

The Relevance of the ICJ and ITLOS Advisory Opinions for the Climate Regulation of Maritime Transport: A Reappraisal of MARPOL.

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ABSTRACT

Maritime transport is essential to global trade but remains a significant source of greenhouse gas (GHG) emissions. This paper aims to assess the relevance of the advisory opinions issued by the International Tribunal for the Law of the Sea (ITLOS) in 2024 and the International Court of Justice (ICJ) in 2025 for the climate regulation of maritime transport, with particular attention to MARPOL Annex VI and the No More Favourable Treatment (NMFT) principle. Methodologically, it adopts a doctrinal legal approach, combined with systemic analysis and informed by the technical and institutional context of maritime decarbonization, through the review of primary sources and specialized scholarship. The analysis finds that the ICJ Advisory Opinion clarifies the scope and standard of States' climate-related due diligence obligations, while the ITLOS Advisory Opinion confirms that anthropogenic GHG emissions may fall within the definition of marine pollution under UNCLOS. The paper concludes that, read together, these opinions support a systemic reappraisal of MARPOL Annex VI and reinforce the rationale of NMFT as a mechanism for the practical universalization of maritime climate-related standards, particularly as the IMO Net-Zero Framework moves towards more demanding fuel-intensity and economic measures.

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1. Introduction.

Maritime transport carries approximately 80% of global trade and remains one of the most difficult sectors to decarbonize. Although shipping accounted for 2.89% of global anthropogenic GHG emissions in 2018, its inherently international character presents regulatory challenges that cannot be effectively addressed through purely national measures (UNCTAD, 2022, p. 153; IMO Fourth GHG Study 2020, Foreword and p. 1). Unlike most climate-related activities, international shipping has traditionally been regulated through a specialized regime developed within the IMO. At the centre of this framework stands MARPOL, particularly Annex VI, which has progressively evolved from an instrument focused on air pollution control into the principal global regulatory framework addressing GHG emissions from international shipping (Ringbom, 2021, p. 157).

A distinctive feature of this regime is the NMFT principle, a mechanism designed to ensure the uniform application of in-

ternational maritime standards regardless of flag State membership. Its function and legal basis are examined in detail in the following section (Molenaar, 2007, p. 231).

The advisory opinions issued by ITLOS in 2024 and by the ICJ in 2025 have introduced important clarifications concerning States' climate-related obligations and the protection of the marine environment. This raises the question of whether these developments have implications for the legal foundations of the MARPOL regime, and particularly for the role of the NMFT principle within it.

Scholars have emphasized that advisory opinions, while not binding in the same manner as judgments in contentious proceedings, may nevertheless carry authoritative legal weight and contribute to the development of international law (Higgins, 1991, pp. 256, 262–263; Treves, 2009, pp. 218–219). At the same time, the broader debate on fragmentation and regime interaction, particularly in the International Law Commission's work on fragmentation finalized by Koskeniemi and in Young's scholarship, supports the view that specialized treaty regimes cannot be interpreted in isolation from the wider normative environment in which they operate (ILC, 2006, pp. 30, 211; Young, 2021, pp. 86–88, 94–95, 101). Within international climate law, Bodansky and Rajamani have highlighted the complex governance architecture of the climate regime and its interaction with other specialized fields of international regulation. In maritime law, Ringbom has examined the challenges of regulating GHG emissions from ships within the law of the sea and IMO framework, including the need for globally uniform standards (Bodansky and Rajamani, 2018, pp. 1–3; Ringbom, 2021, pp. 156–159).

Despite these contributions, limited attention has been paid to the implications of the recent ICJ and ITLOS advisory opinions for the legal foundations of the MARPOL regime itself, and particularly for the role of the NMFT principle as a mechanism supporting the implementation of climate-related and marine environmental obligations in international shipping.

