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**Dynamics of
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**Floating Degassing in the
Netherlands:
Rights and Obligations under
International Law**

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FLOATING DEGASSING IN THE NETHERLANDS: RIGHTS AND OBLIGATIONS UNDER INTERNATIONAL LAW

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Executive Summary

- Degassing is defined as the removal of vapours remaining in tanks of ships carrying oil or certain liquid chemical substances. While controlled degassing refers to the removal of these vapours at dedicated installations, uncontrolled degassing means the ventilation of the excess vapours into the open air.
- There is one operating degassing installation in the Netherlands for inland vessels. Vessels largely degas into open air insofar as the legal system tolerates it.
- The current international legal framework on floating degassing on inland waters is established primarily by the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).
- Another important legal instrument is the 2017 Amendments to the Convention on the Collection, Deposit, and Reception of Waste Generated during Navigation on the Rhine and Other Inlands Waterways (CDNI) which is pending ratification by France and Switzerland progressively to enter into force.
- The Dutch Government has maintained that even though floating degassing is harmful to public health and the environment, the existing international legal framework does not allow it to enact unilateral measures to regulate degassing.
- **This Report finds that the relevant international legal framework allows states to enact unilateral domestic measures to protect public health and the environment.** Existing international agreements recognize the sovereign rights of states to enact national legislations concerning degassing aimed at protecting public health and the environment.
- In addition, it can be reasonably argued that **the Dutch State may be obliged, under human rights law, to act to regulate floating degassing.** The *Urgenda* decision and the international human rights law-based reasoning of the Dutch Supreme Court as set forth therein hints at a solid legal ground for the claim that the Government is, in fact, obliged to regulate floating degassing to safeguard the right to life and to respect the private and family life of its residents as protected by the European Convention on Human Rights.
- In short, under the international agreements reviewed, the Dutch state is entitled to adopt unilateral domestic measures aimed at preventing harm to public health and the environment from floating degassing. Not only is the Dutch state entitled to act, but it is arguably under an obligation to do so when considering its duty to protect people's life under the European Convention on Human Rights.

1. Introduction

After unloading ships carrying liquid volatile hydrocarbon products, part of the cargo remains in the tanks as vapours. Hydrocarbons with a vapour pressure greater than 10 Pa at 20°C, are called volatile organic compounds (VOCs).¹ Crude oil, benzene, gasoline, acetone, methanol and methyl tert-butyl ether (MTBE) are examples of such VOCs. These are carcinogenic, extremely harmful to the environment and explosive compounds² and can also be found in the list of “Substances of Very High Concern” devised by the National Institute for Health and Environment of the Netherlands (RIVM).³ These vapours have to be degassed before the ships can be loaded again in order to avoid contamination of subsequent cargo.⁴ Degassing refers to the operation to remove these vapours remaining in tanks of ships carrying oil and liquid chemical goods. Ships that are not (properly) degassed may constitute a serious threat. Such ships carry highly active and inflammable compounds and if these ships enter into a collision or catch fire and explode for some reason, significant health, environmental and material damage may occur.⁵ In one sense, ships carrying such compounds and not (properly) degassed are like floating bombs.

Degassing can be done either at special installations designed to safely remove the residual gas in the tankers (‘controlled degassing’) or through ventilating the gas while ships continue their sailing (‘uncontrolled degassing’).⁶ The issue of degassing is particularly relevant for the Netherlands since it has the highest concentration of tankers carrying liquid cargo, including oil and liquid chemical substances, in all of Western Europe.⁷ According to data from 2021, 52% of the ships carrying liquid cargo in all Rhine countries were registered in the Netherlands.⁸ Estimates of 2014 indicate that more than 3000 vessels in the Netherlands carrying petroleum distillates, benzene, ethanol, gasoline and other hydrocarbons and flammable liquids had to degas while sailing unloaded from one location to another.⁹ For example, even if only one vessel carrying benzene or benzene-containing substances degasses, the amount of the vapours released

¹ Ab de Buck and others, ‘Update Estimate Emissions Degassing Inland Tank Vessels’ (2013) 12.

² Michelle C Turner and others, ‘Outdoor Air Pollution and Cancer: An Overview of the Current Evidence and Public Health Recommendations’ (2020) 70 CA: A Cancer Journal for Clinicians 460.

³ RIVM, ‘Totale ZZS-Lijst | Risico’s van Stoffen’ (2022) <<https://rvszoekstelsysteem.rivm.nl/ZZSlijst/TotaleLijst>> accessed 17 August 2022.

⁴ Klaas Koop, ‘Effects of Future Restrictions in Degassing of Inland Tanker Barges’ (2016) 3.

⁵ Frank Smeele, ‘Liability for Incidents with Dangerous Goods Originating from Inland Vessels’ in Resi Hacksteiner and FGM Smeele (eds), *Festschrift Resi Hacksteiner: een reis door het binnenvaartrecht = eine Reise im Binnenschiffahrtrecht = a voyage through the law of inland shipping = un voyage dans le droit de la navigation intérieure* (Eleven International 2020) 272–73.

⁶ Floris Visser and others, ‘Degassing’ (2013) 9 <<http://www.maritimesymposium-rotterdam.nl/uploads/Route/Degassing.pdf>> accessed 17 August 2022.

⁷ Provincie Flevoland, ‘Stop varende ontgassen in Flevoland’ (11 May 2022) <<https://www.lokaleomroepzeewolde.nl/zeewolde-nieuws/regionieuws-uit-flevoland/stop-varende-ontgassen-in-flevoland>> accessed 20 January 2023.

⁸ Central Commission for the Navigation of the Rhine, ‘Inland Navigation in Europe: Market Observation-Annual Report 2021’ (2022) 78–79 <https://www.ccr-zkr.org/files/documents/om/om21_II_en.pdf> accessed 17 August 2022.

