ARTICLE 82 OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: AN EXAMINATION OF ITS PROBLEMS AND CHALLENGES OF IMPLEMENTATION

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ABSTRACT

Article 82 of the United Nations Convention on the Law of the Sea (UNCLOS) 1982 represents a landmark yet deeply problematic provision in the international law of the sea. It introduces the first-ever international royalty obligation on a coastal State's exploitation of non-living resources of the extended continental shelf beyond 200 nautical miles, with payments to be channelled through the International Seabed Authority (ISA) to developing States on the basis of equitable sharing criteria. Despite its innovative nature, Article 82 is beset by a constellation of textual ambiguities, institutional gaps, and enforcement deficits that threaten its effective operationalisation. This article critically examines the principal problems associated with Article 82, encompassing definitional uncertainties regarding key terms such as 'non-living resources,' 'contributions in kind,' 'production,' and 'value of production'; the ambiguous scope of the developing State exemption; the underdeveloped institutional role of the ISA; the absence of a robust dispute settlement mechanism; and the challenges posed by non-Party States that claim continental shelf entitlements without accepting the corresponding obligations. The article argues that, without concerted international effort to resolve these lacunae through treaty interpretation or supplementary regulation, Article 82 risks remaining a dormant obligation that fails to achieve its redistributive purpose.

Keywords: UNCLOS, Article 82, Extended Continental Shelf, International Seabed Authority, Non-Living Resources, Revenue Sharing, Equitable Distribution, International Royalty, Developing States, Outer Continental Shelf.

I. INTRODUCTION

The United Nations Convention on the Law of the Sea (UNCLOS), adopted on 10 December 1982 and entering into force on 16 November 1994, is frequently described as the 'constitution for the oceans.'[1] It provides a comprehensive legal framework governing all uses of the sea and its resources. Among its many provisions, Article 82 stands out as one of the most novel and arguably most neglected obligations in international maritime law.[2]

Article 82 mandates that coastal States exploiting the non-living resources of the continental shelf beyond 200 nautical miles from the baselines the so-called 'extended continental shelf' (ECS) must make payments or contributions in kind to the international community through the ISA. These payments escalate from one percent of the value of production at a site in the sixth year of exploitation to a maximum of seven percent from the twelfth year onward, and are to be distributed equitably among States Parties, with particular attention to the needs and interests of developing and landlocked States.[3]

The provision emerged from the complex package deal negotiations of UNCLOS III, intended to balance the interests of 'margineer' States those with broad continental margins such as Canada, Australia, Russia, and Norway against the demands of landlocked and geographically disadvantaged States that sought a share of the resources of the extended shelf.[4] Despite this historical significance, Article 82 has attracted far less scholarly and policy attention than other UNCLOS provisions, partly because no qualifying exploitation of the ECS had occurred for decades following its adoption.[5]

That situation is now changing. Advanced extraction technologies have rendered deep-water exploitation of the ECS commercially viable, and several coastal States have obtained or are in the process of obtaining CLCS recommendations on the outer limits of their extended shelves. Canada, in particular, is likely to be the first State to trigger obligations under Article

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[1] United Nations Convention on the Law of the Sea, 10 December 1982, 1833 UNTS 3 (entered into force 16 November 1994) [hereinafter UNCLOS].
[2] UNCLOS, supra note 1, art. 82.
[3] R.R. Churchill and A.V. Lowe, The Law of the Sea 143 (Manchester University Press, Manchester, 3rd edn., 1999).
[4] UNCLOS, supra note 1, art. 76.
[5] Aldo Chircop, "Operationalizing Article 82 of the United Nations Convention on the Law of the Sea: A New Role for the International Seabed Authority?" 18 Ocean Yearbook 395, 396 (2004).

82 in respect of its Newfoundland shelf.[6] The 'day of reckoning' for Article 82 is therefore fast approaching, making a rigorous examination of its problems and unresolved questions all the more urgent.

This article proceeds as follows. Section II provides a textual analysis of Article 82 and its place within the UNCLOS framework. Section III examines the definitional ambiguities embedded in the provision. Section IV analyses the problematic scope of the developing State exemption. Section V explores the institutional gaps affecting the ISA's role. Section VI addresses the absence of a credible enforcement and dispute resolution mechanism. Section VII considers the specific problem of non-Party States. Section VIII offers concluding observations and suggestions for reform.