Against this background, this article examines whether the ICJ and ITLOS advisory opinions provide additional legal support for reappraising MARPOL Annex VI and the NMFT principle within the broader framework of international climate and marine environmental law. Methodologically, it adopts a doctrinal legal approach combined with systemic analysis, drawing on primary sources (including MARPOL Annex VI, UNCLOS, the UNFCCC climate framework, IMO instruments and both Advisory Opinions) together with specialized scholarship on treaty interpretation, regime interaction, climate governance, maritime regulation and port State jurisdiction. Although the analysis takes into account the technical and institutional context of maritime decarbonization, it is legal and interpretative in character and does not seek to provide an empirical or statistical assessment of State practice.

The article proceeds in three substantive sections, followed by conclusions. The first examines the evolution of MARPOL Annex VI and the function of the NMFT principle within the maritime regulatory regime. The second analyses the relevant findings of the ICJ and ITLOS advisory opinions, focusing on due diligence, marine pollution and collective environmental

interests. The third evaluates the implications of these opinions for the systemic reappraisal of MARPOL Annex VI and the NMFT principle. The conclusions draw together the main findings and reflect on their significance for the future climate regulation of maritime transport.

2. MARPOL Annex VI and the No More Favourable Treatment Principle.

2.1. Evolution of MARPOL Annex VI.

The regulation of atmospheric emissions from ships emerged relatively late within the broader development of international rules on vessel-source pollution. Although MARPOL was adopted in 1973 and modified by the 1978 Protocol, air pollution was not included in its original regulatory structure until 1997. As Tanaka explains, UNCLOS structures the implementation of rules on vessel-source marine pollution through a framework of flag State, coastal State and port State responsibilities, aimed at the prevention, reduction and control of pollution of the marine environment. At the same time, the detailed regulation of GHG emissions from international shipping has been developed primarily within the IMO, with MARPOL Annex VI operating as the key global instrument in this field (Tanaka, 2016, pp. 333–335, 337–338).

The later climate dimension of Annex VI must also be understood in light of the Kyoto Protocol. Article 2(2) did not integrate emissions from fuels used in international maritime transport into national reduction commitments but required Annex I Parties to pursue the limitation or reduction of such emissions through the IMO. Chircop, Doelle and Gauvin situate this allocation within the broader interaction between the UN climate regime and the IMO framework for international shipping, an interaction shaped by the contrast between common but differentiated responsibilities (CBDR) in climate law and NMFT in IMO conventions. This placed the IMO at the centre of the regulation of GHG emissions from international shipping (Kyoto Protocol, Article 2(2); Chircop, Doelle and Gauvin, 2018, pp. 5–7, 9–11; Shi, 2025, p. 429).

A major turning point occurred in 2011, when mandatory energy-efficiency requirements were incorporated into MARPOL Annex VI through Resolution MEPC.203(62). These amendments introduced the Energy Efficiency Design Index - (EEDI) for new ships and the Ship Energy Efficiency Management Plan (SEEMP) for both new and existing ships. Tanaka describes the 2011 amendments as the first legally binding climate change instrument adopted after the Kyoto Protocol, while Karim emphasizes their significance as the first mandatory framework specifically targeting energy efficiency in international shipping (Tanaka, 2016, pp. 333–335; Karim, 2015, p. 107; IMO Resolution MEPC.203(62)).

The following decade saw a progressive expansion of the climate-related scope of Annex VI. The IMO Data Collection System (DCS), adopted through Resolution MEPC.278 (70), strengthened the informational basis of the regime by requiring ships of 5,000 gross tonnage and above to collect and report fuel oil consumption data. Later, the amendments adopted

by Resolution MEPC.328(76) introduced the Energy Efficiency Existing Ship Index (EEXI) and the Carbon Intensity Indicator (CII), extending the regulatory framework to existing ships and operational carbon intensity (Tanaka, 2016, pp. 335–336; Shi, 2025, pp. 438–442; IMO Resolution MEPC.278(70), IMO Resolution MEPC.328(76)).

This regulatory evolution was accompanied by the adoption of the Initial IMO Strategy on Reduction of GHG Emissions from Ships in 2018 and its revision in 2023. Handl describes the Initial Strategy as a milestone in the IMO's efforts to mitigate the climate effects of international shipping, while also noting its nature as a compromise document without legally binding force. The 2023 Strategy subsequently raised the level of ambition by endorsing the objective of reaching net-zero GHG emissions from international shipping by or around, that is, close to, 2050. Nevertheless, Handl also emphasizes the continuing difficulty of translating this strategic ambition into effective implementation, particularly given the elasticity of the 2050 target, the criticisms concerning alignment with the Paris Agreement, and the technical and economic challenges associated with decarbonising the sector (Handl, 2023, pp. 741, 746–748; IMO Resolution MEPC.304(72), IMO Resolution MEPC.377(80)).