⁹ Koop (n 4) 11.

into the atmosphere is equal to the annual maximum permitted amount of emission from a chemical factory.¹⁰ 2013 estimates indicate that 1.2% of the VOC emissions of the entire Netherlands and 7% of the national emissions of benzene come from degassing of ships.¹¹

Practical aspects of degassing at a certified station are highly relevant to the issue of uncontrolled degassing, i.e. ventilating the excess vapours into the open air. At this moment, there is one operating degassing station in the Netherlands, in Moerdijk. On average, the duration of degassing is about 8 hours. Additionally, ships should take into account the period of waiting at and circumnavigating to the degassing station which may amount to 10 hours.¹² The average cost of degassing is around 6400 euros per ship.¹³ It is also worth noting that trials subsidized by the Dutch Ministry of Infrastructure and Water Management have been conducted to establish mobile degassing stations that allow ships to safely degas while they are underway.¹⁴

Since 2006 there is a national ban in the Netherlands on the degassing of petrol. Degassing of benzene is also prohibited in certain regions such as South Holland, North Holland, North Brabant and Utrecht.¹⁵ Other substances can still be degassed under the regime established by the **European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)**¹⁶ which is the primary source concerning the international legal regime on degassing in Europe. At present, inland ships in the Netherlands often degas in the open air while they continue their sailing.¹⁷ The map below provides an overview of where the ships can and cannot degas while they are sailing on the inland waters of the Netherlands. It is completely forbidden to degas in the areas shown in red. In the areas shown in orange, degassing is allowed

¹⁰ Provincie Flevoland (n 7).

¹¹ Buck and others (n 1) 43.

¹² Koop (n 4) 21.

¹³ *ibid.* The whistle-blower Ton Quist calculates a different, slightly higher amount. In one of his emails to us, he indicated that an average tanker of 110x11.75 meters has a capacity of 3700 m³ and per m³, degassing at an installation costs 1,25 euros. Making the calculation after taking also the time lost into account, the total amount reaches to 7250 euros.

¹⁴ ‘First Steps in Environmentally Responsible Degassing of Ships’ (*Port of Rotterdam*, 2020) <<https://www.portofrotterdam.com/en/news-and-press-releases/first-steps-environmentally-responsible-degassing-ships>> accessed 27 July 2022. In this context, the Minister stated that the Minister Van Nieuwenhuizen visited Rotterdam’s Seinehaven today to attend a trial with a mobile degassing system. ‘It is important to me that we quickly arrange good alternatives to releasing vapours while en route. The existing procedure creates health risks for crews and local residents and is hazardous to the environment. We need to quickly determine the best alternative to this practice, and these tests will help.’

¹⁵ Ministerie van Infrastructuur en Waterstaat, ‘Ontgassen binnenvaarttankschepen - Gevaarlijke stoffen binnenvaart - Inspectie Leefomgeving en Transport (ILT)’ (Onderwerp, 20 April 2022) <<https://www.ilent.nl/onderwerpen/gevaarlijke-stoffen-binnenvaart/ontgassen-binnenvaarttankschepen>> accessed 27 July 2022. See also: LMH Loefen, ‘Reducing Benzene Emissions by Degassing to the Atmosphere in a Transport Network of a Petrochemical Company — Eindhoven University of Technology Research Portal’ (Master Thesis, Eindhoven University of Technology 2017) 2.

¹⁶ ‘The European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)’ (2000).

¹⁷ Impact study in the annex to the resolution CDNI 2017-I-4 (2017) 1.

if it is not prohibited by international, regional or national regulations. The legal regime is explained further below in detail.



According to 2011 estimates, the emissions from degassing in the Netherlands vary between 1430-2400 tonnes.¹⁸ The minimum case reflects the situation where degassing after unloading is not necessary because the net cargo is identical or compatible with the previous one. In this case, non-specified hydrocarbons constitute 573 tonnes of the emissions, 314 tonnes come from MTBE, 281 tonnes from petrol,¹⁹ 107 tonnes from distillates and the rest from other VOCs such as acetone, benzene, non-specified flammable liquids and other products.²⁰ The maximum case estimate

¹⁸ Buck and others (n 1) 39. In his open letter, skipper and whistle-blower Ton Quist has a far larger estimation. Based on statistics and his practical experience, he estimates that this 50 million m³ of hazardous substances, composed of 12 million m³ of substances of very high concern and 38 million m³ from slightly less harmful substances, are degassed into the atmosphere in the Netherlands. See: 'Tweede Kamer Onjuist En Onvolledig Geïnformeerd over Varend Ontgassen' (*Sargasso*, 23 November 2021) <<https://sargasso.nl/tweede-kamer-onjuist-en-onvolledig-geinformeerd-over-varend-ontgassen/>> accessed 12 September 2022.

¹⁹ Although the EU Directive 94/63/EC, which constitutes the ground for the ban on degassing of petrol in the Netherlands, prohibits degassing of petrol, there is an exception in the Directive. Accordingly, "[I]f after the unloading of petrol the mobile container is subsequently used for products other than petrol, in so far as vapour recovery or intermediate storage of vapours is not possible, ventilation may be permitted in a geographical area where emissions are unlikely to contribute significantly to environmental or health problems." European Parliament and Council Directive 94/63/EC of 20 December 1994 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01994L0063-20190726&qid=1674123872443>> accessed 25 July 2022 Article 5(c).

²⁰ Buck and others (n 1) 37.

assumes that all ships are degassed unless it is prohibited by law and vessels are fully dedicated for the transport of a certain compound. In this case, 813 tonnes of the emissions come from non-specified hydrocarbons, 629 tonnes from distillates, 372 from MTBE, 281 from petrol and the remaining from benzene, acetone, non-specified flammable liquids and other products.²¹ It is worth reiterating that all these substances are classified as substances of very high concern by the RIVM.

Another consequence of degassing of harmful gases on inland waters is that it results in a practice called ‘waste tourism’²² and the Netherlands is one of the major states suffering from this practice. There is a total ban on degassing of substances causing a nuisance in the Port of Antwerp-Bruges and degassing is permitted only in certain licensed facilities.²³ According to ADN, degassing of dangerous compounds of Class 2 or Class 3, with a classification code including the letter “T” in column (3b) of Table C of Chapter 3.2, Class 6.1 or packing group I of Class 8, may be carried out only at these facilities. As a result, many tankers around the Port of Antwerp sail to Zeeland, ventilate their cargo vapours into the atmosphere and then sail back to Belgium.²⁴ Similarly, there is a more extensive national ban on floating degassing in Germany. Accordingly, degassing of residual vapours of petroleum, ethanol-petrol mixtures and naphtha is forbidden and they need to be returned to a storage tank or removed at a vapour treatment plant.²⁵ Discharging these vapours into the atmosphere is allowed only in exceptional circumstances upon application at a competent authority.²⁶ This leads ships on German inland waterways to postpone degassing until they reach countries with less strict regulations on floating degassing, such as the Netherlands. Consequently, for example, vessels from the German Ruhr area sometimes sail to Gelderland just to degas and then return to Germany to receive new cargo.²⁷ Against this background, it is startling that the Dutch Minister of Infrastructure and Water Management once stated that introducing a national ban on floating degassing in the Netherlands, would create waste tourism

²¹ *ibid* 35.