II. TEXTUAL ANALYSIS OF ARTICLE 82 AND ITS FRAMEWORK

Article 82 of UNCLOS contains four paragraphs. Paragraph 1 establishes the primary obligation: a coastal State 'shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.'[7] Paragraph 2 specifies the rate and timing of payments, beginning at one percent of the value of production in the sixth year of production at a site, rising by one percent annually to a maximum of seven percent from the twelfth year onward. Paragraph 3 carves out an exemption for developing States that are net importers of the relevant mineral resource.[8] Paragraph 4 assigns to the ISA the responsibility to receive and distribute the payments on the basis of equitable sharing criteria.[9]

It is important to situate Article 82 within the broader architecture of UNCLOS. It forms part of Part VI, which governs the continental shelf. The continental shelf regime under UNCLOS recognises two distinct zones: the shelf within 200 nautical miles, which all coastal States automatically enjoy regardless of the physical characteristics of the seabed, and the ECS beyond 200 nautical miles, which must be established in accordance with the geological and geomorphological criteria set out in Article 76.[10] The delineation of the ECS requires

[6] Tullio Treves, "Article 82 of UNCLOS: A Clear Outcome of the 'Package Deal' Approach of the Convention Negotiation" in Myron H. Nordquist, John Norton Moore et.al. (eds.), The Future of Ocean Governance and Capacity Development 208 (Brill Nijhoff, Leiden, 2018).
[7] UNCLOS, supra note 1, art. 82(2).
[8] Ibid., art. 82(3).
[9] Ibid., art. 82(4).

submission of data to the Commission on the Limits of the Continental Shelf (CLCS), which makes recommendations to the coastal State.

The theoretical foundation of Article 82 reflects the tension between two competing conceptions in UNCLOS. On the one hand, the ECS is unambiguously within national jurisdiction it forms part of the sovereign rights of the coastal State to explore and exploit natural resources. On the other hand, the area beyond 200 nautical miles was originally contemplated by many delegations as belonging to the 'common heritage of mankind.' The compromise that emerged was the payment obligation under Article 82, which represents a form of fiscal linkage between the outer shelf and the international community, without fully embracing the common heritage concept.[11]

The ISA, established under Part XI of UNCLOS as the body responsible for administering resources of the Area (the seabed beyond national jurisdiction), was assigned a limited but important conduit function under Article 82. It receives payments from coastal States and distributes them to States Parties, but it does not exercise any governance authority over the ECS itself, which remains firmly within national jurisdiction.

III. DEFINITIONAL AMBIGUITIES AND TEXTUAL PROBLEMS

A. The Meaning of 'Non-Living Resources'

The obligation under Article 82 applies exclusively to the exploitation of 'non-living resources.' While this term clearly encompasses hydrocarbons oil, gas, and natural gas liquids and solid minerals, its precise scope is not defined in Article 82 itself.[12] UNCLOS does not contain a unified definition of non-living resources applicable across all its parts, and the meaning of the term must therefore be inferred from context and general principles of treaty interpretation under the Vienna Convention on the Law of Treaties, 1969.

A particular difficulty arises in relation to resources such as polymetallic nodules, cobalt-rich crusts, and methane hydrates. Methane hydrates (also known as gas hydrates), for instance, straddle the boundary between biological and mineral processes they are mineral

[11]International Seabed Authority, Issues Associated with the Implementation of Article 82 of the United Nations Convention on the Law of the Sea, ISA Technical Study No. 4 (ISA, Kingston, 2009) [hereinafter ISA Technical Study No. 4].