More recently, the development of the IMO Net-Zero Framework has shown both the consolidation and the fragility of this regulatory trajectory. The draft amendments approved at MEPC 83 in April 2025 represented a significant step towards combining technical requirements with economic measures, through a proposed new Chapter 5 of MARPOL Annex VI based on a global fuel standard and a GHG emissions pricing mechanism. However, the subsequent postponement of formal adoption at the second extraordinary session of the Marine Environment Protection Committee in October 2025 illustrates the persistence of political, economic and distributive tensions within the IMO process (IMO, 2025a; IMO, 2025b). These developments confirm that MARPOL Annex VI has become the principal international framework for maritime GHG regulation, while also showing that its climate function remains dependent on continued political agreement, effective implementation and institutional coherence. The problem of uniform implementation raised by these developments is one that the NMFT principle, examined in the following subsection, is particularly well placed to address.

Annex VI has therefore evolved from an air pollution instrument into the central regulatory platform for the climate governance of international shipping. This evolution does not mean that Annex VI was originally conceived as a climate treaty. Rather, its climate function has emerged progressively through successive amendments, strategies and implementation mechanisms adopted within the IMO framework. This distinction is important for the interpretative analysis that follows.

2.2. The No More Favourable Treatment Principle.

The effectiveness of the MARPOL regime depends not only on the substantive obligations contained in its annexes, but also on mechanisms designed to ensure their uniform application. Among these, the principle of NMFT occupies a central position. Article 5(4) of MARPOL 73/78 provides that, with respect

to ships of non-Parties to the Convention, Parties shall apply the requirements of the Convention as may be necessary to ensure that no more favourable treatment is given to such ships. Following the adoption of the 1997 Protocol, which introduced Annex VI into the MARPOL framework, this general rule became relevant to the regulation of atmospheric emissions from ships. In the context of Annex VI, it is given practical effect through the port State control framework established in Regulation 10, which applies to ships voluntarily entering ports or offshore terminals under the jurisdiction of a Party. Read together, Article 5(4) and Annex VI Regulation 10 link the NMFT principle with the inspection and control mechanisms through which Annex VI standards may be applied in port State practice. Without such a mechanism, regulatory avoidance and flag-shopping practices could undermine both environmental protection and competitive equity in international shipping (MARPOL, Article 5(4); 1997 Protocol; MARPOL Annex VI, Regulation 10; Molenaar, 2007, pp. 226, 231).

At first sight, the application of NMFT appears to raise questions regarding the principle *pacta tertiis nec nocent nec prosunt*, codified in Articles 34 and 35 of the Vienna Convention on the Law of Treaties (VCLT). This principle means that treaties do not create rights or obligations for third States without their consent. Accordingly, the application of MARPOL-related requirements to ships registered under non-party States may appear difficult to reconcile with traditional principles of treaty law, since those States have not formally accepted the relevant treaty obligations (VCLT, Articles 34–35; Fitzmaurice, 2002, pp. 38, 46–47).

This apparent tension is generally addressed through the legal basis of port State jurisdiction. Although UNCLOS recognizes the central role of the flag State, particularly through Articles 92, 94 and 217, it also allows States to regulate access to their ports and to prescribe conditions for ships voluntarily entering areas subject to their territorial sovereignty or jurisdiction. In this respect, NMFT is not best understood as imposing treaty obligations directly upon third States, but as an exercise of the port State's authority to apply conditions of access and control within its own ports (Molenaar, 2007, pp. 230–231).