²² Impact study in the annex to the resolution CDNI 2017-I-4 (2017) 2.

²³ ‘Licensed Companies for the Handling of Dangerous Goods | Port of Antwerp-Bruges’ (2022) <<https://www.portofantwerpbruges.com/en/shipping/regulations-and-procedures/dangerous-goods/recognised-organisations-dangerous-goods>> accessed 18 August 2022.

²⁴ Martin Dekker, “Minister Kan Varend Ontgassen in Nederland Wél Verbieden” (*Binnenvaartkrant*, 8 June 2022) <<https://binnenvaartkrant.nl/minister-kan-varend-ontgassen-in-nederland-wel-verbieden>> accessed 28 July 2022.

²⁵ Zwanzigste Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (Verordnung zur Begrenzung der Emissionen flüchtiger organischer Verbindungen beim Umfüllen oder Lagern von Ottokraftstoffen, Kraftstoffgemischen oder Rohbenzin) in der Fassung der Bekanntmachung vom 18. August 2014 (BGBl. I S. 1447), die durch Artikel 11 des Gesetzes vom 27. Juli 2021 (BGBl. I S. 3146) geändert worden ist.

²⁶ Sonja Bauer and Alexander Greßmann, ‘Machbarkeitsstudie Zur Einrichtung Und Zum Betrieb von Abgasreinigungsanlagen Für Die Nutzung Durch Tankschiffe Im Deutschen Teil Des Rheinstromgebietes’ (2014) 26 <https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte_32_2014_machbarkeitsstudie_zur_einrichtung_und_betrieb_von_abgasreinigungsanlagen.pdf> accessed 18 August 2022.

²⁷ Sjors Moolenaar; Niek Opten, ‘Hierom Ontgassen Schepen En de Bemanning Loopt Het Grootste Risico’ (*gelderlander.nl*, 23 February 2019) <<https://www.gelderlander.nl/home/hierom-ontgassen-schepen-en-de-bemanning-loopt-het-grootste-risico~ad8bceff/>> accessed 28 July 2022.

“because then the skippers have to get rid of the dump in Germany just before they sail into the Netherlands. Or in this case, degassing while sailing.”²⁸

2. Challenges to Adopt Laws Regulating Degassing

2.1. The Dutch Government's Position

The position of the Dutch Government on the issue of degassing can best be seen in the letters written to the Parliament (Tweede Kamer) by the successive ministers of Infrastructure and Water Management, as well as in the ministerial responses to questions of the member of the parliaments (MPs) on this matter.

In her letter to Parliament in 2018,²⁹ Minister Van Nieuwenhuizen-Wijbenga explained that the Netherlands took the initiative in 2013 to introduce an international ban on floating degassing to prevent evasive behavior and degassing tourism in Western Europe and on the Rhine. Stating that the regime on these waterways is governed by the Mannheim Act, first signed in 1868 and revised in 1963, the Minister repeatedly asserted that treaty parties cannot unilaterally set rules on the so-called ‘Act Waters’ and cooperation with the other states is required.³⁰ The Minister claims that the other state parties are not showing the same degree of effort as the Netherlands and they felt the urgency of the matter less. Eventually, the Dutch delegation was able to convince the other states about the urgency of the matter, and in 2017 the Amendments to **the Convention on the Collection, Deposit and Reception of Waster Generated during Navigation on the Rhine and Other Inlands Waterways (CDNI)** were enacted. The initial expectations of the Dutch Government were that the Amendments will be ratified by all state parties in 2020 and in mid-2020, they will start progressively entering into force in three phases. The Minister also noted some other measures that have been taken by the Government such as talks with the industry to stop degassing of certain compounds voluntarily and the ‘gentlemen’s agreement’ on the degassing of benzene in 2014. The Minister was aware in her letter that the legislative measures alone are not sufficient to deal with the problem and practical measures such as more degassing installations and dedicated/compatible sailing, i.e. vessels always transporting the same or compatible materials, are necessary. Regarding the question of how Germany can impose a ban on degassing of more compounds, the Minister noted that there are two additional compounds that are banned in Germany, and this is because Germany has received permission for this from

²⁸ ‘Nieuws van Greenpoint’ (*Binnenvaart Kennis*, 12 May 2022) <<https://www.binnenvaartkennis.nl/2022/05/nieuws-van-greenpoint/>> accessed 28 July 2022.

²⁹ 31409-202 Brief regering d.d. 5 december 2018 – C. van Nieuwenhuizen Wijbenga, minister van Infrastructuur en Waterstaat Toelichting op het varend ontgassen van tankschepen <<https://www.tweedekamer.nl/downloads/document?id=2018D58180>> accessed 29 August 2022.

³⁰ See also: Dekker (n 24).

the EU with a notification, arguing that its national emission ceiling was about to be breached and additional measures were necessary.

In another letter to the Parliament in 2019,³¹ the Minister noted the Netherlands' efforts for the rapid ratification of CDNI and imposing a simultaneous ban on degassing on the Rhine. Additionally, she noted the actions of the Dutch Human, Environment and Transport Inspectorate to explore the monitoring of how the CDNI ban on degassing of certain compounds can be enforced most effectively. She mentioned the trials using drones with cameras and e-noses for the surveillance and enforcement of the ban on degassing of certain substances. In another letter in the same year,³² the Minister reiterated her willingness to ban the floating degassing as soon as possible and stressed her expectations that the CDNI Amendments will start entering into force in 2020 and there will be a total ban on degassing on inland waters by 2024. The Minister also stressed the importance of supervisory action to implement the ban and exploration of the ways in the form of monitoring and enforcement.

