THE RECENT DEVELOPMENT CHALLENGES OF IMPLEMENTING UNCLOS 1982'S COMMON HERITAGE OF MANKIND

Marsudi Triatmodjo, Agustina Merdekawati, and Irkham Afnan Trisandi Hasibuan
Faculty of Law, Universitas Gadjah Mada
triadmodjo@mail.ugm.ac.id
agustina_merdekawati@ugm.ac.id
irkham.a@mail.ugm.ac.id

Abstract

The Common Heritage of Mankind (CHM) principle was adopted in UNCLOS 1982 to prevent monopoly of the Area utilization by developed countries. Applying the principle has been challenging and would only get even more challenging during the economic globalization era. There have been rapid changes within the structure of the international community, posing challenges to the implementation of the CHM principle in the area. This paper aims to elaborate on these challenges in the economic globalization era. The research identified that the economic globalization era posed some new and enhanced challenges in applying the principle in the area, questioning its relevance. These challenges are the shifting interests of some developing countries and the increased pressure to obtain more mineral resources to accelerate the conversion to green technologies. The research concluded that the international community is faced with two choices, either to maintain the application of the CHM principle without taking further compromising steps to maximize the goal of achieving the welfare of humanity or re-adjusting the operationalization of the CHM principle in UNCLOS 1982 to adapt to changes in the international community in the era of economic globalization.

Keywords: *Common Heritage of Mankind, Deep Seabed Mining, Economic Globalization, the Area, UNCLOS 1982*.

Intisari

Prinsip *Common Heritage of Mankind* (CHM) diadopsi dalam UNCLOS 1982 untuk mencegah monopoli pemanfaatan Kawasan Dasar Laut Internasional (Kawasan) oleh negara-negara maju. Penerapan prinsip CHM merupakan sebuah tantangan dan akan menjadi lebih menantang dalam era globalisasi ekonomi. Terdapat perubahan dalam struktur masyarakat internasional, yang akan menimbulkan tantangan bagi penerapan prinsip CHM. Penelitian ini bertujuan untuk menguraikan tantangan-tantangan tersebut di era globalisasi ekonomi. Hasil penelitian menunjukkan bahwa era globalisasi ekonomi memunculkan beberapa tantangan yamg baru dan lebih menantang dalam penerapan prinsip CHM di Kawasan, mempertanyakan relevansinya. Tantangan tersebut adalah pergeseran kepentingan beberapa negara berkembang dan meningkatnya tekanan untuk memperoleh lebih banyak sumber daya mineral guna mempercepat konversi ke teknologi ramah lingkungan. Penelitian menyimpulkan bahwa komunitas internasional menghadapi dua pilihan,

yakni antara tetap mempertahankan penerapan prinsip CHM tanpa mengambil kompromi lebih lanjut untuk memaksimalkan potensi manfaat bagi seluruh umat manusia, atau menyesuaikan penerapan prinsip CHM dalam UNCLOS 1982 sebagai respons terhadap perubahan yang terjadi di komunitas internasional dalam era globalisasi ekonomi.
Kata Kunci: Common Heritage of Mankind, Globalisasi Ekonomi, Kawasan Dasar Laut Internasional, Pertambangan Dasar Laut, UNCLOS 1982.

A. Introduction

The Common Heritage of Mankind (from now on CHM) is a principle adopted in the United Nations Convention on the Law of the Sea 1982 (from now on UNCLOS 1982), which applies to the area's utilization. UNCLOS 1982 defines "Area" as the seabed outside the boundaries of state jurisdiction.[1] In essence, the principle recognized all mankind as the owner of the area and its resources. There are at least four elements that regulate the use of the area as a common property of all mankind, namely: (1) the prohibition of the acquisition of any part of the area by the state; (2) activity is restricted only for peaceful purposes; (3) the obligation to equitably redistribute the profits generated from the activity to all mankind; and (4) common management of the area.[2] These elements exist to ensure the utilization of the area benefits all mankind and are not limited to only particular states.[3]

Since the beginning, the adoption of the CHM principle in UNCLOS 1982 aimed to prevent the monopoly of utilization only by developed states.[4] The push to include the principle into the new law of the sea regime was motivated by the realization of the gap between the capabilities of developed and developing countries in accessing the activity in the area, which would open up the potential of monopolized utilization by developed states.[5] This

1 United Nations Convention on the Law of the Sea, December 10 1982, Article 1 (1).
2 E. Guntrip, "The Common Heritage of Mankind: An Adequate Regime for Managing the Deep Seabed?", *Melbourne Journal of International Law* 4, no. 2 (2003): 2.
3 R. Wolfrum, "The Principle of the Common Heritage of Mankind", *ZaöRV* 43, no. 2 (1983): 315.
4 Chuanliang Wang and Yen-Chiang Chang, "A New Interpretation of the Common Heritage of Mankind in the Context of the International Law of the Sea", *Ocean & Coastal Management* 191 (June 2020): 4, https://doi.org/10.1016/j.ocecoaman.2020.105191; Isabel Feichtner, "Sharing the Riches of the Sea: The Redistributive and Fiscal Dimension of Deep Seabed Exploitation", *European Journal of International Law* 30, no. 2 (July 22, 2019): 610, https://doi.org/10.1093/ejil/chz022.
5 Feichtner, "Sharing the Riches of the Sea: The Redistributive and Fiscal Dimension of Deep Seabed Exploitation", 605.

concern was reasonable, considering the state capable of dominating mineral resources will become a superpower and will be able to suppress developing countries even more, both economically and politically. For reference, Clarion Clipperton Zone (CCZ) in the Pacific Ocean is a block in the area that contains manganese nodules, nickels, and cobalt, each is 1.2, 1.8, and 3.4 times larger in quantities compared to the entire land-based reserves.[6]

There are differences between the economic and political situation contexts when the CHM principle was first formulated in UNCLOS 1982 and the past at least two decades. The pace of economic globalization today is faster than it was in the 1960s and 1980s and generally positively impacts the economic growth of developing countries.[7] Currently, economic globalization is also enjoyed by developing countries.[8] We have seen several countries in Asia becoming emerging markets (inter alia China, Brazil, India, and South Korea), catching up with the western nations.[9]

Although economic globalization tends to be more advantageous for countries with large capitals, it also opens up opportunities for developing countries to catch up with the economic development of developed countries.[10] The economic growth of developing countries is evident in their increasing presence in the utilization activity in the area. Some developing countries such as China, India, Tonga, Kiribati, Nauru, and Jamaica have been participating in the exploration activities in the area, with China currently holding the greatest number of exploration contracts in the area (5 out of the total of 31 contracts approved by the International Seabed Authority).[11]

---

6 James R. Hein, Andrea Koschinsky, and Thomas Kuhn, "Deep-Ocean Polymetallic Nodules as A Resource for Critical Materials", *Nature Reviews Earth & Environment* 1, no. 3 (2020): 158–63, https://doi.org/https://doi.org/10.1038/s43017-020-0027-0.

7 See Yung-Hsiang Ying, Koyin Chang, and Chen-Hsun Lee, "The Impact of Globalization on Economic Growth", *Romanian Journal of Economic Forecasting* 17, no. 2 (2014): 25–34; Stannia Cahaya Suci, Alla Asmara, and Sri Mulatsih, "The Impact of Globalization on Economic Growth in ASEAN", *Jurnal Ilmu Administrasi Dan Organisasi* 22, no. 2 (2015): 79–87.

8 See M.M. Haris Aslam and Sarwar M. Azhar, "Globalisation and Development: Challenges for Developing Countries", *International Journal of Economic Policy in Emerging Economies* 6, no. 2 (2013): 158–67.

9 MSCI Emerging Markets Index 2021, p. 7, *https://www.msci.com/documents/10199/c0db0a48-01f2-4ba9-ad01-226fd5678111* (accessed November 22, 2021).

10 Eswar S. Prasad et al., *Effects of Financial Globalisation on Developing Countries: Some Empirical Evidence* (Washington DC: International Monetary Fund, 2003), 1–2.