The status of NMFT has also been discussed in relation to the broader development of international maritime law. Some scholarship has suggested that the widespread use of NMFT clauses in maritime safety and environmental conventions, together with their routine application through port State control, may indicate a movement towards broader normative acceptance of the principle (Fanø, 2019, pp. 73–74; Rodríguez Luna and Martínez Marín, 2024, p. 6). For the purposes of this article, it is not necessary to establish NMFT as a rule of customary international law, since its significance lies in its practical contribution to ensuring effective and uniform application of maritime environmental standards, a function that operates independently of its formal normative status.

Within the context of Annex VI, this function becomes particularly relevant. As the principal international framework governing GHG emissions from shipping, Annex VI relies upon broad and consistent implementation to achieve its environmental objectives. The NMFT principle therefore functions not

merely as an enforcement mechanism, but as an instrument that promotes the practical universalization of maritime environmental standards.

This feature acquires renewed relevance considering recent developments in international climate and environmental law. As will be examined in subsequent sections, the advisory opinions of ITLOS and the ICJ provide an opportunity to reconsider whether the legal rationale supporting NMFT may now be understood within a broader framework of due diligence obligations, marine environmental protection and collective environmental interests recognized by contemporary international law.

3. Advisory Opinions and the Development of Climate - Related Obligations.

3.1. *The ITLOS Advisory Opinion and Marine Environmental Protection.*

The ITLOS Advisory Opinion delivered on 21 May 2024 is particularly relevant for maritime transport because it connects climate change directly with the law of the sea framework for the protection and preservation of the marine environment. The Tribunal held that anthropogenic GHG emissions fall within the definition of pollution of the marine environment under Article 1(1)(4) of UNCLOS, insofar as they involve the introduction by humans, directly or indirectly, of substances or energy into the marine environment and result, or are likely to result, in harmful effects. This finding is significant because it places climate-related harm within the legal architecture of Part XII of UNCLOS, rather than treating it solely as a matter of the international climate regime (ITLOS Advisory Opinion, 2024, paras. 159–179, 189–192).

Although the Opinion addresses anthropogenic GHG emissions in general, GHG emissions from ships constitute a sector-specific contribution to that broader category, and its relevance for maritime transport stems from confirming that the effects of such emissions on the marine environment may fall within the UNCLOS framework on marine pollution. This provides an important basis for understanding MARPOL Annex VI as a sector-specific instrument through which shipping contributes to the prevention, reduction and control of climate-related marine pollution.

The Tribunal further clarified that States Parties have specific obligations under UNCLOS to prevent, reduce and control marine pollution from anthropogenic GHG emissions. These obligations are grounded in the general duty to protect and preserve the marine environment under Article 192 and in the obligation to take all necessary measures to prevent, reduce and control pollution under Article 194. In the context of maritime transport, they are also connected with the rules on pollution from vessels under Article 211, the regulation of pollution from or through the atmosphere under Article 212, and the enforcement obligations of flag and port States under Articles 217, 218 and 222. The Opinion therefore gives renewed interpretative weight to the procedural and enforcement architecture of UNCLOS in relation to climate-related marine pollution (ITLOS Advisory Opinion, 2024, paras. 197–199, 258–260, 265–291, 384–400).

For the purposes of this article, the importance of the ITLOS Opinion rests on the way it broadens the normative context of maritime climate regulation. MARPOL Annex VI remains the specialized instrument through which technical standards for atmospheric emissions from ships are developed and implemented, but after ITLOS, those standards can also be understood as contributing to the fulfilment of broader obligations under the law of the sea to prevent, reduce and control pollution of the marine environment. The implications of this connection for the interpretation of Annex VI are examined in the following section.

3.2. *The ICJ Advisory Opinion and Climate-Related Due Diligence.*

The ICJ Advisory Opinion on Obligations of States in respect of Climate Change, delivered on 23 July 2025, provides an important clarification of the legal character of States' obligations in relation to climate change. Its relevance for this article is that it situates climate change within a broader framework of existing obligations under international law, rather than treating it as a matter governed exclusively by sector-specific or treaty-based rules. The Court identified the climate change treaty framework, including the UNFCCC, the Kyoto Protocol and the Paris Agreement, as central to the applicable law, while also making clear that these instruments do not exclude the relevance of other rules of international law. This is particularly significant for specialized regimes such as MARPOL, whose climate-related provisions operate within, and not outside, the wider international legal order (ICJ Advisory Opinion, 2025, paras. 168–171).