More insights about the Government's position on this issue can be gained from the ministerial responses to the questions of MPs. In one of her responses,³³ minister Barbara Visser stated that she was aware of the news that large amounts of carcinogenic substances were released 100 to 400 times a year from tankers on the Markermeer and IJsselmeer. After stating that she is also willing to ban degassing as soon as possible, she reiterated that the Netherlands cannot independently introduce a national ban on floating degassing. Yet, unlike her predecessor who mentioned the Mannheim Act, she grounded this argument on the CDNI Convention. She stressed some non-legislative measures the Government was taking such as establishing a task force on floating degassing to work with the provinces, establishing new degassing installations, issuing new permits for such installations and conducting further research on the issue. Even though she acknowledged that floating degassing is harmful to public health and the environment, she stressed that ratification of the CDNI Amendments by the other parties should be awaited. She expected that the ratifications of the CDNI Amendments would be completed in early 2024 and that the progressive implementation of the ban would start in mid-2024. Against the arguments that floating degassing was being tolerated, she noted that this is not the case and the regime established by ADN was being enforced by the Human Environment and Transport Inspectorate. She stated that the authority to enforce ADN lies within the Human Environment and Transport Inspectorate and that the provincial environmental agencies are not competent to

³¹ Kamerbrief over stand van zaken invoering verbod varende ontgassen binnenvaart 17 April 2019 <<https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2019/04/17/stand-van-zaken-invoering-verbod-varende-ontgassen-binnenvaart/stand-van-zaken-invoering-verbod-varende-ontgassen-binnenvaart.pdf>> accessed 29 August 2022.

³² Kamerbrief over varende ontgassen 21 August 2019 <<https://www.rijksoverheid.nl/onderwerpen/scheepvaart-en-havens/documenten/kamerstukken/2019/08/21/de-vormgeving-van-de-handhaving-varende-ontgassen-in-het-najaar-van-2019-en-bepaling-in-welke-gebieden-een-ontgassingsverbod-geldt>> accessed 29 August 2022.

³³ 'Kamervraag - Varende Ontgassen in Flevoland' (23 November 2021) <<https://www.openkamer.org/kamervraag/2021Z18636/>> accessed 29 August 2022.

enforce provincial bans on degassing since they are not valid on national waters.³⁴ Regarding the degassing stations, she claimed that because there is not yet a ban on the release of cargo vapours, the incentives are not strong to make use of these installations. Thus, she urged the representatives of Flevoland and Zeeland to discuss with the sector representatives how the number of degassing can be reduced in the run-up to the ban.

In another response to similar questions,³⁵ in addition to her above response, the Minister stated that the Netherlands is bound by treaty law and CDNI Amendments provide that the ban on degassing will enter into force only after six months from the last contracting state has ratified the Amendments.³⁶ Therefore, the Netherlands cannot independently introduce a national ban. In such a case, the ban would be, according to the Minister, legally invalid and cannot be enforced. The Minister also noted that ADN provides no basis for a total ban on degassing. Lastly, she asserted that an investigation on the presence of concentrations of substances of very high concern has no added value because it is already factually clear that floating degassing is harmful to public health and the environment.

In short, the Minister maintains that:

1. The Netherlands cannot independently introduce a national ban because of its obligations under the CDNI.
2. An investigation into the presence of concentrations of substances of very high concern has no added value because it is factually clear that floating degassing is harmful to public health and the environment.

2.2. Legal Questions

Based on the description of the problem and the statements by various Ministers, the main question that this Report seeks to answer is the following:

1. Is there a prohibition for the Netherlands to ban floating degassing under international law, and more particularly under the international legal framework on the carriage of goods in European inland waterways?

³⁴ Recently, in its judgement, the Hague District Court concluded that provincial bans on floating degassing adopted by provincial governments are applicable also on national waters: “Nu het provinciaal ontgassingsverbod tevens ziet op vaarwegen in beheer bij het Rijk en dus ook op de [rivier] is verweerder tevens bevoegd om bij overtreding daarvan door schepen tijdens de vaart op de [rivier] handhavend op te treden.” See: Rechtbank Den Haag 11 oktober 2022, ECLI:NL:RBDHA:2022:10721 <

<https://uitspraken.rechtspraak.nl/#!/details?id=ECLI:NL:RBDHA:2022:10721>> accessed 20 January 2023.

³⁵ ‘Kamervraag - Het Varend Ontgassen van Kankerverwekkend Gif.’ (23 November 2021) <<https://www.openkamer.org/kamervraag/2021Z18639/>> accessed 29 August 2022.

³⁶ *ibid.* “[H]et Scheepsafvalstoffenverdrag, waarin het verbod is geregeld, bepaalt dat het verbod van kracht wordt zes maanden nadat de laatste verdragsstaat het verbod heeft opgenomen in de eigen nationale wetgeving. Nederland is gebonden aan de in dit verdrag opgenomen verplichtingen en kan daarom niet eigenstandig een nationaal verbod invoeren.”

In asserting that The Netherlands cannot regulate degassing, the Ministry has contextually acknowledged that uncontrolled degassing causes harm to public health and the environment. This raises human rights questions.

2. In light of the harm to public health and the environment caused by floating degassing, is the Dutch State under an obligation to introduce a national ban on degassing pursuant to national and/or international law?

This Report is structured as follows. In Section 3, the international legal framework relating to floating degassing is explained. Each subsection discusses the different treaties that have been referred to by different Dutch Ministries as a legal basis for inaction. It is shown that the current international legal framework on degassing does not establish a prohibition for the Dutch Government to regulate and ban floating degassing of tankers on Dutch inland waterways. In section 4, the Report delves into the second question. Drawing on the well-known case *Urgenda v The Netherlands*, it is shown that international human rights can be directly enforced into Dutch domestic legal system. Then, it is argued that in face of the threats to public health and the environment posed by floating degassing the Dutch Government is most likely obliged to impose a ban on floating degassing. Section 5 presents synthetic conclusions.

3. International Legal Framework

The international legal framework on the degassing of harmful vapours by vessels on inland waterways consists of four different legal sources. These are the Mannheim Convention (1868), ADN (2000), CDNI (1996) along with its 2017 Amendments as well as EU Directive 94/63/EC of 20 December 1994. The Mannheim Convention has a more general focus and concerns navigation on the river Rhine and its estuaries from Basel to the open sea. The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) establishes a highly technical and detailed legal framework relating to the safety of international carriage of dangerous goods by inland waterways. In its Annexed Regulations, there is a section specifically on the degassing of empty vessel tanks and it mostly concerns the technical details of degassing.³⁷ The CDNI, signed and ratified by six Rhine-riparian states,³⁸ covers the collection, deposit and reception of waste generated during navigation on the Rhine and other connected inland waterways and the 2017 Amendments³⁹ specifically deal with the treatment of gaseous residues generated during navigation. Finally, the EU Directive is applicable in all the EU Member States but has a rather limited scope, dealing only with emissions of VOCs resulting from the storage of petrol and its distribution from terminals to service stations. It is to be noted

³⁷ 'The European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)' (2000) Annexed Regulations 7.2.3.7.

³⁸ These are the Netherlands, Belgium, Luxembourg, Germany, France and Switzerland.