11 International Seabed Authority, "Exploration Contracts", 2021, https://isa.org.jm/exploration-

Despite all the opportunities it brought, economic globalization also challenges the CHM principal application in the area. One of the challenges it poses is the increasing need for mineral resources due to the rapid industrialization and the demand for a transition to the use of environmentally friendly technology, which both require the minerals found in abundance in the area. The increasing demand for mineral resources in the area creates demands or pressures to modify the current utilization policy to accelerate exploitation. Similarly, the area's minerals are regarded as a reliable alternative to the depleting mineral reserves on land. These two factors should provide the concrete picturization of the contemporary challenges that test the relevance of the CHM principle in Area utilization during the current economic globalization era and one to come.

Although it was initially aimed to protect the interest of developing nations, the CHM principle seems to have been an obstacle for countries to consider investing in the utilization of the area. The CHM principle under UNCLOS 1982 requires that the contractors cannot enjoy all the exploitation yields, as there is an obligation to redistribute through the payment of royalty to the ISA.[12] Besides the already capital-intensive nature of deep seabed mining, these provisions certainly diminish the lucrative aspects of seabed mining investment. Taking into account the capital expenditure and operational expenditure within a year, the investment required to fund one mining site is around USD 11,9 billion.[13]

Contemporary challenges have emerged in applying the CHM principle in the area in today's context. Thus far, the principle seems successful in preventing the emergence of the monopoly in the utilization of areas. However, this achievement comes with the trade-off that commercial utilization has not been started yet. Such fact indicates that the area has never actually brought

contracts (accessed November 22, 2021).

12 According to the provisions of UNCLOS 1982 Article 140 (1) and (2), and 1994 Agreement on Annex Section 8. Initially the obligation to make payments was governed under Annex III Article 13 of UNCLOS 1982. However, the provision was revoked by the 1994 Agreement, Annex Section 8.

13 Rahul Sharma, "Deep-Sea Mining: Economic, Technical, Technological and Environmental Considerations for Sustainable Development", *Marine Technology Society Journal* 45, no. 5 (2011): 28–41, https://doi.org/https://doi.org/10.4031/MTSJ.45.5.2.

financial benefits to mankind, which put its relevance in question. The financial benefits aspect is crucial in the context of CHM operationalization under UNCLOS 1982 since it was closely related to the aim of addressing the inequality between the developed and developing countries. The financial benefits aspect of the CHM operationalization also relates closely to achieving welfare for all mankind through redistribution by the ISA. Therefore, the CHM principle has never been implemented entirely to this day.

This research is normative, which bases the analysis on the provisions of the relevant applicable legal norms in the relevant international Law of the sea instruments, namely UNCLOS 1982 and its implementing instruments. The data were then analyzed using qualitative methods to find the conclusion. This study aimed to examine the relevance of the CHM principle in the current economic globalization era by analyzing the challenges it brought. This study will attempt to identify and elaborate on the challenges in operationalizing the CHM principle during the economic globalization era.

B. Challenges in Applying CHM Principle in the Economic Globalization Era

The international community had chosen the CHM principle to answer the concern of monopoly practices in the utilization of seabed resources. The first negotiation to adopt the principle into the international Law of the sea was during the 22nd UN General Assembly meeting in 1967.[14] The inclusion of the principle was encouraged by the developing countries, which believed that the freedom of the high sea is an unfair regime created by and only to benefit developed nations.[15] The urgency of such inclusion can be linked to the characteristic of the mineral itself as a finite resource.

In contrast to fisheries' resources in the high seas that can regenerate quickly and are available in almost all parts of the sea, mineral resources are limited and only available in large quantities at specific locations. In addition, polymetallic nodules take up to millions of years to form and only increase

14 Wolfrum, "The Principle of the Common Heritage of Mankind", 313.

15 John E. Noyes, "The Common Heritage of Mankind: Past, Present, and Future", *Denver Journal of International Law & Policy* 40, no. 1 (2012): 448–50.

in size by around two to 15 mm per one million years.[16] These characteristics thus render the implementation of freedom of the high sea unfair if applied to seabed mineral resources. There is a possibility that by the time developing countries can carry out exploitation activities, developed countries would have already administered all the prospective mining sites on a first-come, first-served basis. Therefore, the freedom of the high sea in the area would put developing countries in disadvantaged positions, as they may never get a chance to exploit the minerals before they get depleted.

The urge to incorporate the CHM principle into the new international law of the sea regime was based on the discovery of mineral resources in the seabed, which were estimated to be plentiful enough to carry out commercial mining.[17] Meanwhile, however, the Geneva Convention on the High Sea 1958 does not regulate the exploitation of mineral resources nor explicitly exempt it.[18] Under the freedom of the high sea, the exploitation of mineral resources would be open to all countries capable of doing so. Developing countries view the regime to be more advantageous for developed countries, as they are the ones who can afford the activities. Therefore, the developing countries encouraged the inclusion of the CHM principle into the new Law of the sea instrument to separately govern the utilization of mineral resources found in the seabed.[19]

The movement of the New International Economic Order (hereinafter NIEO) in the 1960s – 1970s influenced the inclusion of the CHM principle into the Law of the sea regime.[20] NIEO was pushing the agenda to create a fair distribution of natural resources regime to allow developing countries to

16 Phillip J. Turner, "Deep-Sea Mining and Environmental Management", in Encyclopedia of Ocean Sciences (Third Edition), ed. J. Kirk Cochran, Henry J. Bokuniewicz, and Patricia L. Yager (New York: Elsevier, 2019), 507–8.
17 Jack Barkenbus, *Deep Seabed Resources: Politics and Technology* (New York: Free Press, 1979), 4.
18 Jon Van Dyke and Christopher Yuen, "Common Heritage v. Freedom of the High Seas: Which Governs the Seabed", *San Diego Law Review* 19, no. 3 (1981): 501–14.
19 Noyes, "The Common Heritage of Mankind: Past, Present, and Future", 448–51.
20 María Fernanda Millicay, "The Common Heritage of Mankind: 21st Century Challenges of a Revolutionary Concept", in Law of the Sea, From Grotius to the International Tribunal for the Law of the Sea, ed. Lilian del Castillo (Leiden: Brill Nijhoff, 2015), 274–75.

develop their economies (right to development).[21] The developing countries deemed the CHM principle to be an appropriate means to realize their goal of establishing equitable utilization of natural resources in the area.

Essentially, the CHM principle excludes the area from the competition of resource utilization between the developing and developed nations. The recognition of mankind as the owner of the resources places the developing countries on an equal footing with the developed nations. This aspect is crucial to protect the interests of the developing states from the monopoly by developed states. Placing the developing states on an equal footing with developed nations is essential. We must admit a more significant barrier to entry for developing countries to conduct deep seabed mining.

The mineral resources, just like petroleums, hold a vital role in the world's economy. Its non-renewable characteristics make mineral resources a high-valued commodity. Minerals such as cobalt, manganese, copper, and nickel are crucial commodities in various industrial sectors.[22] Along with the rapid development of technology and the increasing pace of growth in the economic globalization era, the demand for mineral commodities is projected only to increase substantially. Thus, the monopoly utilization of the area by developed nations would also lead to the emergence of neo-colonialism.[23]

Considering mineral commodities hold high value in the current civilization era, the country capable of monopolizing these resources would have a tremendous economic and political influence. Therefore, the control over the abundant mineral resources in the area would bring about geopolitical consequences. Countries that monopolize the exploitation activities will become a superpower capable of putting pressure on developing countries, both economically and politically. Although this consequence does not exclusively occur in the context of a monopoly of the area, it is still necessary to prevent such a situation. The manifestation of neo-colonialism is the emergence of

21 Noyes, "The Common Heritage of Mankind: Past, Present, and Future", 449.

22 See Hein, Koschinsky, and Kuhn, "Deep-Ocean Polymetallic Nodules as A Resource for Critical Materials", 158–69.

23 Kirsten F. Thompson et al., "Seabed Mining and Approaches to Governance of the Deep Seabed", *Frontiers in Marine Science* 5 (December 11, 2018): 7, https://doi.org/10.3389/fmars.2018.00480.

developing nations' economic dependence on developed countries, opening the door for economic and political influences attached to the investments (e.g. FDI) or conditional loans.[24]

Although the CHM principle seems successful in preventing the emergence of neo-colonialism practices in the context of Area utilization, it encounters new challenges in its implementation. Economic globalization brought about these new challenges, mainly caused by the changes in the global political-economic situation. The emergence of new challenges in implementing a policy is normal, especially for a policy made long before the policymakers thought of these challenges. The emergence of these new challenges serves as momentum to re-examine the relevance of the CHM principle as the appropriate regime to regulate resource utilization in the area.