A central element of the Opinion is the role of due diligence. For the purposes of this article, the relevant point is that the Court emphasized due diligence as a standard of conduct in the fulfilment of climate-related obligations, particularly in relation to the prevention of significant environmental harm. In this sense, States are required to adopt and implement appropriate measures, using the means reasonably available to them, considering the risks posed by anthropogenic GHG emissions. The standard is not static. It must be assessed according to the seriousness of the risk, the best available science and the evolving technical and regulatory capacity of States. The Court's reliance on the reports of the Intergovernmental Panel on Climate Change (IPCC) as authoritative restatements of the best available science reinforces the idea that climate-related due diligence must be informed by contemporary scientific knowledge rather than by purely discretionary political assessment (ICJ Advisory Opinion, 2025, paras. 280–286).

Due diligence and *erga omnes* obligations operate at different legal levels. Due diligence concerns the measures that States must adopt and implement in light of the risks involved, the means reasonably available to them and the applicable scientific and regulatory context. *Erga omnes* obligations, by contrast, are obligations owed to the international community as a whole, in whose protection all States have a legal interest. The concept was classically articulated by the ICJ in *Barcelona Traction* and was recently applied by the Court to certain obligations concerning the protection of the climate system and

other parts of the environment. The connection between due diligence and *erga omnes* obligations is therefore not one of conversion, but of complementarity. Due diligence determines the standard of conduct required of States, while the collective nature of climate protection may affect the legal interest in invoking responsibility (ICJ, Barcelona Traction, 1970, para. 33; ICJ Advisory Opinion, 2025, paras. 439–442).

This clarification is relevant for maritime transport because it situates the regulation of GHG emissions from shipping within a due diligence framework that goes beyond technical standard-setting. While MARPOL Annex VI remains the principal sector-specific instrument, the ICJ Opinion clarifies the standard of conduct against which its implementation may be assessed under general international law.

3.3. Collective Concern, Erga Omnes Obligations and Climate Protection.

The relevance of the ITLOS and ICJ Advisory Opinions is not limited to the clarification of due diligence obligations or to the recognition of anthropogenic GHG emissions from shipping as a form of marine pollution. Both opinions also contribute to framing climate protection and the protection of the marine environment as matters involving collective interests, which is particularly important in a field such as international shipping where environmental harm is transboundary, cumulative and structurally difficult to attribute to a single State or operator.

In its Advisory Opinion, the ICJ recognized that certain obligations concerning the protection of the climate system and other parts of the environment are not merely reciprocal in character but are owed to the international community as a whole or, in the treaty context, to all parties having a common legal interest in their performance. This understanding is consistent with the doctrine of common concern of humankind, through which climate change has been framed as a matter involving shared interests of the international community and requiring cooperation, while preserving the differentiated structure of States' obligations. In climate law, Bodansky and Rajamani have emphasized that the climate regime is characterized by a complex governance architecture, combining universal participation, differentiated responsibilities and collective objectives (ICJ Advisory Opinion, 2025, paras. 439–442; Brunnée, 2012, pp. 564–567; Dupuy and Viñuales, 2018, pp. 97–98; Bodansky and Rajamani, 2018, pp. 1–3, 16–20).