³⁹ The Amendments have not been ratified by France and Switzerland. For further explanations, see Section 3.2.

that all parties of the Mannheim Convention are also parties to ADN and CDNI. General rules on interpretation of international law help clarifying the relation and, if necessary, the way to apply conflicting provisions. As codified by Article 30 of the Vienna Convention on the Law of Treaties (VCLT), under public international law, when more treaties relate to the same subject matter, in case of conflicts, the provisions of later treaty apply. Also, when specific provisions exist on a specific subject matter, otherwise generally regulated, they apply. This is the maxim of *lex specialis derogate lex generali*, which is generally accepted as general principle of law. ADN and CDNI can be considered as *lex posterior* and, in relation to the question of regulating degassing, as *lex specialis vis-à-vis* the Mannheim Convention. For this reason, we devote more attention to these two treaties.

3.1. Framework under ADN

The international legal regime regulating the degassing of ships navigating on the inland waters of the Netherlands consists of various sources. Currently, ADN establishes the general legal framework. It was concluded in Geneva on 26 May 2000 and entered into force on 29 February 2008, under the auspices of the United Nations Economic Commission for Europe (UNECE) and the Central Commission for the Navigation of the Rhine (CCNR)⁴⁰ and is aimed at:

- a) increasing the safety of international carriage of dangerous goods by inland waterways;
- b) contributing effectively to the protection of the environment, by preventing any pollution resulting from accidents or incidents during such carriage; and
- c) facilitating transport operations and promoting international trade.⁴¹

In terms of scope, ADN and its Annexed Regulations⁴² primarily cover loading, carriage, unloading and handling of dangerous goods and what those goods are. There are also provisions regarding the use of packaging, tanks and bulk cargo transport units, consignment procedures, vessel crews, equipment, operation and documentation, construction and operation of vessels carrying these dangerous substances, classification societies and procedures for inspections, training and examination of experts.⁴³

Article 6 of ADN recognizes the sovereign right of states ‘to regulate or prohibit the entry of dangerous goods into its territory *for reasons other than safety during carriage*.’⁴⁴ As further discussed below, the protection of public health and the environment can plausibly be considered

⁴⁰ ‘About the ADN | UNECE’ <<https://unece.org/about-adn>> accessed 25 July 2022.

⁴¹ ‘The European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)’ (2000) Preamble.

⁴² According to ADN, the Annexed Regulations form an integral part of the Convention and any reference to ADN implies a reference to the Annexed Regulations. *ibid* Article 2.

⁴³ ‘About the ADN | UNECE’ (n 39).

⁴⁴ ‘The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)’ (n 16) Article 6.

as ‘reasons other than safety.’ The Annexed Regulations provide further clarification on this article by stating that:

1.9.2 Subject to the provisions of 1.9.3, a Contracting Party may apply to vessels engaged in the international carriage of dangerous goods by inland waterways on its territory *certain additional provisions not included in ADN*, provided that those provisions do not conflict with Article 4, paragraph 2 of ADN⁴⁵, and are contained in its domestic legislation applying equally to vessels engaged in the domestic carriage of dangerous goods by inland waterways on the territory of that Contracting Party.

1.9.3 Additional provisions falling within the scope of 1.9.2 are as follows:

- (a) Additional safety requirements or restrictions concerning vessels using certain structures such as bridges or tunnels, or vessels entering or leaving ports or other transport terminals;
- (b) Requirements for vessels to follow prescribed routes to avoid commercial or residential areas, environmentally sensitive areas, industrial zones containing hazardous installations or inland waterways presenting severe physical hazards;
- (c) Emergency requirements regarding routing or parking of vessels carrying dangerous goods resulting from extreme weather conditions, earthquake, accident, industrial action, civil disorder or military hostilities;
- (d) Restrictions on movement of vessels carrying dangerous goods on certain days of the week or year.⁴⁶

With respect to special rules and derogations, it is stated that:

The Contracting Parties shall retain the right to arrange, for a limited period established⁴⁷ in the Annexed Regulations, by special bilateral or multilateral agreements, and provided safety is not impaired:

- (a) that the dangerous goods which under this Agreement are barred from international carriage may, subject to certain conditions, be accepted for international carriage on their inland waterways; or
- (b) that dangerous goods which under this Agreement are accepted for international carriage only on specified conditions may alternatively be accepted for international

⁴⁵ Article 4(2): Without prejudice to the provisions of Article 6, the international carriage of other dangerous goods shall be authorized, subject to compliance with the conditions laid down in the annexed Regulations.

⁴⁶ *ibid* Annexed Regulations 1.9.2-3.

⁴⁷ This period is five years in the latest version of the Annexed Regulations. See: *ibid* Annexed Regulations 1.5.1.2.

carriage on their inland waterways under conditions different from those laid down in the Annexed Regulations.⁴⁸

Article 9 further stipulates that ‘the transport operations to which this Agreement applies *shall remain subject to local, regional or international regulations* applicable in general to the carriage of goods by inland waterways.’⁴⁹ The Annexed Regulations further stipulate that:

1.1.4.6.1 In accordance with article 9 of ADN, transport operations shall remain subject to the local, regional or international requirements generally applicable to the carriage of goods by inland waterway.

1.1.4.6.2 Where the requirements of these Regulations are in contradiction with the requirements referred to in 1.1.4.6.1, the requirements referred to in 1.1.4.6.1 shall not apply.⁵⁰

Specific provisions in the ADN concerning degassing can be found in the Annexed Regulations, in Chapter 2 “Tank Vessels” of Part 7 “Requirements Concerning Loading, Carriage, Unloading and Handling of Cargo”. Accordingly, the primary rule is the following:

7.2.3.7.0 Gas-freeing of empty or unloaded cargo tanks is permitted under the conditions below but only if it is not prohibited on the basis of international or domestic legal requirements. (emphasis added)

This is a key rule, which unambiguously provides that states can establish domestic legal requirements prohibiting gas-freeing of empty/unloaded cargoes, as further discussed below. Concerning the degassing of certain harmful compounds, according to ADN, the rule is that they should be degassed at certified installations:

7.2.3.7.1 Empty or unloaded cargo tanks having previously contained dangerous substances of Class 2 or Class 3, with a classification code including the letter “T” in column (3b) of Table C of Chapter 3.2, Class 6.1 or packing group I of Class 8, may only be gas-freed by either competent persons according to sub-section 8.2.1.2 or companies approved by the competent authority for that purpose. Gas-freeing may be carried out only at the locations approved by the competent authority.

