

Singapore

Precautionary Unilateralism: Port State Prohibition on Open-loop Scrubber Discharges and the IMO 2020 Fuel Oil Sulphur Limit

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1 Introduction

In a global effort to reduce air pollution emanating from ships the international community will impose a significantly lower limit on the sulphur content of fuel oil for ships from 1 January 2020. Exhaust gas cleaning systems, hereinafter 'scrubbers', are generally-accepted in international law as an equivalent method of reducing emissions but are plagued by uncertainties concerning the environmental impacts of their washwater discharges on the marine environment. As of 1 January 2020, Singapore unilaterally prohibits ships in the port of Singapore from discharging washwater from open-loop scrubbers. This report introduces the international rules and standards on sulphur oxide emissions from ships before discussing this Singaporean practice. The international legal context of Singapore's discharge prohibition is found in the concept of port state jurisdiction and comparable unilateral prohibitions by other port states. This report concludes with a comment on the contributions of unilateral measures to the multilateral framework on emissions from ships.

2 IMO 2020 Global Sulphur Limit

Customary international law, as codified in the *United Nations Convention on the Law of the Sea* (UNCLOS), imposes numerous obligations upon states to protect and preserve the marine environment.¹ The obligations concerning

¹ *United Nations Convention on the Law of the Sea*, opened for signature 10 December 1982, 1833 UNTS 3 (entered into force 16 November 1994), Part XII.

prevention of pollution from ships and pollution from or through the atmosphere are directly linked to the international rules and standards established through 'the competent international organization or diplomatic conference', i.e. the International Maritime Organization (IMO).² Annex VI of the *International Convention for the Prevention of Pollution from Ships* (MARPOL) contains regulations for the prevention of air pollution from ships.³

Regulation 14 of MARPOL Annex VI addresses the emission of sulphur oxides (SOx) and particulate matter (PM) by ships. The combustion of fuel oil containing sulphur will result in SOx emissions.⁴ Therefore Annex VI firstly imposes progressively more stringent limits on the sulphur content of fuel oil used by ships, with the global limit falling from the current 3.50% mass/mass to 0.50% mass/mass on 1 January 2020.⁵ Secondly, amendments adopted in October 2018 and entering into force on 1 March 2020 will impose a carriage ban on non-compliant fuel for use on board.⁶

However, an important element of Annex VI is that flag states may authorize alternative compliance methods, notably the use of equivalents.⁷ This includes, among others, the flag state's approval of abatement technology "at least as effective in terms of emissions reductions" as the use of compliant fuel oil.⁸

This report focuses on the example of scrubbers. Scrubbers are a piece of equipment attached to remove SOx from a ship's exhaust gas. The acceptability of using scrubbers as an equivalent is evident in the fact that the IMO

2 UNCLOS, Articles 1(1)(4), 211–212, 222. IMO Secretariat, *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, LEG/MISC.8 (30 January 2014), at 56 (pollution from ships), 80 (air pollution).

3 International Convention for the Prevention of Pollution from Ships, adopted 2 November 1973, as modified by the Protocol of 17 February 1978, 1340 UNTS 184; 1340 UNTS 61 (entered into force, 2 October 1983). Annex VI was added by the Protocol of 26 September 1997, which entered into force 19 May 2005. Singapore is a contracting party to UNCLOS, MARPOL 73/78 and MARPOL Protocol 97.

4 'Fuel oil', MARPOL Annex VI, Regulation 2.9.

5 MARPOL Annex VI, Regulation 14.1.3 (as of March 2020 simplified to Regulation 14.1). Emission control areas, which can include ports, are subject to a fuel oil sulphur content limit of 0.10% mass/mass (Regulation 14.3.4). Singapore is not however located in an emission control area.

6 MARPOL ANNEX VI, Regulation 14.1, as amended, IMO, *Resolution MEPC.305(73)*, MEPC 73/19/Add.1 (26 October 2018).

7 To be evident in the ship's International Air Pollution Prevention Certificate. Alternative exceptions and exemptions; MARPOL Annex VI, Regulation 3.

8 MARPOL Annex VI, Regulation 4.1.

adopted guidelines on using scrubbers to meet the Annex VI SOx emission limits.⁹ These guidelines foresee ships discharging washwater from scrubbers within ports.¹⁰ Wet scrubbers are categorized into open-loop, closed-loop and hybrid scrubbers (i.e. may operate in both open-loop and closed-loop mode).¹¹ As of January 2019, the majority of installed scrubbers are open-loop.¹² Closed-loop scrubbers involve the collection of residues and the addition of neutralising agents to the washwater, while open-loop scrubbers rely on sea water as the neutralising agent before the washwater is discharged.

