

Routledge Handbook of Seabed Mining and the Law of the Sea

Virginie Tassin CAMPANELLA

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Muhammet Can GENÇ

PhD Candidate, School of Law, Gender and Media, SOAS University of London, London

E-Mail: 703917@soas.ac.uk

Orcid: 0000-0002-6015-5261

Over the last 70-80 years, historical concerns related to the exploitation and enclosure of the high seas, stemming from Grotius' *Mare Liberum*, have become prominent, particularly amid rising mineral resource demand, population growth, and consumption patterns. The United Nations Convention on the Law of the Sea (UNCLOS)¹ established regulatory frameworks for all maritime zones. Consequently, the legal framework surrounding deep-seabed mining (DSM) has gained significance. The Routledge Handbook of Seabed Mining and the Law of the Sea, edited by Dr. Campanella, stands out as a recent significant contribution to this field.

The handbook is divided into six parts comprising a total of thirty-four chapters. Part I provides an overview of the concept and governance principles of DSM, while Part II focuses on state rights and obligations regarding the continental shelf (CS) and the Area². Part III compares the development of the CS and explores the extended CS, shaping the Area's boundaries, and scrutinises the ensuing benefit-sharing regime (BSR). Part IV examines the economic motivations behind designating the Area as a Common Heritage of Humankind (CHH), assessing the governance role of the International Seabed Authority (ISA) and potential environmental challenges. Part V delves into dispute resolution mechanisms, including the Seabed Disputes Chamber (SDC), and forecasts future environmental disputes. The last part explores DSM's relationships with seven regions and fourteen nations.

The handbook's introduction underscores the imminent implementation of DSM, driven by sustainability, climate change mitigation, and concerns about diminishing land-based mineral resources, highlighting UNCLOS as a comprehensive framework addressing these

1 United Nations. United Nations Convention on the Law of the Sea. 1982. UN Doc. A/CONF.62/122. http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf. (hereafter UNCLOS).

2 Article 1 of UNCLOS defines the Area as follows: "... "Area" means the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction..."

issues. (p. 1). These assertions become particularly significant in ongoing discussions about potential limitations on DSM activities due to ecological repercussions (p. 4).³ Consequently, the book aims to provide multidisciplinary comparative insights into the regulatory framework and scientific landscape of DSM (p. 6-7).

In Part I, “Global Perspectives”, Chapter 1 extensively covers the rationale, scope, and process of DSM, addressing scientific-environmental challenges, and highlighting the global demand for minerals due to population growth and the transition to ‘green technologies’ to combat climate change and greenhouse gas issues (p. 11). Roest et al. discuss challenges such as inadequate ocean floor mapping, insufficient scientific data, and an incomplete understanding of ecosystem functioning, advocating for an ecosystem-based approach to mitigate adverse effects. (p. 11-12, 22-25). Following, N. Oral examines the transition from *Res Communis* to the principle of CHH within global commons (GCs) governance with a focus on the contradictory nature of the CHH principle compared to *Mare Liberum* (p. 33-34). Makgill et al. scrutinise the precautionary approach (PA) and its applications in DSM’s environmental aspects, emphasising its role in guiding DSM until scientific knowledge fills gaps concerning the receiving environment, potential adverse effects, and mitigation measures (p. 50). This discussion reveals the tension between DSM and environmental concerns (p. 51), enriched by the inclusion of the PA understanding of commonwealth countries.

In Part II, “State Party Rights, Obligations, and Responsibilities”, Campanella et al. analyse and compare state rights and authorities regarding the exclusive economic zone, CS, extended CS and the Area, highlighting differences in their exploitation and environmental governance (p. 84-96). This chapter enriches the environmental aspect by referencing the Agreement under UNCLOS on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ), currently open for signature (p. 103). Payne’s research scrutinises the obligations of states arising from DSM, exploring the conditions prompting these obligations (p. 108-114), and also examines compensatory methods like compensation, restitution, or restoration stemming from DSM activities’ harm (p. 115-117).

In Part III, Jensen and Magnússon provide an overview of the historical evolution of debates concerning the outer boundary of CS, tracing developments from the 1945 Truman Declaration to UNCLOS, and discuss the role of the Commission on the Limits of the Continental Shelf in determining the outer CS, emphasising its relation to the Area’s boundaries (p. 132, 135-136). They comprehensively analyse the ambiguous terminology related to the extended CS, covering historical contexts and current interpretations. Schofield and Mossop explore the concept of the extended CS, its relevance to CHH, and the semantic indeterminacy of Article 82 regarding the forthcoming BSR (p. 143-144).