Regarding degassing of other harmful compounds, it is stipulated that:

7.2.3.7.2 Gas-freeing of empty or unloaded cargo tanks having contained dangerous goods other than those referred to under 7.2.3.7.1 above, may be carried out while the vessel is underway or at locations approved by the competent authority by means of suitable

⁴⁸ ibid Article 7.

⁴⁹ ibid Article 9.

⁵⁰ ibid Annexed Regulations 1.1.4.6.

venting equipment with the tank lids closed and by leading the gas/air mixtures through flame-arresters capable of withstanding steady burning. (...)

Gas-freeing is, however, prohibited within the area of locks including their lay-bys.

Yet, in cases where degassing of the compounds referred to in 7.2.3.7.1 is not practical at the certified locations, ships are allowed to degas into the atmosphere while sailing, on the conditions that:

- the requirements of 7.2.3.7.2 are complied with; the concentration of dangerous substances in the vented mixture at the outlet shall, however, be not more than 10% of the lower explosive limit;
- there is no risk involved for the crew;⁵¹
- any entrances or openings of spaces connected to the outside are closed; this provision does not apply to the air supply openings of the engine room and overpressure ventilation systems;
- any member of the crew working on deck is wearing suitable protective equipment;
- it is not carried out within the area of locks including their lay-bys, under bridges or within densely populated areas.⁵²

As can be seen, the ADN framework does not prohibit states from enacting regulations on degassing and allow them to impose degassing bans on vessels on their inland waterways. First of all, as for the specific provisions of the Annexed Regulations on degassing, the picture is clear. Article 7.2.3.7.0 of the Annexed Regulations leaves no doubt concerning the right of states to regulate degassing by expressing that degassing into the atmosphere is permitted only if it is not prohibited by international or domestic law. In other words, this provision establishes that if degassing is prohibited on the basis of domestic legal requirements, ADN cannot be invoked as an overriding rule that would allow for degassing. In short, this rule unequivocally permits member states to prohibit degassing through domestic law. Subsidiarily, it should be noted as for the substances covered by Article 7.2.3.7.2, the wording does not imply an obligation on the part of states to allow degassing since vessels *may* degas while they are underway.

Finally, it is worth recalling Article 6. While Article 6 is silent on the states' right to regulate degassing for reasons of safety, it explicitly recognizes the sovereign right of states to regulate the entry of dangerous compounds into its territory for reasons other than safety during carriage. Throughout ADN, 'safety' is often used in relation to navigation and carriage of goods, but not in relation to public health and the environment. These could well be considered as 'reasons other

⁵¹ The process of degassing is itself inherently risky for ship crew. This is also admitted by the previous Minister Van Nieuwenhuizen-Wijbenga stated that "the existing procedure creates health risks for crews and local residents and is hazardous to the environment." 'First steps in environmentally responsible degassing of ships' (n 14).

⁵² *ibid* Annexed Regulations 7.2.3.7.3.

than safety’ within the meaning of Article 6. Degassed substances can be, and indeed often are, toxic, inflammable, corrosive and harmful for human, animal and plant life and it has been admitted also by the Minister that degassing is harmful to public health and the environment. Thus, regulation of degassing through domestic rules for the purpose of protecting public health and the environment is the right of the states, generally provided under Article 6.

Moreover, the relevant provisions in the Annexed Regulations enable states to enact additional provisions not found in ADN as long as they are based on domestic laws and applied in a non-discriminatory fashion. Through bilateral or multilateral agreements, states can also depart from the rules set out in ADN and its annexes in order to lay down different conditions for the carriage of dangerous goods on its inland waterways, provided that these conditions do not impair safety. Article 9 of the ADN further recognizes the right of states to regulate the carriage of goods by inland waterways through regional and local regulations. This means that states can regulate or impose bans on floating degassing insofar as it is not regulated by ADN or not conflicting with its provisions. This analysis shows that ADN does not prohibit states from regulating and/or imposing a ban on floating degassing; in fact, it provides ADN members with the right to regulate floating degassing.

3.2. Framework under CDNI

Another international legal source on degassing in the Netherlands is CDNI. It was concluded on 9 September 1996 between the Netherlands, Belgium, Germany, Luxembourg, France and Switzerland. It came into force on 1 November 2009. It is aimed at protecting the environment, improving inland navigation safety, improving water and air quality and the well-being of navigation personnel through the prevention, collection, deposit and reception of ship waste.⁵³ The Convention imposes obligations on states and concerned parties such as boatmasters, other members of the crew, other people on board, charterers, carriers, consignees, operators of handling facilities and operators of the reception stations. The obligations upon states concern prohibition of dumping, discharging and release of waste, establishing and financing waste reception stations and designation of a national institution responsible for organising a uniform system for financing the reception and disposal of waste.

The preamble considers ‘the prevention and the collection, deposit and reception of waste with a view to its recycling and disposal in order to protect the environment’ as a requirement for inland navigation.⁵⁴ The **2017 Amendments to the Convention** and its annexes further solidify this aim and deal specifically with the issue of degassing and allocation of related costs. Before the Amendments, in principle, CDNI used to deal with water protection but the

⁵³ ‘Presentations and Missions’ <<https://www.cdni-iwt.org/presentations-and-missions/?lang=en>> accessed 25 July 2022.

⁵⁴ ‘Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways’ (1996) Preamble.

Amendments have extended the scope to cover also the release of harmful vapours.⁵⁵ Previously, the Convention had no mention of residual vapours and how they should be disposed of. The previous version of Article 3 titled ‘Prohibition of dumping and discharging’ states that:

Dumping or discharging waste generated on board or any part of the cargo from vessels into the waterways referred to in Annex 1 shall be prohibited.

In the Amendments, this provision on the prohibition of waste dumping and discharging is extended to cover also the release of vapours into the atmosphere. The amended version of the provision states that:

Dumping, discharging or permitting the outflow of waste generated on board, or any part of the cargo from vessels into the waterways, or releasing vapours into the atmosphere on the waterways referred to in Annex 1 shall be prohibited.⁵⁶

The Amendments are aimed at introducing a progressive ban on the release of certain harmful vapours emanating from liquids such as benzene, ethanol, crude oil, and hydrocarbons into the atmosphere. It is stipulated that

Vapours given off from goods mentioned in tables I to III of this Appendix shall not be released into the atmosphere unless the conditions governing accepted vent-free level (AVFL) values 1 in the tables below have been complied with. Unless otherwise specified in article 7.04 or in this Appendix, vapours given off from these goods shall be degassed.