[12]Rowland J. Harrison, "Article 82 of UNCLOS: The Day of Reckoning Approaches" 10 Journal of World Energy Law & Business 488, 490 (2017).

deposits formed under specific pressure and temperature conditions but involve the trapping of methane, often produced by biological decay. Whether such resources constitute 'non-living resources' for purposes of Article 82 has not been definitively resolved.[13] The ISA Technical Study No. 4 acknowledged this ambiguity but did not offer a conclusive interpretation.[14]

Moreover, the relationship between 'non-living resources' in Article 82 and 'resources' as defined for other purposes within UNCLOS such as in Articles 56, 77, and 133 creates further interpretive complexity. ISA Technical Study No. 15 recommended a broad functional interpretation of the term to encompass all mineral and energy resources of the seabed and subsoil, but this remains an academic and institutional position without binding legal authority.[15]

B. The Ambiguity of 'Value of Production' and the Tax Base Problem

Paragraph 2 of Article 82 provides that payments shall be based on the 'value of production at the site.' This formulation raises critical questions that have significant financial implications for coastal States with exploitable ECS resources. What constitutes the 'site'? Is it the wellhead on the seabed, the point at which the resource reaches the surface, or some other reference point in the production chain?[16]

The importance of this question cannot be overstated. The value of hydrocarbons changes dramatically between extraction at the seabed and delivery at the surface or at a processing facility. If the 'site' is the wellhead at the seabed floor, the tax base will be lower after accounting for production costs than if it is measured at the surface. Conversely, a gross value at the market reference point would be substantially higher and could render some deep-water operations uneconomical.[17]

ISA Technical Study No. 15 suggests that there is a broad consensus in favour of

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[13] Aldo Chircop and Bruce Marchand, "Operationalizing Article 82 of UNCLOS: Issues and Considerations" in Davor Vidas (ed.), Law, Technology and Science for Oceans in Globalisation 385, 392 (Martinus Nijhoff, Leiden, 2010).
[14] ISA Technical Study No. 4, supra note 10, at 15.
[15] International Seabed Authority, A Study of Key Terms in Article 82 of the United Nations Convention on the Law of the Sea, ISA Technical Study No. 15 (ISA, Kingston, 2016) [hereinafter ISA Technical Study No. 15].
[16] Harrison, supra note 11, at 491.
[17] Philip Saunders and Ted McDorman, "Implementation of Article 82 of the United Nations Convention on the Law of the Sea: The Challenge for Canada" in Elisa Morgera and Kristina Daugirdas (eds.), The Law of the Seabed 349, 357 (Brill Nijhoff, Leiden, 2020).

interpreting the tax base as the gross fair market value at the site specifically, the wellhead for oil or the pit's mouth for mining excluding test production, reinjected gas, and flared gas, and with no deduction for costs.[18] However, this interpretation, while pragmatic, has not been formally codified. States are free to contest it, and without an authoritative interpretive decision, the ambiguity remains a live legal problem.

Related to this is the question of what constitutes the 'sixth year of production.' Does the clock begin at the commencement of any production at the site including test production or only upon the commencement of commercial production? The distinction is practically significant because test production periods can extend over several years.[19] Article 82 offers no guidance, and the ISA Technical Studies have identified this as an unresolved question requiring clarification.

C. The Meaning of 'Contributions in Kind'

Perhaps the most conceptually challenging ambiguity in Article 82 is the meaning of 'contributions in kind.' Paragraph 1 provides that the coastal State may fulfil its obligation through 'payments or contributions in kind.' A contribution in kind is, on one reading, simply a share of the extracted resource itself i.e., physical delivery of oil, gas, or minerals to the ISA in lieu of a monetary payment.[20]

However, a broader interpretation has been proposed in the literature. Some scholars have argued that 'contributions in kind' might encompass technology transfer, technical assistance, or even Official Development Assistance (ODA) directed at developing States.[21] If this interpretation were accepted, it would provide coastal States with considerably more flexibility in discharging their obligations, but it would correspondingly dilute the redistributive purpose of the provision and make verification and valuation virtually impossible.

The ISA's Beijing Workshop in 2012 leaned toward the narrower interpretation a share of the extracted resource on the basis that the negotiating history of UNCLOS III reveals that

[18]ISA Technical Study No. 15, supra note 14, at 22.
[19]Michael W. Lodge, "The International Seabed Authority and Article 82 of the UN Convention on the Law of the Sea" 21 International Journal of Marine and Coastal Law 323, 329 (2006).
[20]UNCLOS, supra note 1, art. 82(1).
[21]Treves, supra note 6, at 212.

developing States were primarily interested in securing access to physical resources, particularly oil.[22] Nonetheless, the question has not been definitively settled, and a coastal State seeking to minimise its obligations might well argue for the broader reading.