3 Regulation of Scrubbers in the Port of Singapore

Scrubbers may result in equivalent reductions in SOx emissions but concerns and uncertainties arise for the environmental impact of open-loop scrubber discharges on the marine environment.¹³ Washwater discharges in ports are of particular concern. Even the generally-favourable Danish submission to IMO on scrubbers suggests a precautionary approach could involve only allowing the use of closed-loop scrubbers or compliant fuel blends while a vessel is in port.¹⁴

The *Prevention of Pollution of the Sea (Air) Regulations* transpose MARPOL Annex VI into Singaporean domestic law.¹⁵ As a flag state Singapore does not

9 IMO, *Resolution MEPC.259(68)*, MEPC 68/21/Add.1 (15 May 2015). Scrubbers explicitly referred to; MARPOL Annex VI, Regulation 16(2)(6).

10 *Id.*, at para. 10.1.

11 IMO, *Scrubber Environmental Impact Literature Review: Submitted by Panama*, MEPC 74/INF.10 (8 February 2019), Annex at 2; Marine and Port Authority of Singapore (MPA), *IMO 2020 Sulphur Limit: A Guide for Singapore-Registered Ships* (2nd Ed.; 13 June 2019), available at <<https://www.mpa.gov.sg/web/portal/home/singapore-registry-of-ships/about-srs-and-what-new/IMO-2020-Fuel-Oil-Sulphur-Limit>>, at 10.

12 IMO, *Id.* at 1.

13 IMO, *supra* note 11 (also questioning the equivalence concerning PM emissions). *Contra*, forthcoming CEDelft study cited by the scrubbers' industry body; 'New Study Finds Negligible Environmental Impact from Accumulated Wash Water', *Clean Shipping Alliance 2020* (15 June 2019), available at <<https://www.cleanshippingalliance2020.org/latest-news/new-study-finds-negligible-environmental-impact-accumulated-wash-water>>.

14 IMO, *Assessment of possible impacts of scrubber water discharges on the marine environment: Submitted by Denmark*, BLG 17/INF.3 (30 November 2012), Annex at 83.

15 *Prevention of Pollution of the Sea (Air) Regulations 2005* (G.N. No. S 134/2005), as amended and consolidated 1 January 2019 <<https://sso.agc.gov.sg/SL/PPSA1990-S134-2005>>;

prohibit the equivalency of using open-loop scrubbers and has approved open-loop and hybrid scrubbers as equivalent compliance methods.¹⁶

However, as a port state Singapore goes beyond MARPOL's minimum international rules and standards by prohibiting the discharge of washwater from open-loop scrubbers in its port.¹⁷ Ships fitted with open-loop scrubbers must use compliant fuel within Singaporean port limits, while hybrid-scrubbers must be switched to closed-loop operation. Ships will be reminded of this prohibition in the advance notification forms required for port entry.¹⁸ To use Singapore's reception facilities the residues arising from hybrid or closed-loop scrubbers are classified as toxic industrial waste and must therefore be collected and managed by licenced collectors.¹⁹

The mandatory switch to compliant fuel for ships equipped with open-loop scrubbers is stricter and broader than the existing Green Port Programme (GPP) to reduce in-port emissions.²⁰ GPP currently applies to certain ships on a voluntary basis and extends incentives to ships using approved and equivalent scrubbers.²¹

subsidiary to *Prevention of Pollution of the Sea Act* (Ch 243, Rev. Ed. 1999), as amended and consolidated 8 September 2017 <<https://sso.agc.gov.sg/Act/PPSA1990>>.