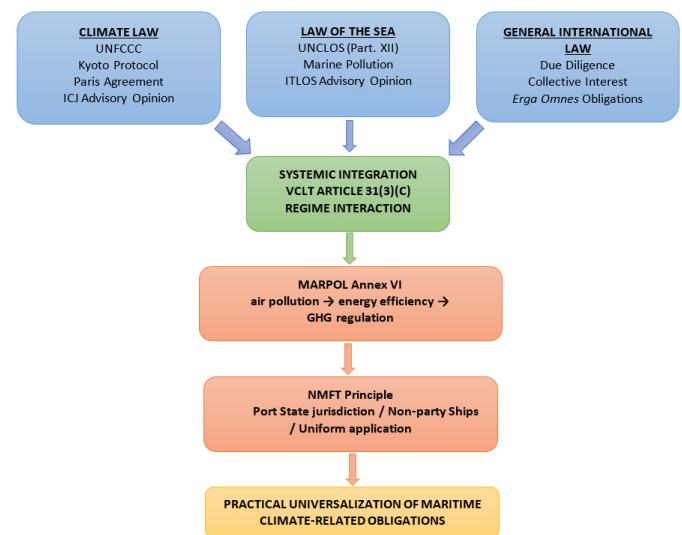
The ITLOS Advisory Opinion reaches a complementary result from the perspective of the law of the sea. By bringing anthropogenic GHG emissions within the notion of pollution of the marine environment under UNCLOS, the Tribunal places climate-related harm within a treaty framework built around the protection and preservation of the marine environment. The duties contained in Part XII of UNCLOS, particularly Articles 192 and 194, are therefore relevant not only as obligations of individual compliance, but also as expressions of a broader collective concern in preventing serious harm to the oceans, especially given the Tribunal's emphasis on cooperation and collective action in addressing marine pollution from GHG emissions (ITLOS Advisory Opinion, 2024, paras. 159–179, 384–400).

This distinction is also relevant for MARPOL Annex VI. The advisory opinions do not transform every technical requirement on GHG emissions from ships into an *erga omnes* obligation. Their significance rests instead on showing that the implementation of sector-specific maritime rules may contribute to the protection of common environmental interests, a connection that is examined in the following section through the lens of systemic integration.

4. Reappraising the Legal Foundations of MARPOL.

Before examining the implications of systemic integration for NMFT, it is useful to set out schematically the normative architecture that this article advances. Figure 1 represents the relationship between the broader legal frameworks and the sector-specific maritime regime.

Figure 1: Systemic reappraisal of MARPOL Annex VI after the ICJ and ITLOS Advisory Opinions.



Source: Authors.

Figure 1 illustrates the systemic relationship advanced in this article. Climate law, the law of the sea and general international law provide the broader normative context in which MARPOL Annex VI may be interpreted and implemented, without absorbing it into any of those frameworks. Through the interpretative logic of Article 31(3)(c) of the VCLT, the climate treaty framework, UNCLOS Part XII and general principles such as due diligence, cooperation and the protection of collective interests become relevant to understanding MARPOL's climate function. At the implementation level, the NMFT principle operates through port State jurisdiction by reducing the possibility that ships flying the flags of non-party States obtain a regulatory advantage when they voluntarily enter ports or offshore terminals of States Parties.

4.1. Systemic Integration and Regime Interaction.

The interpretative context provided by the ICJ and ITLOS Advisory Opinions is where systemic integration becomes par-

ticularly important. This approach follows the logic of Article 31(3)(c) of the VCLT, which requires treaty interpreters to take into account relevant rules of international law applicable in the relations between the parties. The work of the International Law Commission on fragmentation similarly emphasizes that specialized regimes should not be read in isolation from the wider legal system (ILC, 2006, pp. 30, 211).

Applied to MARPOL Annex VI, systemic integration does not mean that the Convention should be absorbed into the climate regime or into UNCLOS Part XII. Rather, Annex VI may be understood as a sector-specific instrument whose implementation contributes to related obligations concerning climate protection and the prevention, reduction and control of marine pollution. Young's work on regime interaction supports this reading, since different legal regimes may overlap and mutually influence one another without losing their institutional autonomy (Young, 2021, pp. 94–95, 101).

Recent scholarship has also emphasized that systemic integration is particularly relevant where climate change, biodiversity loss, public health and the protection of the planet interact across different international legal regimes. This reinforces the idea that global environmental challenges cannot be addressed through isolated treaty regimes, but require interpretative and institutional coordination across connected legal fields (Fernández, Abegón and Campins, 2025, pp. 424–426).

