between the ISA and contractor who may be any state entity; furthermore, the contractor seeking approval of his plan of work must be overseen and supported by state parties to the UNCLOS.<sup>44</sup> This can confirm that the ISA becomes the authority that can organize and control activities in the Area on behalf of mankind as a whole according to Article 153 of UNCLOS.<sup>45</sup> Hence, all activities related to the deep seabed mineral resources exploration and exploitation cannot be done by any state party; nonetheless, the exploration and exploitation will be operated by ISA on behalf of all UNCLOS state parties.

Furthermore, the key of the system for the exploration and exploitation of mineral resources is called as “parallel system” which can be explained in Article 153 of UNCLOS.<sup>46</sup> The parallel system under UNCLOS was established for restraining the controversial issue between the Group of 77 and developed country group.<sup>47</sup> At that time, developed countries

desired to preserve their rights to exploit deep seabed resources for their exclusive benefits; on the other hand, the Group of 77 argued that the Third World should equally access to deep seabed resources and required the ISA to exclusively empower to exploit and control deep seabed production.<sup>48</sup> As a result, the parallel system was established for the purpose of compromise between developed countries and the Third World.<sup>49</sup>

With respect to the parallel system, state parties or state entities have to be permitted by the ISA before starting to explore and exploit the deep seabed mineral resources while the Enterprise which is established by the ISA can itself explore and exploit the deep seabed mineral resources on behalf of the Third World or developing countries<sup>50</sup> because those developing countries might lack sufficient technological and financial availability for the deep seabed exploitation. In this parallel system, it ensures that all

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<sup>44</sup> Bradley Larschan, above n 26, 215.

<sup>45</sup> UNCLOS art 153.

<sup>46</sup> Satya Nandan, above n 43.

<sup>47</sup> Bradley Larschan and Bonnie C. Brennan, 'Common Heritage of Mankind Principle in International Law' (1982-1983) 21 Columbia Journal of Transnational Law 305, 320-321.

<sup>48</sup> Ibid 321.

<sup>49</sup> Ibid 322.

<sup>50</sup> Ibid.

UNCLOS state parties, both developed and developing countries, can equally access the deep seabed mineral resources under the management and control of the ISA. Significantly, this system can also protect the monopolization of the seabed mining industry and preserve deep seabed mine sites for any state party who comes later.<sup>51</sup>

From the discussion above, it is very clear that the international legal regime of the deep seabed mineral resources exploration is virtually based on the concept of common heritage of mankind that aims to equally share UNCLOS state parties all benefits from the Area. However, this concept has remained controversial and problematic because there are no certain criteria or definitions for interpreting the term “common heritage of mankind” and UNCLOS has not provided any further explanation or any hint. Furthermore, although the roles of ISA are very important to manage, control, and equally allocate all benefits from mineral resources exploration to all UNCLOS state parties, the ISA’s functions are not legally binding to other states which do not wish to ratify UNCLOS such as the United States or any state having high capability to

exploit the deep seabed mineral resources by themselves.

#### 4 Conclusion

In conclusion, due to the significance and value of deep seabed mineral resources in the Area, many countries strongly wish to explore and exploit those mineral resources for their own benefit. Particularly, Manganese Nodules can provide humans several minerals that are extremely useful for commercial and industrial development. In order to avoid the conflict that may result from the deep seabed minerals exploration, the legal status of the deep seabed mineral resources are recognized as the common heritage of mankind which belongs to no one. Additionally, it is essential to establish an authority that should be empowered to manage and control the exploration and exploitation. As a result, International Seabed Authority (ISA) established under UNCLOS is the most important international organ which can play key roles in the management and control of the deep seabed mineral resources exploration in the Area. UNCLOS also established the system called the parallel system for control and sharing benefits from the deep seabed

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<sup>51</sup> Satya Nandan, above n 43.

mineral resources exploration. However, it is unfortunate that the legal regime under UNCLOS has remained controversial and might lead to the conflict of the deep seabed mineral resources exploration. It would be interesting to establish the certain criteria or definition of the common

heritage of mankind; in addition, there should be international forum for persuading non-state parties to ratify UNCLOS in order to fulfill and strengthen the implementation of the deep seabed mineral resources exploration under UNCLOS.



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