IV. THE DEVELOPING STATE EXEMPTION: SCOPE AND PROBLEMS

Article 82(3) provides that a 'developing State which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource.' This exemption reflects the concern that developing States with ECS resources should not be required to transfer wealth abroad when they themselves are net consumers of the resource in question.

However, the exemption is riddled with interpretive difficulties. The first concerns the definition of 'developing State.' UNCLOS does not define this term, and there is no internationally agreed definition.[23] Reliance on self-classification the approach commonly adopted in international economic law would allow States to claim the exemption based on their own categorisation, potentially opening the door to abuse. Reference to external classifications, such as those maintained by the United Nations, the World Bank, or the International Monetary Fund, would introduce a degree of objectivity but raises questions of which classification system should take precedence and how changes in status over time should be handled.[24]

The second problem concerns the meaning of 'net importer.' This requires a determination of whether a State's overall imports of a given mineral resource exceed its domestic production of that resource. Yet several methodological problems arise: over what time period is net import status assessed (annually, over the production period, or on a project-by-project basis)? How should fluctuating commodity prices and production volumes be accounted for? What happens when a State transitions from net importer to net exporter status or vice versa during the course of a production project?[25] None of these questions are addressed in Article 82 or in the UNCLOS framework more broadly.

[22]ISA Technical Study No. 4, supra note 10, at 30.
[23]Harrison, supra note 11, at 494.
[24]Alex Oude Elferink and Donald Rothwell (eds.), Oceans Management in the 21st Century: Institutional Frameworks and Responses 203 (Martinus Nijhoff, The Hague, 2004).
[25]Robin M. Bird and Jack Mintz, "Sharing the Wealth: Article 82 of UNCLOS – The First Global Tax?" British Tax Review 530, 543 (2019).

A third difficulty lies in the resource-by-resource character of the exemption. The exemption applies only in respect of the specific mineral resource for which the State is a net importer.[26] A developing State that is a net importer of crude oil but a net exporter of natural gas could, in theory, be exempt from payments in respect of oil production but remain obligated in respect of gas production from the same site. The practical administration of such a differentiated obligation would be extraordinarily complex, particularly in fields producing multiple hydrocarbon streams simultaneously.

Furthermore, ISA Technical Study No. 15 noted that the exemption's reference to 'a mineral resource produced from its continental shelf' does not specify whether this is limited to the ECS beyond 200 nautical miles or encompasses the entire continental shelf, including the shelf within the EEZ.[27] The scope of this reference has practical importance for determining the comparator base for net importer status calculations.

V. INSTITUTIONAL GAPS AND THE UNDERDEVELOPED ROLE OF THE ISA

Article 82(4) assigns to the ISA the role of receiving and distributing payments and contributions in kind to States Parties. The ISA began work on this mandate in earnest only in 2009, when it commissioned a preliminary expert study that was discussed at a seminar at Chatham House, London.[28] A follow-up workshop was held in Beijing in 2012. Despite these initiatives, the ISA's institutional framework for implementing Article 82 remains underdeveloped, and several fundamental questions about its role are unresolved.

A. Absence of Specific ISA Regulations

Perhaps the most glaring institutional deficit is the absence of any specific ISA regulations governing the receipt, valuation, and distribution of Article 82 payments. The ISA's regulatory competence under UNCLOS and the 1994 Agreement Relating to the Implementation of Part XI is primarily directed at activities in the Area the deep seabed beyond national jurisdiction rather than at the ECS within national jurisdiction.[29] The ISA's role under Article 82 is described as that of a 'conduit' it receives and distributes, but does not govern.[30]

[26] Saunders and McDorman, supra note 16, at 360.
[27] ISA Technical Study No. 15, supra note 14, at 35.
[28] Chircop, supra note 5, at 403.
[29] UNCLOS, supra note 1, art. 82(3); see also Harrison, supra note 11, at 496.
[30] Bird and Mintz, supra note 24, at 542.