Before we identify the challenges, we need first to understand the features of economic globalization which caused the challenges. There are four main features of economic globalization: the development of international trade activities, foreign direct investments, capital market flows, movement of labor, and transfer of technology.[25] These four features contributed to creating an integrated international economy due to the fading of boundaries between countries in their interactions.[26] Although economic globalization seems to benefit developing countries, it also has some negative implications.[27]

Economic globalization has opened up opportunities for all countries to benefit from rapid economic development. However, developed countries still benefit more from it than developing countries. Developed countries possess more capital and more sophisticated technology, enabling them to gain greater profits in economic globalization. Developing countries are likely to end up merely as the target markets without getting a proportional benefit from exporting their goods and services abroad. Developing countries

24 Further reading, see Chris Rogers and Sofia Vasilopoulou, "Making Sense of Greek Austerity", *The Political Quarterly* 83, no. 4 (2012): 777–85, https://doi.org/https://doi.org/10.1111/j.1467-923X.2012.02359.x.

25 Laimona Sliburyte and Ruta Ostaseviciute, "Theoretical Aspects of Economic Globalization Impacts on Emerging Economies", *Economics and Management* 14 (2009): 947–53.

26 Herman E. Daly, "Globalization Versus Internationalization – Some Implications", *Ecological Economics* 31 (1999): 31–37.

27 Joseph E. Stiglitz, *Globalization and Its Discontents* (New York: W.W. Norton, 2002), 5–9.

are more reliant on developed countries to get investments or loans in their interactions. These conditions then lead to negative consequences, such as the interdependence of the developing countries.[28]

Although the developed nations tend to be more advantaged, this does not mean some developing countries cannot benefit significantly. Several advantages possessed by developing countries, such as the plentiful workforce, natural resources, and lower production costs, allow them to gain significant benefits from economic globalization.[29] Among the developing countries proven successful to improve their economies and becoming emerging markets are, *inter alia* China, India, and Indonesia. Such changes in the economic situation of some developing countries certainly might have impacted their view on the CHM principle.

Economic globalization has changed the international community with its positive and negative consequences. Such changes in the circumstances faced by the international community will undoubtedly impact the implementation of the CHM principle in the days to come. Economic globalization also influenced the international community's priorities from developing and developed nations' perspectives. By looking at the impact of economic globalization on the international community, we can identify the future challenges in implementing the CHM principle in the area. The identified challenges are analyzed as follows.

1. The Emergence of Emerging Economies from the Developing World

Economic globalization offers the opportunity for developing countries to improve their economies. Although the developed nations still have the edge in terms of capital and technology possession, the developing nations have their advantages on their own, such as the more considerable population number and access to natural resources. In short, economic globalization may improve the economic growth of developing countries through capital flow and the transfer of technology.[30] In economic globalization, cross-border capital

28 Reza A.A. Wattimena, "What Are the Fundamental Pillars of Contemporary Globalization?", *The Ary Suta Center Series on Strategic Management* 42 (2018): 3–8.

29 Prasad et al., *Effects of Financial Globalisation on Developing Countries: Some Empirical Evidence*, 2.

30 Ibid., 13–20; Sliburyte and Ostaseviciute, "Theoretical Aspects of Economic Globalization

flows are distributed among developed countries and between developed and developing countries.

During the past two decades, we have, for example, seen the exponential economic growth of several developing countries, such as Brazil, India, China, and Indonesia. The improvement of their economies will also positively impact their financial and technological abilities. The improvement of the economic conditions of several developing nations can potentially affect their perception of the CHM principle. The situation where some developing countries start to conduct utilization activity in the area puts the relevance of the CHM principle into question. The issue of its relevance becomes vital because the principle exists to protect the interests of developing countries that historically have not been able to afford the activities.[31]

During the negotiation processes of UNCLOS 1982, the developed countries tend to perceive the CHM principle as an obstacle to the utilization of seabed resources.[32] The international community feared implementing the CHM principle would lessen the economic value of the exploitation activities. Along with technological developments and the increasing capacity of developing countries in terms of capital, it is also possible that developing countries' perceptions of the CHM principle have changed. The more developing countries will be able to carry out utilization activity in the area, the more likely the CHM principle's relevance will erode.

Changes in the perception of developing countries regarding the use of the area are one of the challenges in applying the CHM principle in the economic globalization era. The perception of developing countries is a vital aspect because they are the primary beneficiaries of the CHM principle. Thus, its implementation and relevance also depend on the support of developing countries. The more developing countries can conduct activities in the area, the fewer countries will support the application of the CHM principle.

Looking at the negotiation process of the CHM principle in the

Impacts on Emerging Economies", 947–53.

31 Guntrip, "The Common Heritage of Mankind: An Adequate Regime for Managing the Deep Seabed?", 2.

32 Wolfrum, "The Principle of the Common Heritage of Mankind", 313.

preparation of the UNCLOS 1982, the subject of "mankind" referred to is more inclined to human beings in developing countries that are not yet prosperous.[33] Therefore, the formulation of the redistribution obligation (equitable sharing of benefits) prioritizes the interests of mankind in developing countries. Thus, there are potential parties who will use the facts of the rapid economic growth experienced by several developing countries as a basis for questioning the relevance of the CHM principle in the future.

However, we must also admit that some developing countries are still dependent on the CHM principle to protect their interests. Thus, the fact that several developing countries have begun to carry out activities in the area cannot render the CHM principle completely irrelevant but only has the potential to weaken the support for its implementation. This change of view also has a widespread impact, especially in their decision-making as a member of the ISA Assembly or the ISA Council. There may be a greater risk that the ISA decisions made are not in favor of the developing countries' interests.

One of the vital aspects of applying the CHM principle that may be affected is the formulation of the redistribution policy. As regulated in Article 162 paragraph (2) letter (o) of UNCLOS 1982, the ISA Council has the authority to recommend arrangements and procedures for the implementation of "equitable sharing of financial and other economic benefits" from utilization activities of the area. Thus, the greater the influence of countries that have been able to utilize the area in the formulation of the redistribution policy, the greater the risk that decisions taken do not prioritize and benefit the interests of developing countries. If such a scenario occurs, the application of the CHM principle in the area will not be optimal and will lose the relevance of its application.