In Part IV, Jaeckel examines the correlation between declaring the Area as CHH and benefit-sharing, derived from its resources, with ISA’s supervisory and regulatory roles (p. 157-161). She, also, asserts a broader interpretation of ISA’s environmental protection role (p. 162). Criticisms in this chapter include the Legal and Technical Commission and ISA’s transparency and diversity, the Agreement relating to the Implementation of Part XI

3 Please look at for a comprehensive discussions: United Nations Environment Programme 2022; The Ocean Foundation 2024; Environmental Justice Foundation 2024.

of UNCLOS (IA), African states' concerns about CHM goals, and the importance of sharing both benefits and costs (p. 161-162, 165-167). Dingwall compares payment regimes for DSM, critically analysing their benefits and drawbacks for humankind, land-based mineral producers, investors, and ecosystem services (p. 185-186, 188). Pfirter highlights environmental concerns and the absence of the Enterprise, raising potential issues (p. 198, 201).

In Part V, Treves scrutinises the dispute resolution mechanisms within SDC, focusing on its role in interpreting the legal framework outlined in Part XI of UNCLOS and relevant annexes and regulations governing the ISA and management of activities in the Area (p. 212). This includes its advisory and contentious jurisdiction, except in matters where ISA exercises discretionary authority (p. 218). Harrison and Pecoraro explore dispute settlement across different regimes, SDC and arbitration (p. 226-227); analyse arbitration as a dispute resolution option, critique ISA-SDC discretion boundaries, and examine sponsor state and investor relations in DSM from an international investment law perspective. Fera-Tinta and Kamga address potential future climate and environmental issues stemming from DSM and examine whether UNCLOS is flexible enough to respond to these problems.

In Part VI, Chapter 1, Regional Practice, examines the relationship between DSM and six regions, Africa, Antarctica, the Arctic, the European Union (EU), the Pacific Islands, South America, and Southeast Asia. With 47 members, Africa comprises the largest group within ISA, where the economies of member states may face substantial impact from DSM, influencing the demarcation of the Area's external boundaries by countries establishing their CS limits (p. 261-262, 267). The explanations regarding the EU, the only regional organisation that signed UNCLOS, insufficiently address its relationship with ISA, particularly concerning maritime zones like the Arctic, Antarctic, and South America, where discussions predominantly revolve around CS delineation and Area demarcation. In Chapter 2, all states reviewed, Belgium, Brazil, Colombia, Côte d'Ivoire, Germany, Guyana, India, Korea, Mauritius, Mozambique, New Zealand, Portugal, and the United Kingdom, have ratified UNCLOS, but non-party states with observer status at ISA remain unexamined, contradicting the claim stated in the description page and overlooking potential future challenges between ISA and non-party states.

Although the book provides a comprehensive overview of DSM, it is also important to critique its shortcomings. The editorial structure of the book lacks adequacy given the comprehensive scope of the book: Repetitive abbreviation explanations persist throughout the text despite an abbreviations page provided at the outset, manifesting contradictions within its content⁴, and inadequate elucidation of certain concepts or arguments.⁵ In addition, the

4 For example: Campanella et al. assert that non-parties to UNCLOS are barred from DSM without clarifying the *pacta tertiis* principle (p. 100). This assertion lacks depth, as it does not explain why CHH includes only state-parties' "humankind", while UNCLOS extends to peoples who have not yet established an independent state. This, also, conflicts with the subsequent chapters arguing that ISA's constituency encompasses all humankind (p. 161-162, 178).

5 For instance: (1) Repeated mentions of "development of the resources", echoing UNCLOS Article 150, throughout the text, lack comprehensive analysis from diverse perspectives like the Lockean property framework, missing the chance to offer valuable insights (p. 1, 70, 141). (2) Campanella's claim of UNCLOS effectively harmonising diverse interests in a complex geopolitical and economic context, creating a comprehensive regulatory framework for maritime activities and marine resource conservation (p. 2) appears contradictory given the subsequent need for IA and BBNJ. (3) N. Oral, argues that CHH contradicts *Mare Liberum* (p. 34), but lacks a thorough explanation, essential for determining whether DSM regime really diverges from *Mare Liberum* or remains consistent with evolving concessions.

book overlooks contemporary critical debates and methods derived from critical international law perspectives. For example: (1) Part II Chapter 2 aligns CHH with GCs management, defining these areas as *res communis*, nowadays gradually abandoned (Milun 2018, 58), overlooking the nuances of other *res* doctrines (p. 33-34). Also, the abstract concept of CHH (p. 36-37) lacks substantial benefits for developing nations due to technological constraints and uncertainties in BSR, while recent studies reveal that DSM exacerbates environmental harm and prolongs recovery periods.⁶ (2) The absence of critique on PA introduces inconsistencies (p. 48), particularly concerning its effectiveness and feasibility when parties engaged in exploitation are tasked with prevention which relies on the current scientific understanding of which insufficiency has already been accepted.

Insufficient attention to the BBNJ and its interaction with UNCLOS, IA and ISA, placed in pages 39, 45, and 103, represents a notable deficiency in the analysis of key regulatory frameworks despite the book's extensive coverage of environmental concerns. After all, the book is a valuable resource for novice researchers in the field, but it may not be considered essential for those conducting in-depth research.

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⁶ Please look at for a comprehensive discussions: Levin, Amon, and Lily 2020; Amon et al. 2022.