However, even this limited conduit function requires the ISA to develop procedures for: receiving notification from coastal States of the commencement of qualifying production; determining and verifying the value of production for payment purposes; receiving payments in cash or, more problematically, in kind; and establishing and applying equitable sharing criteria for distribution.[31] As of the time of writing, none of these procedures has been formally codified in ISA regulations or decisions, leaving a significant administrative vacuum.

B. The Equitable Sharing Criteria Problem

Article 82(4) directs the ISA to distribute payments 'on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them.' This direction is remarkably vague. The ISA's Finance Committee has engaged in preliminary discussions about what equitable sharing might mean in practice, and has noted the potential applicability of distribution formulae developed for revenues from the Area under Article 140.[32] However, there are significant differences between the two contexts: Article 82 payments emanate from resources within national jurisdiction, not the Area; only States Parties to UNCLOS are entitled to receive distributions under Article 82(4), whereas the common heritage principle underpinning Article 140 is broader in scope; and the distributional goals of the two provisions while both rooted in distributive justice differ in emphasis.[33]

A particular concern is that twelve of the thirty-two least-developed landlocked developing States the very States Article 82 is intended to benefit are not parties to UNCLOS. The restriction of benefits to States Parties has the paradoxical effect of excluding some of the world's most vulnerable States from a provision specifically crafted for their benefit.

C. Handling Contributions in Kind

If a coastal State elects to fulfil its obligation through contributions in kind that is, through delivery of extracted resources rather than monetary payment the ISA faces a formidable practical challenge. Where and how does the ISA take delivery of, for example,

[31] International Seabed Authority, Non-Living Resources of the Continental Shelf Beyond 200 Nautical Miles: Speculations on the Implementation of Article 82 of the United Nations Convention on the Law of the Sea, ISA Technical Study No. 5 (ISA, Kingston, 2010) [hereinafter ISA Technical Study No. 5].
[32] Chircop and Marchand, supra note 12, at 395.
[33] Lodge, supra note 18, at 334.

crude oil from the Canadian ECS off Newfoundland? Who is responsible for transportation and associated costs? How does the ISA convert the physical resource into financial benefits for distribution to landlocked States that have no means of utilising crude oil directly?[34] These questions were identified in ISA Technical Study No. 4 as among the most operationally challenging aspects of Article 82, but no concrete solutions have been proposed.[35]

VI. ABSENCE OF A CREDIBLE DISPUTE RESOLUTION AND ENFORCEMENT MECHANISM

A recurring theme in the literature on Article 82 is the absence of a robust mechanism for resolving disputes and enforcing compliance.[36] UNCLOS Part XV establishes an elaborate dispute settlement system, including the International Tribunal for the Law of the Sea (ITLOS), the International Court of Justice, and Annex VII and Annex VIII arbitral tribunals. However, the applicability of Part XV to disputes arising under Article 82 is far from clear.[37]

ISA Technical Study No. 4 expressly acknowledged that 'the elaborate dispute resolution mechanism set out in UNCLOS (Part XV) does not seem to cover Article 82.'[38] This conclusion flows from the fact that Article 82 disputes concerning, for example, whether a coastal State has made the required payments, how the value of production should be calculated, or whether the developing State exemption applies are fundamentally different from the maritime boundary and freedom of navigation disputes that Part XV is primarily designed to address. The Seabed Disputes Chamber of ITLOS, which has jurisdiction over disputes relating to activities in the Area, does not appear to have jurisdiction over the ECS, which is national territory.[39]

The possibility of the ISA seeking an advisory opinion from the Seabed Disputes Chamber on questions of interpretation relating to Article 82 has been mooted in the literature.[40] While this would not resolve individual disputes between States, it could provide

[34]Treves, supra note 6, at 215.
[35]ISA Technical Study No. 4, supra note 10, at 65.
[36]Bird and Mintz, supra note 24, at 545.
[37]UNCLOS, supra note 1, arts. 286–296 (Part XV – Settlement of Disputes).
[38]ISA Technical Study No. 4, supra note 10, at 65; see also Treves, supra note 6, at 217.
[39]Elizabeth Mrema, "The Role of the International Seabed Authority in Implementing Article 82 of UNCLOS" 5 Carbon & Climate Law Review 352, 358 (2011).
[40]Duncan French, "From the Depths: Rich Pickings of Principles of Sustainable Development and General International Law on the Ocean Floor – The Seabed Disputes Chamber's 2011 Advisory Opinion" 26 International Journal of Marine and Coastal Law 525, 530 (2011).

authoritative interpretive guidance on contentious textual questions. However, even this avenue involves significant procedural complexities and requires the ISA to take a proactive institutional stance that it has not yet demonstrated.