2. The Push to Transition to Green Technologies

The issue of global warming is also one of the challenges that the international community must face in the application of the CHM principle in the area. The rapid growth of the global economy also impacts the emissions generated. Therefore, the implementation of the policy to accelerate the

33 Ibid., 315–16.

transition to the use of environmentally friendly technologies is encouraged. The transition is also deemed necessary in ensuring sustainable development. The international community has set transition targets to be achieved by 2020 stipulated under the 2030 Sustainable Development Goals, in which the utilization of mineral resources holds a vital role.[34]

One of the phenomena in the era of economic globalization is the increasing awareness of the world community regarding the importance of environmental conservation. This awareness is manifested in the push to use renewable energy and the transition to environmentally friendly technologies. Increased awareness of environmental conservation is also reflected in the efforts to formulate instruments to regulate biodiversity protection beyond the boundaries of state jurisdiction (hereinafter BBNJ) under UNCLOS 1982. The UN held the BBNJ Intergovernmental Conference starting in 2017 to establish a binding instrument under UNCLOS 1982 concerning the conservation and sustainable use of living resources beyond the boundaries of state jurisdiction.[35]

There are still concerns that the exploitation activities in the area will harm the ecosystem of the seabed. The lack of knowledge about the deep seabed ecosystem makes it difficult to measure the environmental impacts that deep seabed mining will cause. There are still parties who refuse mineral exploitation activities in the area based on environmental impact considerations, *inter alia* the World Wild Fund.[36]

At first glance, it does not appear that there is a link between global warming and the challenges of implementing the CHM principle in the area. However, the mineral resources available in the area (such as copper) are the raw materials required to produce environmentally friendly technologies, such as electric cars and alternative power plants (air, water, heat) require batteries

34 Michael Lodge, "Can a 'Mining Code'' Make Deep Seabed Extraction Sustainable?,"" China Dialogue Ocean, https://chinadialogueocean.net/7082-can-a-mining-code-make-deep-seabed-extraction-sustainable/ (accessed November 22, 2021).

35 The draft instrument is titled "International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction." UNGA Resolution 72/249.

36 WWF, "Protecting the Seabed Before It's Too Late", https://wwf.panda.org/discover/our_focus/oceans_practice/no_deep_seabed_mining/#:~:text=A global moratorium on all,sea minerals have been explored (accessed November 22, 2021).

that require the minerals available in the area to manufacture. In addition, the development of modern technology that requires batteries as a power source (electronic equipment) will also increase the need for minerals. The reduced availability of these minerals on land (ground reserves) will further urge the urgency of mineral mining activities in the area.[37] The area contains rare earth materials that play an essential role in producing environmentally friendly technologies.[38]

Many projected that the demand for copper will increase by up to 350% in 2050.[39] The main contributors are the electrification of transportation (electric cars) and environmentally friendly energy generation.[40] Thus, there will be pressure to immediately utilize the area to reduce the cost of producing renewable energy and environmentally friendly technologies. Considering such predictions, the pressure for the immediate exploitation of the area will be even greater. So, what are the implications of the emergence of challenges in implementing the CHM principle in the area?

The presence of other priorities that the international community wants to realize (i.e., the transition to environmentally friendly energy) also impacts the CHM principal implementation. When the CHM principle was first negotiated as a regime for regulating the use of the area, the interest of realizing the welfare of all mankind (especially in developing countries) might be the only main priority of the international community. Therefore, the agreed formulation of the CHM principle is more inclined to consider the economic aspects of non-living resources. Meanwhile, other aspects such as environmental impact and potential utilization to transition environmentally friendly technologies did not receive sufficient attention.

Part XI of UNCLOS 1982 has regulated aspects of environmental

37 Yasuhiro Kato et al., "Deep-Sea Mud in the Pacific Ocean as a Potential Resource for Rare-Earth Elements", *Nature Geoscience* 4, no. 8 (August 3, 2011): 535–39, https://doi.org/10.1038/ngeo1185.

38 Ibid.

39 Ayman Elshkaki et al., "Copper Demand, Supply, and Associated Energy Use to 2050", *Global Environmental Change* 39 (July 2016): 305–15, https://doi.org/10.1016/j.gloenvcha.2016.06.006.

40 James R. Hein et al., "Deep-Ocean Mineral Deposits as a Source of Critical Metals for High- and Green-Technology Applications: Comparison with Land-Based Resources", *Ore Geology Reviews* 51 (June 2013): 1–14, https://doi.org/10.1016/j.oregeorev.2012.12.001.

protection in the area concerning utilization activities. However, as time progresses, the international community realized that the exploitation of mineral resources in the area will hurt the ecosystem.[41] Article 145 was formulated when knowledge regarding the potential environmental impacts on the area's ecosystem was minimal.[42]

The emergence of the international community's interest to immediately transition to environmentally friendly technology can impact the pressure to compromise the application of the CHM principle in the area. At present, developed countries that have begun transitioning to using environmentally friendly technologies can use the excuse of urging the transition of environmentally friendly technologies to push for the derogation of the application of the CHM principle. On the other hand, it will not be easy for developing countries to maintain the ideal application of the CHM principle by ignoring the interest in transitioning to environmentally friendly technologies.

The ideal application of the CHM principle in the area, on the one hand, can protect the interests of developing countries. Still, on the other hand, it can result in a lesser incentive for states to carry out activities to use the area due to considerations of economic aspects. Prioritizing the application of the CHM principle in the area may be put against the priority of transitioning to environmentally friendly technologies. Although the two can go hand in hand, certain compromises are still needed for these two interests to coexist. In this case, we can project that developed countries will be on the side of pushing for the transition to environmentally friendly technology, which is more in line with their interests to compromise the application of the principle to open up more significant utilization opportunities.

Aspects of the CHM principle that may be compromised are related to the implementation of equitable sharing of benefits and production limit policies. These two aspects are projected to be targeted by developed countries for several reasons: (1) they reduce the economic value of Area utilization

41 Rakhyun E. Kim, "Should Deep Seabed Mining Be Allowed?", *Marine Policy* 82 (August 2017): 134–37, https://doi.org/10.1016/j.marpol.2017.05.010.

42 Lisa A. Levin, Diva J. Amon, and Hannah Lily, "Challenges to the Sustainability of Deep-Seabed Mining", *Nature Sustainability* 3, no. 10 (October 6 2020): 784–94, https://doi.org/10.1038/s41893-020-0558-x.

investment, and (2) they limit the available profits. These two aspects have a significant influence on the consideration of countries to invest in the utilization of the area. To meet the increasing demand for mineral resources, adequate area exploitation is also required. One of the obstacles faced by applying the CHM principle in the area is the concern of developed countries that the necessary investment is not comparable with the economic benefits they can obtain. Therefore, to increase the availability of minerals obtained from the area, it is necessary to increase mineral exploitation activities. One way that is projected to be encouraged by developed countries is by derogating the two aspects above.

The equitable benefits sharing formula to be applied has not yet been established. However, suppose the formulation of equitable sharing of benefits will be adjusted to the need for cheap mineral raw materials to reduce the price of environmentally friendly technology. In that case, the implemented formulation of equitable sharing of benefits may provide more significant benefits to contractors to encourage more exploitation activities in the area. Such a formulation is also more likely to consider the first challenge described earlier, that the developed countries have a significant influence in the decision-making process within the ISA.

The policy of limiting mineral production in the area (production limit) will also potentially be affected by the increasing demand for mineral raw materials in the era of economic globalization. The availability of mineral resources from the area in the market will decrease mineral prices (because supply is higher than demand). The policy of limiting mineral production in the area exists to protect countries whose economies depend on the export of mineral resources. The dependence on mineral exports indicates that the country in question is a developing country. Developed countries, in general, have diversified the sectors that support their national economy.

The policy of limiting the production of minerals produced from the area is contrary to the interests of providing mineral raw materials to reduce production costs and the price of environmentally friendly technology. Therefore, along with the increasing pressure on the transition to environmentally friendly

technology, the greater the incentive to lift or derogate the policy of limiting production.