Systemic integration does not, however, threaten the institutional autonomy of the IMO as the principal forum for the technical regulation of international shipping. As Ringbom has shown, the IMO framework operates through a specialized institutional logic that is not easily replicated by general international law mechanisms, and the development of GHG standards for ships depends on the technical and political processes that only the IMO can provide (Ringbom, 2021, pp. 129–135). The point of systemic integration is not to displace that logic but to situate it within a broader normative environment. In this respect, the approach is consistent with the ILC's understanding of self-contained regimes, according to which specialized treaty frameworks retain their internal coherence and institutional identity while remaining open to interpretation in light of the wider legal system in which they operate (ILC, 2006, pp. 170–172). The advisory opinions of ITLOS and the ICJ do not alter the technical content of MARPOL Annex VI or the procedures through which it is amended. Rather, they clarify the legal context in which those procedures and their outputs are to be understood.

The practical expression of systemic integration within the MARPOL regime is the NMFT principle. If specialized treaty regimes are to be interpreted in light of broader obligations concerning climate protection and the preservation of the marine environment, the question arises of how those broader obligations connect with the day-to-day operation of the regime. NMFT provides one answer to that question. Operating through port State jurisdiction and the voluntary entry of ships into ports of States Parties, it functions as the mechanism through which the technical standards of Annex VI are applied beyond the formal boundaries of treaty membership. In that sense, it translates the interpretative logic of systemic integration into a concrete

instrument of implementation, a connection that is examined in the following subsection.

4.2. NMFT and the Universalization of Maritime Climate Obligations.

In the climate context, the relevance of NMFT rests on its capacity to translate formal treaty obligations into broadly applicable regulatory practice. As examined in section 2, it operates within the jurisdictional space of port State control without altering the consensual basis of treaty law. What the advisory opinions add to this picture is a clearer articulation of the environmental interests that uniform implementation serves.

This function is particularly important for Annex VI because climate regulation in shipping depends on uniformity. Ringbom emphasizes that the regulation of GHG emissions from ships presents technical, regulatory and political challenges, and that the law of the sea framework plays an important role in supporting globally uniform standards for vessel-source pollution. In that context, NMFT helps preserve the integrity of MARPOL Annex VI by preventing non-party status from becoming a practical route for avoiding climate-related requirements applicable in international shipping (Ringbom, 2021, pp. 129–135).

The advisory opinions add a further layer to this analysis by clarifying the collective character of the environmental interests that uniform implementation serves. ITLOS links anthropogenic GHG emissions with the protection of the marine environment under UNCLOS, while the ICJ situates climate-related obligations within a framework that extends to the international community as a whole. Read together, these elements support a view of maritime emissions regulation as part of a wider legal response to risks that are cumulative, transboundary and collective in character (ITLOS Advisory Opinion, 2024, paras. 159–179, 384–400; ICJ Advisory Opinion, 2025, paras. 439–442; Brunnée, 2012, pp. 564–567; Dupuy and Viñuales, 2018, pp. 97–98).

In that context, NMFT retains particular relevance as a mechanism capable of giving practical effect to sector-specific standards where fragmented participation would weaken the protection of common environmental interests. Fanø's work on the enforcement of international maritime air pollution rules through UNCLOS is relevant here, because it connects Annex VI enforcement with the broader jurisdictional architecture of the law of the sea. Seen from this perspective, NMFT gives operational expression to the idea that vessel-source atmospheric pollution cannot be managed effectively if compliance remains vulnerable to uneven treaty participation. Operating at the intersection of MARPOL, UNCLOS and climate law, it thereby allows a technical maritime rule to support the effective protection of environmental interests that go beyond the reciprocal logic of ordinary treaty relations (Fanø, 2019, pp. 73–74).

This reappraisal also has implications for future IMO measures. As Annex VI moves towards more demanding climate instruments, including fuel-intensity standards, lifecycle emissions criteria and economic mechanisms, the problem of uniform implementation will become more acute. The IMO Net-Zero Framework illustrates this point. The combination of a global fuel standard and a GHG emissions pricing mechanism

would make differences in application more commercially significant and more vulnerable to avoidance strategies if regulatory consistency is not preserved (IMO, 2025a; IMO, 2025b). In this context, NMFT acquires renewed practical relevance as a mechanism capable of preserving regulatory equity across fleets operating under different flags.