Degassing must be carried out at a certified reception station in accordance with national provisions.⁵⁷

Vapours from all other goods that are not found in the tables in the Amendments can be ventilated while the ship is underway except when the ship is close to locks, including their forebays, under bridges or in densely populated areas or where national laws prescribe equivalent protection. The Amendments are set to enter into force six months after the last ratification. So far, Luxembourg, Germany, the Netherlands and Belgium have ratified the Amendments and France and Switzerland did not. Therefore, they did not come into force yet.

It is estimated that once the 2017 Amendments to CDNI becomes applicable, 95% of harmful degassing from vessels into the atmosphere can be avoided.⁵⁸ The Amendments establish a progressive ban on floating degassing. More specifically, a total ban on degassing is envisaged to be implemented in three phases:

⁵⁵ ‘Part B – Degassing’ (CDNI, 2022) <<https://www.cdni-iwt.org/part-b-degassing/?lang=en>> accessed 30 August 2022.

⁵⁶ ‘Revision of the Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways (CDNI) and Its Implementing Regulation-Resolution CDNI 2017-I-4’ (2017) Article 3(1).

⁵⁷ *ibid* Appendix IIIa.

⁵⁸ *ibid* Preamble.

For a group of most harmful vapours,⁵⁹ the ban will be immediately applicable when the amendments enter into force;

For another group of vapours,⁶⁰ the ban will become applicable 2 years after the amendments' entry into force;

3 or 4 years after the entry into force of the amendments, the ban will be extended to the last group of vapours⁶¹ depending on the findings of an interim evaluation.⁶²

The Amendments state that the articles on collection, deposit and reception of cargo-related waste should be applied without prejudice to the provisions of ADN in conjunction with Directive 2008/68/EC of the European Parliament and Council of 24 September 2008 on the inland transport of dangerous goods.⁶³

The Minister of Infrastructure and Water Management claimed that because all state parties did not ratify the CDNI Amendments and they did not enter into force, the Netherlands cannot apply them unilaterally.⁶⁴

This argumentation is flawed. The CDNI and its Amendments contain no provisions preventing states from imposing legislative or regulatory conditions on degassing. No rules have been agreed upon, for instance, about states regulating on top of what is already established in the CDNI. In fact, the Convention is silent on its relationship with domestic legislation. In other words, there is no obligation 'not to regulate' under the CDNI. This means that while the Amendments establish obligations on the state parties to prohibit floating degassing of certain compounds on inland waterways, nothing shall prevent the parties to act earlier. Moreover, signatory states who have not yet ratified the Convention, by virtue of Article 18 of the VCLT, are under the obligations to 'to refrain from acts which would defeat the object and purpose of a

⁵⁹ These are: benzene; petrol or fuel for automotive engine; non-specified petroleum distillates, petroleum products; ethanol and petrol, blended, or ethanol and fuel for automotive engines, blended, containing more than 10% ethanol.

⁶⁰ These compounds are: crude oil (containing more than 10% benzene); non-specified inflammable liquids containing more than 10 % benzene; non-specified liquid hydrocarbons containing more than 10% benzene.

⁶¹ These are: acetone; cyclohexane; ethanol (ethyl alcohol) or ethanol in solution (ethyl alcohol in solution), aqueous solution containing more than 70% alcohol by volume; ether ethylene butyl; isooctanes; methanol; crude oil (containing less than 10% benzene); non-specified inflammable liquids containing less than 10 % benzene; methyl tertiary butyl ether; non-specified liquids transported when hot (including molten metal, molten salt, etc.) at a temperature equal to or greater than 100° C and below its flashpoint; non-specified liquid hydrocarbons containing less than 10% benzene; substances with a flashpoint above 60° C handed over for transport or transported at a temperature within the range of 15 K below the flashpoint or substances the flashpoint of which > 60° C, heated to within less than 15 K of the flashpoint; substances with a flashpoint greater than 60° C and less than or equal to 100° C which cannot be assigned to any other class or heading within class 9.

⁶² 'Revision of the Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways (CDNI) and Its Implementing Regulation-Resolution CDNI 2017-I-4' (n 56) Article 11.01.

⁶³ 'Revision of the Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI) and its Implementing Regulation-Resolution CDNI 2017-I-4' (n 56) Part B Article 5.04(1).

⁶⁴ 'Kamervraag—Het varend ontgassen van kankerverwekkend gif' (n 35).

treaty.’ Accordingly, states not having ratified the CDNI yet should not act to delay regulation by the Dutch government.

In light of the above, it is plausible to conclude that there is nothing in CDNI and its Amendments that prevents the Dutch Government from regulating and introducing a ban on floating degassing on the Dutch inland waterways.

3.3. Framework under Mannheim Convention

One last international legal source that needs to be mentioned and was referred to by the Dutch Government is the Mannheim Convention. Even though it is not directly linked to degassing and deals more with the freedom of navigation on the Rhine, it may still be relevant this day and in the context of degassing. Signed in 1868 under the auspices of CCNR and revised in 1963,⁶⁵ the Mannheim Convention is the oldest multilateral treaty in Europe.⁶⁶ The first fundamental principle of the Convention is free and equal passage on the Rhine. Article 1 states that:

- (1) The navigation of the Rhine and its estuaries from Basle to the open sea either down or up-stream shall be free to the vessels of all nations for the transport of merchandise and persons on the condition of conforming to the provisions contained in this convention and to the measures prescribed for the maintenance of general safety.
- (2) Apart from these regulations no obstacle of any kind shall be offered to free navigation.⁶⁷

Another principle is that no general taxes must be introduced for vessels using the river. It is stated that:

No duty based solely on navigation may be levied on vessels on their cargoes or on rafts navigating on the Rhine or its tributaries insofar as they are in the territory of the High-Contracting-Parties or on the navigable waterways mentioned in Article 2.⁶⁸

Yet, there is an exception in the Convention to the freedom of navigation. Namely, Article 7 states that:

The transit of any merchandise is free on the Rhine from Basel to the open sea unless health measures require exceptions.⁶⁹

⁶⁵ Members of CCNR are Germany, Belgium, France, Netherlands and Switzerland.

⁶⁶ ‘OSCE Economic & Environmental Forum Part I / Vienna, 28 – 29 January 2008 -Session III - Statement by Switzerland’ (30 January 2008) <<https://www.osce.org/files/f/documents/4/3/30541.pdf>> accessed 31 August 2022.