3. The Power of Developed Countries in the ISA and the Prospect of Operationalizing Enterprise

One of the efforts taken in the 1994 Agreement to invite the participation of developing countries is to give them more significant influence in the ISA decision-making process. The ISA consists of three organs, namely the Assembly, the Council, and the Secretariat. The ISA Assembly consists of all countries party to UNCLOS 1982, each with one vote. Meanwhile, the ISA Council consisted of 36 countries selected from countries that met specific criteria and divided into five groups based on certain criteria.[43]

After the 1994 Agreement, the ISA Council was given greater authority.[44] In addition, the 1994 Agreement also implemented a chamber system in the decision-making of the ISA Council. In the chamber system, the five groups (group a to group e) in the ISA Council are treated as chambers. However, each chamber does not have equal voting rights. Each group of countries in the first three groups of countries (group a, b, c) each constitutes one room. Meanwhile, the last two groups of countries (group d, e) are considered one chamber. Thus, the ISA Council consists of four chambers, of which 12 countries make up three chambers, while 24 countries make up one chamber. The developing countries' representative countries will mostly be in the last two groups (group d, e), which only form one chamber.[45]

The system of division of rooms in the ISA Council is an essential aspect because each chamber has veto power over the decisions of the ISA Council as long as it is on substantive matters. The 1994 Agreement stipulates that if a decision cannot be reached by consensus, substantive decisions are decided by voting with the approval of two-thirds of the ISA Council members. The

43 UNCLOS 1982, Article 161 (1).

44 If both the Assembly and the Council have the authority over the same matter, the decision should be based on the recommendation from the Council; see over the same matter, the decision should be based on the recommendation from the Council; see Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10 1982, A/RES/48/263 August 17 1994, Annex Section 3 (3).

45 Ibid., Annex Section 3 (8).

decision is not rejected by a majority of countries in any chamber.[46] Such provisions also apply in determining the approval of an Area utilization proposal (approval of a plan of work).[47]

With this provision, it appears that the developed country group, which dominates at least two chambers, namely group a (the largest economy) and group b (the largest investment in the area), will have a significant influence on the decision-making process in the ISA Council. Although there is still an ISA Assembly consisting of all UNCLOS 1982 member countries where developing countries can dominate, the Assembly's decisions must be based on the recommendations of the ISA Council (if both have the authority).[48]

The decision-making within the ISA Council impacts the prospects for the establishment of the Enterprise. The 1994 Agreement governed that the functions of the Enterprise (except for conducting exploration and exploitation activities) will be carried out by the ISA Secretariat until the independent operationalization of the Enterprise. It was agreed that the Enterprise would be operationalized after the approval of a proposal for exploitation activities from parties other than Enterprise (state or private) or the approval of a joint-venture offer with Enterprise.[49] If one of these criteria is met, the ISA Council will discuss the establishment of the Enterprise.

The fulfillment of one of the two conditions for establishing the Enterprise is highly dependent on the ISA Council. The approval of the exploitation activities proposal is under the ISA Council's authority, also the approval of a joint venture proposal for exploitation activities with the Enterprise. The decision to establish the Enterprise must also be based on the decision of the ISA Council.[50] Thus, the developed countries that dominate the chamber system have a considerable influence in the decision-making of operationalizing the Enterprise. Several arguments could potentially be used by a group of developed countries in the ISA Council to prevent the operationalization of the Enterprise. One of the arguments that they could use

46 Ibid., Annex Section 3 (5).
47 Ibid., Annex Section 3 (1).
48 Ibid., Annex Section 3 (4).
49 Ibid., Annex Section 2 (2).
50 Ibid.

for this purpose is the consideration of the efficiency of operationalizing the Enterprise.

In the worst-case scenario, developed countries can intentionally prevent the commencement of exploitation activities in the area by ensuring that the requirements for operationalizing the Enterprise cannot be met (including by rejecting the approval of proposals for exploitation activities in the area).[51] This efficiency is related to the consideration that the operation of the Enterprise will require high costs. At the same time, there is no guarantee that there will be proposals for further exploitation activities after the Enterprise is operational.

Suppose we relate the prospect of operationalizing the Enterprise with the previous challenges related to the urgency of the transition to environmentally friendly technology. In that case, there are still two scenarios of the tendency of developed countries in their decision-making. Developed countries have a greater incentive to develop and switch to using environmentally friendly technologies immediately. Thus, there is a possible scenario where developed countries want mineral resources to be available in abundance immediately to reduce the price of raw materials for mineral commodities. In this scenario, the tendency of developed countries will be a positive factor in realizing utilization activities in the area. However, if developed countries do not tend to accelerate the availability of abundant mineral resources or transition to using environmentally friendly technologies immediately, their decisions as members of the ISA Council can become challenges in implementing the CHM principle in the area.

4. Investment Efficiency of Developing Countries

One of the challenges faced in implementing the CHM principle in the area is the prospect of active participation by developing countries. One of the objectives of implementing the CHM principle is to guarantee access

51 One of the aspects that changed was concerning the states' obligation to fund the first operation of the Enterprise, which was deemed to be burdensome to state parties. The postponement of the Enterprise operationalization also reflects the consideration of cost-efficiency. Annex Section 1 (2) of Agreement 1994 stipulated that the operation of organ bodies must be cost-efficient to minimize the cost to state parties.

for developing countries, at least indirectly.[52] The guarantee of indirect participation is related to the consideration that developing countries cannot afford active utilization activities. Therefore, the condition that existed when the CHM principle was negotiated in UNCLOS 1982 was that developing countries could not participate.[53]

We have seen several developing countries successfully improve their economies and become emerging economies. However, there has been a change in the situation concerning the participation aspect of developing countries. The increase in the economic capacity of several developing countries is also directly proportional to the financial capacity and technology they have.[54] In other words, there are developing countries that, at least in terms of capital, can actively participate in the utilization of the area but choose not to participate based on considerations of economic factors (by choice).

One of the considerations faced by the state in deciding whether to engage in the utilization of the area is comparing the investment required with the economic benefits they can obtain. The existence of an obligation to equitably share the utilization results will undoubtedly result in reduced economic benefits that contractors will receive. Emerging economies and developing countries must also face the same considerations in deciding on their involvement in the utilization of the area.

Therefore, the CHM principle can be a double-edged sword for developing countries. On the one hand, the CHM principle protects developing countries when they cannot carry out activities to use the area independently. On the other hand, the CHM principle can discourage participation of developing countries due to the obligation to share the utilization results, which will reduce the economic value of the investment incurred. The CHM principle tends to be a disincentive for countries that can carry out activities in the area.[55]

52 Wolfrum, "The Principle of the Common Heritage of Mankind", 318.
53 Ibid.
54 Prasad et al., *Effects of Financial Globalisation on Developing Countries: Some Empirical Evidence*, 3.
55 Jane Eva Collins, Thomas Vanagt, and Isabelle Huys, "Stakeholder Perspectives on Access and Benefit-Sharing for Areas Beyond National Jurisdiction", *Frontiers in Marine Science* 7 (May 5,

In addition, the choice of countries not to actively participate can be based on efficiency considerations. In the era of economic globalization, countries must operate efficiently and have a comparative advantage compared to other countries.[56] In this case, developing countries must consider the efficiency of investment in the area compared to the investment in other sectors. For countries that have limited capital and technology, investing in Area utilization activities is not the best choice. A state must spend a substantial investment in producing these minerals, resulting in the minerals price being uncompetitive in the market. Countries must produce goods more efficiently than their competitors to secure the market in the era of economic globalization.

Looking at these projections, the era of economic globalization has shifted the situation and perceptions of countries. Philosophically, the relevance of the CHM principle will be challenged by the changing perceptions of developing countries, which choose not to be actively involved in the utilization of the area. In such a scenario, the risk is that there will be a stronger argument for adjusting the application of the CHM principle in the area so that it remains fair for countries that are willing to carry out utilization activities in the area.

5. The alternative: Extended Continental Shelf Seabed Mining

One of the obstacles to realizing mineral resource exploitation activities in the area is the amount of capital investment required. The investment is

2020): 16, https://doi.org/10.3389/fmars.2020.00265.