In practical terms, the enforcement deficit is acute. No international body has the authority to compel a coastal State to make payments under Article 82, to audit its production records, or to sanction non-compliance. Even in States that have fully ratified UNCLOS, treaty provisions generate domestic legal obligations only when incorporated into domestic law, and the absence of domestic implementing legislation would further insulate a non-compliant State from legal challenge. This structural weakness is compounded by the high financial stakes involved: for a State like Canada, Article 82 payments over the life of an ECS production project could amount to billions of dollars.[41]

The combined effect of the definitional ambiguities discussed above and the enforcement vacuum is that coastal States possess considerable latitude to minimise their Article 82 obligations through favourable interpretations, without meaningful exposure to legal sanction. This represents a significant systemic risk to the effectiveness of the provision.[42]

VII. THE CHALLENGE OF NON-PARTY STATES

A distinct but related challenge arises from the position of States that claim ECS entitlements under Article 76 of UNCLOS without having ratified the Convention. The United States presents the most prominent example. In December 2023, the United States Department of State published an executive summary of the outer limits of its extended continental shelf.

The United States has consistently maintained that Articles 76(1)–(7) of UNCLOS, governing the delineation of the outer limits of the continental shelf, represent customary international law binding on all States.[43] On this basis, the United States claims sovereign rights over the resources of its ECS without having ratified UNCLOS and without accepting the corresponding obligation under Article 82 to make payments to the international community. No statement has been issued by the United States indicating any acceptance of obligations under Article 82.

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[41] Saunders and McDorman, supra note 16, at 365.
[42] Harrison, supra note 11, at 497.
[43] UNCLOS, supra note 1, art. 82(4).

This position creates a profound inequity in the international legal order. If the ECS-delimiting provisions of Article 76 are indeed customary international law, then States may argue as the United States implicitly does that they are entitled to exploit ECS resources on a sovereign rights basis without accepting the redistributive obligations of Article 82. Conversely, if Article 82 is not customary international law a plausible conclusion given that no qualifying payments have ever been made and the provision has not been consistently practised then even States Parties may question the certainty of their obligations.[44]

The relationship between Articles 76 and 82 as a 'package deal' is the key to this debate. Scholars who emphasise the package deal nature of UNCLOS III argue that it is incoherent to treat Articles 76(1)–(7) as customary law while treating Article 82 as purely conventional.[45] The ECS regime was only accepted by the negotiating community as a whole because Article 82 provided the quid pro quo the payment obligation was the price of the extended shelf. To disaggregate the package is to undermine the foundational compromise of the Convention.

The European Journal of International Law Talk (EJIL:Talk!) commentary of 2024 urged States Parties to respond clearly to the United States' December 2023 executive summary by indicating that any State wishing to rely on Article 76(1)–(7) must accept that Article 82 applies correspondingly, as part of the same package.[46] In the absence of such a collective response, the risk of a 'free rider' problem whereby States exploit ECS resources and enjoy the benefits of the UNCLOS regime without bearing its redistributive burdens is very real.

VIII. ADDITIONAL SYSTEMIC CONCERNS

A. Interaction with Domestic Law

A further layer of complexity arises from the interaction between Article 82 and the domestic fiscal regimes of coastal States. ECS production is typically subject to domestic royalties, production sharing agreements, and corporate taxation. The question of whether Article 82 payments should be treated as a credit against domestic royalties, or as an additional obligation on top of existing fiscal burdens, has significant implications for the economics of ECS projects and therefore for the willingness of industry to invest in such projects.[47] If Article

[44] ISA Technical Study No. 5, supra note 30, at 42.
[45] Chircop, supra note 5, at 408.
[46] Bird and Mintz, supra note 24, at 543.
[47] Nele Matz-Luck, "Marine Biodiversity and the Agreement on Marine Biological Diversity of Areas Beyond