The significance of this development is not only regulatory but also structural. Fuel-intensity standards and emissions pricing mechanisms depend on comparable reporting, verification and enforcement across fleets operating under different flags and trading in different jurisdictions. If such measures are implemented unevenly, the problem is not limited to non-compliance by individual ships. It also concerns the risk that climate-related obligations under Annex VI may lose effectiveness through fragmented participation, differentiated enforcement or strategic reliance on less demanding flag State control. NMFT does not solve the political difficulties of maritime decarbonization, nor does it replace the need for agreement on technical and economic measures. Its contribution is narrower but legally significant, reducing the possibility that ships engaged in international trade may obtain a regulatory advantage from non-party status.

The resulting position is therefore more nuanced than a claim of universal jurisdiction or automatic *erga omnes* effect. NMFT operates through port State jurisdiction, treaty-based standards and voluntary port entry. Yet, when read alongside the ICJ and ITLOS Advisory Opinions, its function can be understood as part of a wider architecture of implementation. It helps align the technical logic of MARPOL Annex VI with the collective character of climate protection and marine environmental protection. This is the specific sense in which NMFT contributes to the practical universalization of maritime climate-related standards.

5. Conclusions.

This article has examined the relevance of the ICJ and ITLOS Advisory Opinions for the climate regulation of maritime transport, with particular attention to MARPOL Annex VI and the NMFT principle. The central finding is that these opinions do not alter the institutional architecture of the maritime climate regime, but they strengthen the normative environment in which its provisions operate. The ICJ Advisory Opinion clarifies the standard of due diligence applicable to States in relation to climate-related harm, while the ITLOS Advisory Opinion brings anthropogenic GHG emissions within the UNCLOS framework on pollution of the marine environment. Read together, they support a systemic reading of Annex VI as a sector-specific instrument contributing to broader obligations concerning climate protection and the preservation of the marine environment.

From this perspective, the NMFT principle acquires renewed legal relevance. As shown in section 2, its function rests on port State jurisdiction and the voluntary entry of ships into ports of States Parties, through which it reduces the risk that non-party status may be used to obtain regulatory advantage or to weaken the consistent application of maritime environmental standards.

What the advisory opinions add is a clearer articulation of the collective environmental interests that this mechanism serves. NMFT can therefore be reappraised not as a self-contained enforcement tool, but as part of a wider implementation architecture linking sector-specific maritime regulation with the protection of common environmental interests.

The article has argued that this reappraisal supports understanding NMFT as a mechanism of practical universalization. In the climate phase of Annex VI, where the effectiveness of GHG regulation depends on broad and consistent implementation, this function becomes particularly significant. Operating through port State jurisdiction, NMFT reduces the possibility that ships engaged in international trade obtain a regulatory advantage from non-party status, without requiring the extension of treaty obligations to third States or the assertion of universal jurisdiction. It thereby helps preserve the integrity of maritime climate standards at precisely the point where fragmented treaty participation would otherwise create gaps in enforcement. In that sense, it translates the collective character of climate and marine environmental protection into a concrete and legally grounded instrument of implementation.

This conclusion is especially relevant for future IMO measures, including the development of the IMO Net-Zero Framework. As Annex VI moves towards more demanding fuel - intensity standards, lifecycle emissions criteria and possible economic mechanisms, questions of enforcement, port State control and uniform application will become increasingly significant. The legal and practical effectiveness of maritime climate regulation will depend not only on the ambition of the standards adopted, but also on their capacity to prevent avoidance and maintain regulatory equity across international shipping.

The analysis remains doctrinal and interpretative and does not assess State practice, port State control performance or the operational effectiveness of NMFT in individual inspection regimes. Its conclusions are therefore confined to the legal significance of the advisory opinions for the systemic reappraisal of MARPOL Annex VI, particularly while the IMO Net-Zero Framework remains subject to further negotiation.

The broader implication of this reappraisal is that the legal foundations of maritime climate regulation are more robust than a purely technical reading of MARPOL Annex VI would suggest. The ICJ and ITLOS Advisory Opinions make visible the systemic connections between sector-specific shipping regulation, the law of the sea and the international climate framework. In doing so, they provide a stronger legal basis for understanding uniform implementation not merely as a regulatory preference, but as a requirement flowing from the collective character of climate and marine environmental protection.

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