56 See Dominick Salvatore, "Globalization, Comparative Advantage, and Europe's Double Competitive Squeeze", *Global Economy Journal* 4, no. 1 (October 13 2004): 1–20, https://doi.org/10.2202/1524-5861.1001.and this has significantly affected the comparative advantage and international competitiveness of nations. This paper examines the effect of globalization on the comparative advantage and international competitiveness of Europe in manufactured goods as a whole, in high technology goods, and in office equipment and telecommunications during the past two decades. In particular, the paper evaluates the view that Europe is facing a serious double competitiveness squeeze – in high-technology goods from the United States and Japan and from the bottom in simpler manufactured goods from emerging developing countries, especially the Dynamic Asian Economies. This view is based on the over-regulation and rigid labor markets prevailing in most European countries. The paper shows, however, that this view is not generally correct.","author":[{"dropping-particle":"","family":"Salvatore","given":"Dominick","non-dropping-particle":"","parse-names":false,"suffix":""}],"container-title":"Global Economy Journal","id":"ITEM-1","issue":"1","issued":{"date-parts":[["2004","10","13"]]},"title":"Globalization, Comparative Advantage, and Europe's Double Competitive Squeeze","type":"article-journal","volume":"4"},"locator":"1-20","prefix":"See","uris":["http://www.mendeley.com/documents/?uuid=e437330f-c043-4ddd-9df6-3f204e3cb3bd"]}],"mendeley":{"formattedCitation":"See Dominick Salvatore, "Globalization, Comparative Advantage, and Europe's Double Competitive Squeeze," Global Economy Journal 4, no. 1 (October 13, 2004

related to the location of mineral resources in the area, which is at a depth of about 4000 meters below sea level. The location of mineral resources far in the depths of the seas has implications for the need for equipment that can pick up and transport minerals from that depth to the surface and operate under high water pressure at that depth.

In addition to the amount of capital investment required, there are also policies in the UNCLOS 1982 regime that will reduce the economic value of utilization activities in the area. These policies include the obligation to distribute the utilization results in an equitable sharing of benefits scheme and a production limit. Both policies are present as a form of application of the CHM principle in the area. Currently, the two policies have not yet been formulated, so contractors still have no certainty regarding how significantly the two policies will impact the potential economic benefits they can obtain from their investment.

Currently, prospective contractors for mineral exploitation activities in the area have to face enormous challenges carrying mineral exploitation activities in the area, both in terms of capital and the uncertainty of the economic benefits that they will obtain. Therefore, there is the potential that countries will prefer to utilize mineral resources located outside the area, especially those on the extended continental shelf (hereinafter ECS), to obtain mineral resources that exist in the sea without being bound to the application of the CHM principle in the area. The state has sovereign rights in the ECS, and its utilization is not subject to the CHM principle. However, UNCLOS 1982 stipulated that the coastal state is obliged to pay contributions through the ISA to use non-living resources in the ECS.[57]

ECS is the continental shelf beyond 200 nautical miles (nautical miles) to the limit of 350 nautical miles.[58] UNCLOS 1982 allows coastal states to have a continental shelf exceeding the 200 nautical mile limit with the provisions stipulated in Article 76 and must submit the continental shelf limit to the Commission on the Limits of the Continental Shelf (CLCS).[59]

57 UNCLOS 1982, Article 82 (1).
58 UNCLOS 1982, Article 76 (3 - 6).
59 UNCLOS 1982, Article 76 (8). There is no exhaustive list of requirements that a coastal state

Some ECS have natural resources in the form of nodules and iron-manganese nodules and crusts in abundance, such as polymetallic sulfides, evaporites, and phosphorites. It is estimated that the total amount of these mineral resources in ECS worldwide is 13 billion tons.[60] In addition to mineral resources in nodules and iron-manganese scale, some ECS also contain natural resources such as polymetallic sulfides, evaporites, and phosphorites.[61]

In 2017, Japan was the first country to successfully extract mineral resources from its continental shelf. Japan Oil, Gas and Metals National Corporation (JOGMEC), Japan's national company, succeeded in extracting zinc minerals from the seabed at a depth of 1,600 meters off the coast of Okinawa in pilot testing.[62] In 2020, JOGMEC had conducted exploration in the oceanic crust of Takuya Sea Mountain No. 5 at a depth of 800-2,400 meters and found cobalt minerals which are estimated to be able to meet Japan's needs for 88 years, and enough nickel minerals to meet Japan's needs for 12 years.[63]

The existence of mineral resources on the seabed of the continental shelf can be an alternative to mineral mining in the area. Mining on the continental shelf has advantages, at least in terms of certainty of the state or contractor's economic benefits. However, the alternative is not necessarily available for

must fulfil should it intends to establish its continental shelf beyond 200 nautical miles. Annex II Article 4 of UNCLOS 1982 only stipulated that a coastal state that intends to do so shall submit particulars of the limits to the CLCS along with the supporting scientific and technical data. However, the CLCS does provide scientific and technical guidelines to help states prepare their submission. Further, see CLCS, "Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf", https://www.un.org/Depts/los/clcs_new/commission_documents.htm#Guidelines (accessed March 15, 2022).

60 Bramley J. Murton, "A Global Review of Non-Living Resources on the Extended Continental Shelf", *Brazilian Journal of Geophysics* 18, no. 3 (2000): 286–87.

61 S.E. Kesler, *Mineral Resources: Economics and the Environment* (New York: MacMillan College Publishing, 1994), 142; see also Roger H. Charlier, "Mining Potential of the Inner Continental Shelf", in Planning the Use of the Earth's Surface, ed. G. Lüttig A. Cendrero and F.C. Wolff (Berlin: Springer-Verlag, 2006), 331–70.

62 Martha Henriques, "Japan's Grand Plans to Mine Deep-Sea Vents", BBC, https://www.bbc.com/future/article/20181221-japans-grand-plans-to-mine-deap-sea-vents (accessed December 12, 2021).

63 Craig Guthrie, "Japan Extracts Cobalt, Nickel from Seabed", Mining Magazine, https://www.miningmagazine.com/exploration/news/1393673/japan-extracts-cobalt-nickel-from-seabed (accessed December 12, 2021); see also R. Carver et al., "A Critical Social Perspective on Deep Sea Mining: Lessons from the Emergent Industry in Japan", *Ocean & Coastal Management* 193, no. 1 (August 2020): 1–10, https://doi.org/10.1016/j.ocecoaman.2020.105242.

all countries because it depends on the geographical lottery and the number of minerals available. However, in the UNCLOS 1982 regime, a country could adjust its continental shelf boundaries to obtain mineral resources. Therefore, countries may prefer to invest their capital in mining activities on the continental shelf. President Truman had expressed this concern during the UNCLOS 1982 negotiations when he opposed the moratorium declaration.[64]

The state's tendency to carry out mineral exploitation activities on the continental shelf has begun to be seen. In October 2017, Oman submitted an adjustment to its continental shelf limit that exceeds 200 nautical miles in the Arabian Sea to CLCS.[65] It is estimated that one of the objectives of the adjustment of the continental shelf boundary is to obtain mineral resources on the seabed.[66] If CLCS approves the proposed continental shelf boundary adjustment, Oman will have sovereign rights over these mineral resources. Therefore, there is an urgency to prevent such practices to protect the interests of all mankind.[67]

Exploitation activities of non-living resources in the ECS shall be subjected to the provisions in Article 82 of UNCLOS 1982 that oblige the coastal state to make annual payments through the ISA, which will then distribute them the same way as the payments from Area utilization. However, the payment amount is arguably less than when the activity is conducted in the area.[68]

The existence of mineral resources in the ECS can be a challenge for applying the CHM principle in the area. Compared with the implementation of exploitation activities in the area, the implementation of exploitation

64 Wolfrum, "The Principle of the Common Heritage of Mankind", 320–22.

65 Conrad Prabhu, "Potential for Seabed Mining in Oman's Extended Continental Shelf", Oman Observer, 2021, https://www.omanobserver.om/article/37894/Business/potential-for-seabed-mining-in-omans-extended-continental-shelf (accessed November 15, 2021).

66 Ibid.

67 Further, see Erik Franckx, "The International Seabed Authority and the Common Heritage of Mankind: The Need for States to Establish the Outer Limits of Their Continental Shelf", *The International Journal of Marine and Coastal Law* 25, no. 4 (2010): 543–67, https://doi.org/10.1163/157180810X525377.