- 16 IMO, *GISIS: MARPOL ANNEX VI REG. 4.2 (NOTIFYING PARTY: SINGAPORE)*, available at <<https://gisis.imo.org/Public/MARPOL6/Notifications.aspx?Reg=4.2&CID=SGP>> (1 August 2019); MPA, *supra* note 11, at 10–11.
- 17 MPA, *IMO 2020 Sulphur Limit: A Guide for Ships Calling to Port of Singapore* (2nd Ed., 13 June 2019), available at <<https://www.mpa.gov.sg/web/portal/home/singapore-registry-of-ships/about-srs-and-what-new/IMO-2020-Fuel-Oil-Sulphur-Limit>>, at 9. See, *Maritime and Port Authority of Singapore (Port) Regulations* (Reg 7, G.N. No. S 187/1997, Rev. Ed. 2000), as amended and consolidated 8 April 2019 <<https://sso.agc.gov.sg/SL/MPASA1996-RG7>>, Regulations 65 and 78(b) (finable offence).
- 18 Revisions expected late-2019, with draft sections *Id.*, at 3–4. *Maritime and Port Authority of Singapore Act* (Ch. 170A Rev. Ed. 1997), Section 44.
- 19 MPA, 'Reception Facilities for Residues Disposal Arising from Exhaust Gas Cleaning Systems (Scrubbers)', *Port Marine Circular No. 11 of 2019* (16 May 2019); MARPOL Annex VI, Regulation 17.1.2.
- 20 MPA, 'Enhancements to Maritime Singapore Green Initiative – Green Port Programme', *Port Marine Circular No. 11 of 2016* (23 June 2016). More generally, Mark Goh, 'Green Ports and Green Shipping: Singapore's Contribution', in World Ocean Forum (Ed.), *Present and Future of Ocean Industries* (WOF, 2010) 278–286.
- 21 *Id.*, at paras. 2(i)(c), 8(iii)(a).

4 The International Legal Context of Singapore's Port State Jurisdiction

Singapore's prohibition is based on protecting its marine environment and water quality.²² Given the scientific concerns and uncertainties over the effects of open-loop scrubber discharges on the marine environment this practice is arguably guided by the precautionary principle in international law.²³ Support for Singapore's approach is found in comparable port state measures in other regions, both predating and subsequent to Singapore's announcement.²⁴ For example, states impose, in-port, stricter fuel standards (EU),²⁵ prohibitions on using open-loop scrubbers (UAE),²⁶ or both within designated waters (Norway).²⁷ Indeed, Norway refers to the necessity of unilateralism and the precedent of, among others, Singapore.²⁸

Singapore's discharge prohibition solely governs conduct within its territory, thereby falling within the port state's territorial prescriptive and enforcement

- 22 MPA, *supra* note 17, at 9; Opening Address by Mr Andrew Tan at The Singapore Registry of Ships (SRS) Forum 2018 (30 November 2018), *available at* <<https://www.mpa.gov.sg/web/portal/home/media-centre/news-releases/speeches/detail/d3ee505d-670a-4c38-a5co-a0526beafid>>, at para. 13. *Contra*, 'STATEMENT BY THE EGCSA CONCERNING THE ANNOUNCED BAN ON OPEN LOOP MARINE SCRUBBER DISCHARGE BY THE SINGAPORE MPA, EGCSA (5 December 2018), *available at* <<https://www.egcsa.com/statement-by-the-egcsa-concerning-the-announced-ban-on-open-loop-marine-scrubber-discharge-by-the-singapore-mpa/>>.
- 23 Meinhard Schröder, 'Precautionary Approach/Principle', *Max Planck Encyclopedia of Public International Law* (OUP 2014) at paras. 2, 8; *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion* [2011] ITLOS 17, ITLOS Reports 2011 10 [131–135].
- 24 P&I overviews of practice: 'Beware of Local Restrictions Before Discharging Washwater From Exhaust Gas Scrubbing', *Gard* (4 February 2019), *available at* <<http://www.gard.no/web/updates/content/26939066/beware-of-local-restrictions-before-discharging-washwater-from-exhaust-gas-scrubbing>>; 'No Scrubs: More Ports Declare Ban on EGCS Discharge', *North* (22 January 2019), *available at* <<http://www.nepia.com/insights/industry-news/no-scrubs-more-ports-declare-ban-on-egcs-discharges-starupdatestar/>>.
- 25 Directive (EU) 2016/802, *Of L132/58/2016*, Article 7.
- 26 Port of Fujairah, 'Ban on Open-Loop Scrubbers', *Notice to Mariners No. 252*, MD/FAX/19/32 (22 January 2019).
- 27 Norwegian Maritime Authority, 'Amendments to the Regulations on environmental safety for ships and mobile offshore units', *Circular Ro2-2019*, 2018/48698-HERO (1 March 2019), at 6, 14 (discussing Section 14b).
- 28 *Id.*, at 8.

jurisdiction.²⁹ In contrast to regulating the emission of volatile organic compounds,³⁰ MARPOL Annex VI does not prohibit port states from using their residual jurisdiction to impose stricter standards than those in Regulation 14. The same applies for earlier and broader implementation of Regulation 14.1.3, as seen in Hong Kong.³¹