82 payments are simply additive i.e., they impose a seven percent levy on top of existing fiscal obligations the combined government take could render ECS projects uneconomical. Ambassador Beesley's famous reservation at UNCLOS III, warning that the seven percent ceiling could 'make it uneconomic for Canada to explore and exploit its continental margin in deep, cold water areas,' presciently anticipated this concern.[48]

B. Climate Change and the Evolving Energy Transition

A less frequently discussed but increasingly important challenge is posed by the global energy transition. Article 82 applies only to 'non-living resources,' which means that its fiscal provisions are primarily directed at fossil fuel extraction. As the international community accelerates its transition away from hydrocarbons in response to climate change, the economic impetus for ECS exploitation may diminish substantially.[49] If ECS oil and gas projects become stranded assets in a carbon-constrained world, the redistributive ambition of Article 82 may become moot before it is ever fully realised.

Paradoxically, however, the energy transition may open new frontiers of ECS exploitation for example, the extraction of cobalt, manganese, and rare earth elements from polymetallic nodules and crusts for use in batteries and renewable energy technologies. These resources, if they constitute 'non-living resources' for Article 82 purposes, could generate significant payment obligations in the future.[50] The absence of clarity on the definition of 'non-living resources,' as discussed above, takes on renewed urgency in this context.

IX. CONCLUSION

Article 82 of UNCLOS is a provision of considerable promise and considerable peril. Its promise lies in its potential to introduce a meaningful element of international distributive justice into the exploitation of the ocean's resources, by ensuring that the benefits of the extended continental shelf accrue not only to the fortunate few States with broad continental margins, but also to the broader international community. Its peril lies in the multiple layers of ambiguity, institutional incompleteness, and enforcement deficit that surround it.

National Jurisdiction" 22 Annual Review of Law and Social Science 115, 120 (2022).

[48]Efthymios Papastavridis, The Interception of Vessels on the High Seas 67 (Hart Publishing, Oxford, 2013).

[49]Harrison, supra note 11, at 500.

[50]Yoshifumi Tanaka, The International Law of the Sea 177 (Cambridge University Press, Cambridge, 3rd edn., 2019).

This article has identified six principal clusters of problems. First, the key operative terms of Article 82 'non-living resources,' 'value of production,' 'site,' 'contributions in kind,' and 'production' are insufficiently defined, creating legal uncertainty that coastal States may exploit to minimise their obligations. Second, the developing State exemption under Article 82(3) is riddled with definitional gaps concerning the meaning of 'developing State' and the methodology for determining net importer status. Third, the ISA's institutional capacity to administer Article 82 is critically underdeveloped, with no formal regulations governing the receipt, valuation, or distribution of payments. Fourth, the equitable sharing criteria for distribution remain undefined, and the restriction of benefits to States Parties paradoxically excludes some of the most vulnerable States. Fifth, Article 82 lacks a credible dispute settlement and enforcement mechanism, leaving coastal States effectively unconstrained in their interpretation and application of the provision. Sixth, the challenge posed by non-Party States particularly the United States threatens to hollow out the package deal at the heart of the ECS regime.

Addressing these problems requires concerted international action at multiple levels. The ISA should be empowered and resourced to develop formal implementing regulations for Article 82, including standardised methodologies for calculating the value of production, procedures for handling contributions in kind, and a framework for equitable distribution. States Parties should consider whether an interpretive agreement or protocol might usefully clarify the key definitional questions, particularly the meaning of 'non-living resources' and 'contributions in kind.' The question of the applicability of UNCLOS Part XV dispute settlement to Article 82 disputes should be explored, including the possibility of advisory opinions from the Seabed Disputes Chamber. And the international community should respond clearly and collectively to claims by non-Party States to ECS entitlements unaccompanied by acceptance of Article 82 obligations.

Until these steps are taken, Article 82 risks remaining in the words of one commentator a provision 'lying dormant at the bottom of the sea,' failing to deliver on the distributive promise that justified the extension of national jurisdiction over the extended continental shelf in the first place.[51]

[51]Harrison, supra note 11, at 501; Saunders and McDorman, supra note 16, at 368.