68 The comparison cannot be made at the moment as the payments regime for the Area (Annex III Article 13) has since been revoked by the 1994 Agreement. However, the amount of payments for activities in ECS according to Article 82 (maximum of 7% of value of production) is less compared to the amount of payments in Annex III Article 13 (up to 12%).

activities in ECS can better guarantee the economic benefits that prospective contractors can obtain. The countries' tendency to prefer mining activities on the continental shelf is also related to the previous challenges, namely the consideration of investment efficiency and the uncertainty of the presence of the Enterprise.

The potential tendency of countries to carry out exploitation activities in the ECS will result in the slower progress of starting the utilization of mineral resources in the area. The international community needs to ensure that exploitation activities in the area can occur because benefits for all human beings depend on adequate exploitation activities. If the exploitation activities have not yet begun, the distribution of economic benefits to realize the welfare of all mankind cannot yet be started as well.

Reflecting on the emergence of various challenges in applying the CHM principle in the area, we can see that these challenges are a consequence of the era of economic globalization. Looking at current developments, economic globalization will continue and further amplify the CHM principle's challenges. The globalization era brings changes to the structure of the international community, which results in the emergence of new challenges in the application of the CHM principle in the area. These challenges have successfully tested the relevance of the CHM principle in the area in the future. Changes that were previously unthinkable by the formulators of UNCLOS 1982 must be followed up with appropriate steps to ensure that the application of the CHM principle in the area can bring the best impact to the international community.

Considering the challenges in applying the CHM principle in the area, questions arise regarding the continuity of its application in the future. Along with the rapid development of technology, including those related to the utilization of the area (especially exploitation activities), the opportunities for developing countries' participation have increased. These technological developments can have implications for the more affordable investment in equipment needed by the state to utilize the area. In other words, along with technological developments and the transfer of technology between countries in the era of economic globalization, it is projected that it will open

up opportunities for developing countries to obtain sufficient technology to exploit (exploit) the area with more affordable investments. Although developed countries will inevitably have more sophisticated technology, developing countries will have sufficient technology to carry out utilization activities.

More opportunities for developing countries to start carrying out utilization activities in the area can reduce the urgency of applying the CHM principle. The inclusion of the CHM principle into the international maritime law regime is based on the consideration of the gap in welfare between human beings in developed and developing countries and the awareness of differences in capabilities between the two groups of countries.

Thus, we can understand that the basis for the formulation (*raison d'etre*) of the CHM principle in UNCLOS 1982 is a factor that is not absolute (not inherent) or is temporary. Therefore, questions can arise regarding the nature of the CHM principle in the area itself: will the CHM principle be permanently applied in the utilization activities of the area? suppose there is a prospect that all developing countries will one day (in the future) be able to mine independently in the area (because of the availability of affordable technology). How is the continuity of the CHM principle in the area?

If we look at the formulation in UNCLOS 1982, it is seen that the CHM principle is intended to apply permanently as a regime for regulating the use of resources in the area. UNCLOS 1982 places human beings as owners of natural resources in the area, which recognition is considered innate and inherent. However, considering that the rationale (*reason delete*) that underlies the urgency of the presence of the CHM principle in the international Law of the sea regime is temporary, the incompatibility between the two has the potential to become a challenge to the relevance of the CHM principle in the future. The emergence of several developing countries as emerging economies indicates that the conditions used as the basis for the formulation of the CHM principle are not permanent, and along with the development of the era of globalization, the economy is projected to become increasingly irrelevant (along with the economic growth of developing countries).

The rapid development of technology and technology transfer in the era of economic globalization will erode the relevance of the CHM principle as the regime of Area utilization. Projected conditions indicate that adjustment to the application of the CHM principle in the area is almost unavoidable. Some elements of the CHM principle that are no longer relevant to the conditions of the global community must be adjusted in their application. However, it is worth noting that adjusting the CHM principal operationalization in the area would not affect the operationalization of the CHM principle in other regimes (such as, for example, in outer space). The operationalization of the CHM principle in each regime is based on the international legal instrument in each sector and does not affect one another (at least not automatically).[69]

Based on the identification of the challenges carried out, the main challenge in implementing the CHM principle in the Areas, in particular, is the mismatch between the projected behavior of developing countries and the purpose of the presence of the CHM principle itself. The presence of the CHM principle, despite initially succeeding in protecting the interests of developing countries, has the potential to become a barrier to the realization of utilization activities by developing countries (defeating its purpose). Applying the CHM principle in the area also results in a low incentive for developing countries to carry out utilization activities. The projected change in the situation, where developing countries are not utilizing the area by choice (based on economic considerations), raises questions about the relevance of the CHM principle in the area.

C. Conclusion

The international community is faced with the dilemma of applying the CHM principle as the utilization regime in the area. On the one hand, there is still an urgency to immediately accomplish the equitable distribution of natural resources to realize the welfare of all mankind. However, on the other

69 This non-correlation relationship can be seen when UNCLOS 1982 was adopted. The Antarctic Treaty and Outer Space Treaty (which both were drafted before UNCLOS 1982) did not adopt the same equitable benefits sharing aspect in operationalizing the CHM principle (only UNCLOS 1982 adopts the equitable benefits sharing of financial and other economic benefits) and remained that way post UNCLOS 1982. In the case of this research, even if the operationalization of the CHM principle under UNCLOS 1982 is modified (adjusted), that would not mean that other regime that adopt the same principle is also affected.

hand, other interests are no less urgent to be responded to by the international community. The economic globalization era will continue to exist with all the consequences. Therefore, it is not possible to address the challenges of applying the CHM principle in the area by restricting the pace of economic globalization.

This research has identified that the era of economic globalization may erode the relevance of the CHM principle in governing the resource utilization in the area. The relevance of the CHM principle in the area is projected to be increasingly challenged as economic globalization continues to develop. Therefore, the international community is faced with two choices: (1) whether we should maintain the current application of the CHM principle (as it is in UNCLOS 1982 and the 1994 Agreement) without taking further compromising steps to maximize the goal of achieving the welfare mankind; or (2) re-adjusting the operationalization of CHM principle in Part XI of UNCLOS 1982 to adapt to changes in the international community in the era of economic globalization. The best answer in dealing with this dilemma must be re-thought by stakeholders and scholars.

BIBLIOGRAPHY

Aslam, M.M. Haris, and Sarwar M. Azhar. "Globalisation and Development: Challenges for Developing Countries." *International Journal of Economic Policy in Emerging Economies* 6, no. 2 (2013): 158–67.

Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10, 1982, A/RES/48/263 August 17, 1994.

Barkenbus, Jack. *Deep Seabed Resources: Politics and Technology*. New York: Free Press, 1979.

Carver, R., J. Childs, P. Steinberg, L. Mabon, H. Matsuda, R. Squire, B. McLellan, and M. Esteban. "A Critical Social Perspective on Deep Sea Mining: Lessons from the Emergent Industry in Japan." *Ocean & Coastal Management* 193, no. 1 (August 2020): 1–10. https://doi.org/10.1016/j.ocecoaman.2020.105242.

Charlier, Roger H. "Mining Potential of the Inner Continental Shelf." In *Planning the Use of the Earth's Surface*, edited by G. Lüttig A. Cendrero and F.C. Wolff, 331-370. Berlin: Springer-Verlag, 2006.

CLCS, "Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf", https://www.un.org/Depts/los/clcs_new/commission_documents.htm#Guidelines (accessed March 2022).

Collins, Jane Eva, Thomas Vanagt, and Isabelle Huys. "Stakeholder Perspectives on Access and Benefit-Sharing for Areas Beyond National Jurisdiction." *Frontiers in Marine Science* 7 (May 5, 2020). https://doi.org/10.3389/fmars.2020.00265.

Daly, Herman E. "Globalization Versus Internationalization – Some Implications." *Ecological Economics* 31 (1999): 31–37.

Dyke, Jon Van, and Christopher Yuen. "Common Heritage v. Freedom of the High Seas: Which Governs the Seabed." *San Diego Law Review* 19, no. 3 (1981): 493–551.