In respect of jurisdictional limits imposed by UNCLOS, the prohibition applies to all ships calling at Singapore's port and is therefore non-discriminatory.³² Singapore notes the "prohibition does not apply to ships transiting the Traffic Separation Scheme".³³ However, in any event Singapore would lack jurisdiction over such foreign ships given the flag state's right of transit passage and the exclusion of unilateral regulations on washwater discharges under Article 42 of UNCLOS on the laws and regulations of states bordering straits relating to transit passage.³⁴

5 Conclusion

This report has focused on contextualising Singapore's unilateral port state prohibition on open-loop scrubber discharges within the wider multilateral framework of MARPOL Annex VI and Singapore's jurisdiction in international law. Scientific concerns and uncertainties over the effects of open-loop scrubber discharges on the marine environment, particularly in maritime areas with reduced mixing and heavy traffic, suggest the Singaporean policy has been guided by the precautionary principle. Other ports in other regions have imposed similar measures.

Furthermore, it is worth recalling that Singapore remains a global bunkering, transshipment and container port hub.³⁵ Singaporean port state practice

29 Arron Nicholas Honniball, 'Extraterritorial Port State Measures: The Basis and Limits of Unilateral Port State Jurisdiction to Combat Illegal, Unreported and Unregulated Fishing' (School of Law, Utrecht University, March 2019) available at <<http://dspace.library.uu.nl/handle/1874/375223>>, 36, 67.

30 MARPOL Annex VI, Regulation 15(1).

31 *Air Pollution Control (Fuel for Vessels) Regulation* (Cap. 311AB), 1 January 2019 <<https://www.elegislation.gov.hk/hk/cap311AB?tab=m>>, Sections 2, 5, 7.

32 UNCLOS, Article 227; MARPOL, Article 5(4).

33 MPA, *supra* note 17, at 9.

34 UNCLOS, Articles 38, 42(1)(b), 233. UNCLOS, Article (1)(1)(5)(b)(i), this is not dumping but an operational discharge.

35 'Singapore's 2018 Maritime Performance', MPA News Release (14 January 2019), available at <https://www.gov.sg/~/sgpcmedia/media_releases/mpa/press_release/P-20190114-1/attachment/MPA%20Release_2018%20Maritime%20Performance_FINAL.pdf>.

therefore has increased capacity to influence the shipping industry and the multilateral framework, matched perhaps by its greater responsibilities to address shipping emissions and discharges.³⁶ Indeed, the effects of unilateral port state practice in this field can be seen in the industry's advice to buyers,³⁷ and more importantly the IMO's response. The IMO's new in-principal output on the "[e]valuation and harmonization of rules and guidance on the discharge of liquid effluents from EGCS into waters, including conditions and areas" is in response, in part, to unilateral discharge prohibitions by port states.³⁸ Therefore, much like previous unilateral practice nudging into place the multilateral 2020 global sulphur limit,³⁹ unilateralism continues to play a complimentary role in an area primarily governed by international rules and standards.⁴⁰

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- 36 See the per-capita impact of air pollution from ships on Singapore; D Rutherford and J Miller, 'Silent but Deadly: The Case of Shipping Emissions', *The ICCT* (22 March 2019), available at <<https://theicct.org/blog/staff/silent-deadly-case-shipping-emissions>>; UNCLOS, Article 195.
 - 37 'New Puresox Water Cleaning System Provides Future-Proof and Cost-Saving Flexibility for Scrubbing in Closed Loop', *Alfa Laval Product news* (5 June 2019), available at <<https://www.alfalaval.com/media/news/2019/new-puresox-water-cleaning-system-provides-future-proof-and-cost-saving-flexibility-for-scrubbing-in-closed-loop/>>.
 - 38 IMO, *Proposal for evaluation and developing harmonized rules and guidance on the discharge of liquid effluents from exhaust gas cleaning systems: Submitted by Austria et al.*, MEPC 74/14/1 (8 February 2019), at paras. 18, 21, 25–26, 29; IMO, *Provisional Agenda (PPR 7th Sess.)*, PPR 7/1 (4 July 2019), at para. 12.
 - 39 E.g. discussing EU practice, Sophia Kopela, 'Making Ships Cleaner: Reducing Air Pollution from International Shipping' 26 *RECIEL* 231 (2017), at 238.
 - 40 For literature focusing on contributions of port state enforcement instead of prescription; Jesper Jarl Fanø, 'Enforcement of the 2020 Sulphur Limit for Marine Fuels: Restrictions and Possibilities for Port States to Impose Fines under UNCLOS' 00 *RECIEL* 1 (2019), available at <<https://doi.org/10.1111/reel.12306>>.