Elshkaki, Ayman, T.E. Graedel, Luca Ciacci, and Barbara K. Reck. "Copper Demand, Supply, and Associated Energy Use to 2050." *Global Environmental Change* 39 (July 2016): 305–15. https://doi.org/10.1016/j.gloenvcha.2016.06.006.

Feichtner, Isabel. "Sharing the Riches of the Sea: The Redistributive and Fiscal Dimension of Deep Seabed Exploitation." *European Journal of International Law* 30, no. 2 (July 22, 2019): 601–33. https://doi.org/10.1093/ejil/chz022.

Franckx, Erik. "The International Seabed Authority and the Common Heritage of Mankind: The Need for States to Establish the Outer Limits of Their Continental Shelf." *The International Journal of Marine and Coastal Law*

25, no. 4 (2010): 543–67. https://doi.org/10.1163/157180810X525377.

Guntrip, E. "The Common Heritage of Mankind: An Adequate Regime for Managing the Deep Seabed?" *Melbourne Journal of International Law* 4, no. 2 (2003): 376–405.

Guthrie, Craig. "Japan Extracts Cobalt, Nickel from Seabed." *Mining Magazine*. https://www.miningmagazine.com/exploration/news/1393673/japan-extracts-cobalt-nickel-from-seabed (accessed December 12, 2021).

Hein, James R., Andrea Koschinsky, and Thomas Kuhn. "Deep-Ocean Polymetallic Nodules as A Resource for Critical Materials." *Nature Reviews Earth & Environment* 1, no. 3 (2020): 158–69. https://doi.org/https://doi.org/10.1038/s43017-020-0027-0.

Hein, James R., Kira Mizell, Andrea Koschinsky, and Tracey A. Conrad. "Deep-Ocean Mineral Deposits as a Source of Critical Metals for High- and Green-Technology Applications: Comparison with Land-Based Resources." *Ore Geology Reviews* 51 (June 2013): 1–14. https://doi.org/10.1016/j.oregeorev.2012.12.001.

Henriques, Martha. "Japan's Grand Plans to Mine Deep-Sea Vents." BBC, 2019. https://www.bbc.com/future/article/20181221-japans-grand-plans-to-mine-deap-sea-vents (accessed December 12, 2021).

International Seabed Authority. "Exploration Contracts," https://isa.org.jm/exploration-contracts (accessed November 22, 2021).

Joseph E. Stiglitz. *Globalization and Its Discontents*. New York: W.W. Norton, 2002.

Kato, Yasuhiro, Koichiro Fujinaga, Kentaro Nakamura, Yutaro Takaya, Kenichi Kitamura, Junichiro Ohta, Ryuichi Toda, Takuya Nakashima, and Hikaru Iwamori. "Deep-Sea Mud in the Pacific Ocean as a Potential Resource for Rare-Earth Elements." *Nature Geoscience* 4, no. 8 (August 3, 2011): 535–39. https://doi.org/10.1038/ngeo1185.

Kesler, S.E. *Mineral Resources: Economics and the Environment*. New York: MacMillan College Publishing, 1994.

Kim, Rakhyun E. "Should Deep Seabed Mining Be Allowed?" *Marine Policy* 82 (August 2017): 134–37. https://doi.org/10.1016/j.marpol.2017.05.010.

Levin, Lisa A., Diva J. Amon, and Hannah Lily. "Challenges to the Sustainability of Deep-Seabed Mining." *Nature Sustainability* 3, no. 10 (October 6, 2020): 784–94. https://doi.org/10.1038/s41893-020-0558-x.

Lodge, Michael. "Can a 'Mining Code'' Make Deep Seabed Extraction Sustainable?'" China Dialogue Ocean, 2019. https://chinadialogueocean.net/7082-can-a-mining-code-make-deep-seabed-extraction-sustainable/ (accessed November 22, 2021).

Millicay, María Fernanda. "The Common Heritage of Mankind: 21st Century

Challenges of a Revolutionary Concept." In *Law of the Sea, From Grotius to the International Tribunal for the Law of the Sea*, edited by Lilian del Castillo, 272–95. Leiden: Brill Nijhoff, 2015.

Murton, Bramley J. "A Global Review of Non-Living Resources on the Extended Continental Shelf." *Brazilian Journal of Geophysics* 18, no. 3 (2000): 281–306.

Noyes, John E. "The Common Heritage of Mankind: Past, Present, and Future." *Denver Journal of International Law & Policy* 40, no. 1 (2012): 447–71.

Prabhu, Conrad. "Potential for Seabed Mining in Oman's Extended Continental Shelf." Oman Observer, 2021. https://www.omanobserver.om/article/37894/Business/potential-for-seabed-mining-in-omans-extended-continental-shelf (accessed November 15, 2021).

Prasad, Eswar S., Kenneth Rogoff, Shang-Jin Wei, and M. Ayhan Kose. *Effects of Financial Globalisation on Developing Countries: Some Empirical Evidence*. Washington DC: International Monetary Fund, 2003.

Reza A.A. Wattimena. "What Are the Fundamental Pillars of Contemporary Globalization?" *The Ary Suta Center Series on Strategic Management* 42 (2018): 1–18.

Rogers, Chris, and Sofia Vasilopoulou. "Making Sense of Greek Austerity." *The Political Quarterly* 83, no. 4 (2012): 777–85. https://doi.org/https://doi.org/10.1111/j.1467-923X.2012.02359.x.

Salvatore, Dominick. "Globalization, Comparative Advantage, and Europe's Double Competitive Squeeze." *Global Economy Journal* 4, no. 1 (October 13, 2004). https://doi.org/10.2202/1524-5861.1001.

Sharma, Rahul. "Deep-Sea Mining: Economic, Technical, Technological and Environmental Considerations for Sustainable Development." *Marine Technology Society Journal* 45, no. 5 (2011): 28–41. https://doi.org/https://doi.org/10.4031/MTSJ.45.5.2.

Sliburyte, Laimona, and Ruta Ostaseviciute. "Theoretical Aspects of Economic Globalization Impacts on Emerging Economies." *Economics and Management* 14 (2009): 947–53.

Suci, Stannia Cahaya, Alla Asmara, and Sri Mulatsih. "The Impact of Globalization on Economic Growth in ASEAN." *Jurnal Ilmu Administrasi Dan Organisasi* 22, no. 2 (2015): 79–87.

Thompson, Kirsten F., Kathryn A. Miller, Duncan Currie, Paul Johnston, and David Santillo. "Seabed Mining and Approaches to Governance of the Deep Seabed." *Frontiers in Marine Science* 5 (December 11, 2018). https://doi.org/10.3389/fmars.2018.00480.

Turner, Phillip J. "Deep-Sea Mining and Environmental Management." In *Encyclopedia of Ocean Sciences (Third Edition)*, edited by J. Kirk Cochran,

Henry J. Bokuniewicz, and Patricia L. Yager, 507–15. New York: Elsevier, 2019.

United Nations Convention on the Law of the Sea, December 10, 1982.

Wang, Chuanliang, and Yen-Chiang Chang. "A New Interpretation of the Common Heritage of Mankind in the Context of the International Law of the Sea." *Ocean & Coastal Management* 191 (June 2020). https://doi.org/10.1016/j.ocecoaman.2020.105191.

Wolfrum, R. "The Principle of the Common Heritage of Mankind." *ZaöRV* 43, no. 2 (1983): 312–37.

WWF. "Protecting the Seabed Before It's Too Late," 2020. https://wwf.panda.org/discover/our_focus/oceans_practice/no_deep_seabed_mining/#:~:text=A global moratorium on all, sea minerals have been explored (accessed November 22, 2021).

Ying, Yung-Hsiang, Koyin Chang, and Chen-Hsun Lee. "THE IMPACT OF GLOBALIZATION ON ECONOMIC GROWTH." *Romanian Journal of Economic Forecasting* 17, no. 2 (2014): 25–34.