⁶⁷ ‘Revised Convention on the Navigation of the Rhine Signed at Mannheim on 17 October 1868’ (1963) Article 1.

⁶⁸ *ibid* Article 3(1).

⁶⁹ *ibid* Article 7(1).

In addition to the exception on the grounds of public health, in recent years increased attention has been devoted to environmental protection within CCNR.⁷⁰ In its declaration on the 150th year of the Convention, the Congress of CCNR stated that:

We emphasise the need for up-to-date, workable and harmonised environmental and safety regulations in Rhine and inland navigation. To further improve the ecological sustainability of inland navigation, we task the CCNR to develop a roadmap in order to

- reduce greenhouse gas emissions by 35% compared with 2015 by 2035,
- reduce pollutant emissions by at least 35% compared with 2015 by 2035,
- largely eliminate greenhouse gases and other pollutants by 2050.⁷¹

One final provision of the Convention that can be relevant in the context of degassing touches upon the costs the states parties can impose. Accordingly, it is stated that:

(1) The Governments of the riparian States will ensure that in the free ports as in all other ports of the Rhine, all necessary provisions are made to facilitate loading, unloading and warehousing of merchandise and that these provisions and the associated facilities of all kinds are maintained in good order.

(2) To meet the necessary costs of maintenance and supervision, a corresponding fee may be levied. Should the revenue from this fee exceed the amount of expenditure in question, the rate of said fee should be diminished proportionally.

(3) However, this fee may only be collected when use has been made of the provisions and facilities mentioned above.⁷²

Freedom of navigation is the most fundamental pillar of the Mannheim Convention. Accordingly, the primary rule of the Convention is that states are not allowed to introduce restrictions on this freedom. As noted in the previous section, this is also what the Minister relied on when she claimed that the Mannheim Convention does not permit the Netherlands to adopt a unilateral ban on floating degassing on the Rhine. However, Article 7 provides for an exception. Namely, if health measures require, states can depart from the Convention. Considering that the vapours such as petroleum, benzene, MTBE, methanol and numerous others released by inland vessels into the atmosphere can be extremely harmful to public health, this exception can very well cover regulations or a ban on floating degassing of such harmful compounds. Hence, if the Government is willing to do so on grounds of health, the Mannheim Convention provides enough room to

⁷⁰ ‘OSCE Economic & Environmental Forum Part I / Vienna, 28 – 29 January 2008 -Session III - Statement by Switzerland’ (n 66).

⁷¹ ‘Mannheim Declaration: “150 Years of the Mannheim Act – the Driving Force behind Dynamic Rhine and Inland Navigation”’ (17 October 2018) <https://www.ccr-zkr.org/files/documents/dmannheim/Mannheimer_Erklaerung_en.pdf> accessed 31 August 2022.

⁷² ‘Revised Convention on the Navigation of the Rhine Signed at Mannheim on 17 October 1868’ (n 67) Article 27.

impose a ban on vessels on degassing while they are sailing. Moreover, as mentioned in the introductory part of this section, ADN is to be considered *lex posterior* and *lex specialis* to the Mannheim Convention, meaning that in case of conflict ADN norms would prevail. As demonstrated earlier ADN clearly establishes the right to regulate floating degassing domestically.

3.3.1. Interim Conclusions

To conclude, the existing treaties mentioned by the successive Ministers of Infrastructure and Water Management, do not pose an obstacle for the Government to unilaterally impose a ban on floating degassing of dangerous vapours by vessels on inland waterways. Neither ADN, nor CDNI or the Mannheim Convention prevent the Government from enacting such regulations. Instead, they either recognize the sovereign rights of states and allow them to enact national legislations concerning degassing or do not prescribe any rule preventing states from doing so. Also, there are exceptions that the Government can utilize to regulate and impose national bans on floating degassing. Thus, it becomes clear that the argument that international law prohibits the Netherlands from taking unilateral action on degassing is at best unconvincing.

3.4. Framework under EU Legislation

While the general international legal framework on this subject consists of ADN, CDNI and the Mannheim Convention, there is another specific European legal source. At the European level, “European Parliament and Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations”, as currently in force, concerns the storage and distribution of fuels across the EU. It applies “to the operations, installations, vehicles and vessels used for storage, loading and transport of petrol from one terminal to another or from a terminal to a service station.”⁷³ One of its objectives is to reduce the evaporative losses in the petrol distribution system and vapour emissions during refuelling operations.⁷⁴ Article 2 of the Directive is the provision on definitions, and it prescribes that:

- (a) ‘petrol’ shall mean any petroleum derivative, with or without additives, having a Reid vapour pressure of 27,6 kilopascals or more, which is intended for use as a fuel for motor vehicles, except liquefied petroleum gas (LPG);
- (b) ‘vapours’ shall mean any gaseous compound which evaporates from petrol;

⁷³ European Parliament and Council Directive 94/63/EC of 20 December 1994 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01994L0063-20190726&qid=1674123872443>> accessed 25 July 2022 Article 1.

⁷⁴ *ibid* Preamble.

(c) 'storage installation' shall mean any stationary tank at a terminal used for the storage of petrol;

(d) 'terminal' shall mean any facility which is used for the storage and loading of petrol onto road tankers, rail tankers, or vessels, including all storage installations on the site of the facility;

(e) 'mobile container' shall mean any tank, transported by road, rail or waterways used for the transfer of petrol from one terminal to another or from a terminal to a service station;

(f) 'service station' shall mean any installation where petrol is dispensed to motor vehicle fuel tanks from stationary storage tanks (...)⁷⁵

Article 5 stipulates that:

Mobile containers shall be designed and operated in accordance with the following requirements:

(a) mobile containers shall be designed and operated so that residual vapours are retained in the container after unloading of petrol;

(b) mobile containers which supply petrol to service stations and terminals shall be designed and operated so as to accept and retain return vapours from the storage installations at the service stations or terminals. For rail tankers this is only required if they supply petrol to service stations or to terminals where intermediate storage of vapours is used;

(c) except for release through the pressure relief valves, the vapours mentioned in subparagraphs (a) and (b) shall be retained in the mobile container until reloading takes place at a terminal.

If after the unloading of petrol the mobile container is subsequently used for products other than petrol, in so far as vapour recovery or intermediate storage of vapours is not possible, ventilation *may be* permitted in a geographical area where emissions are unlikely to contribute significantly to environmental or health problems (...) (emphasis added)⁷⁶

EU legislation on degassing of dangerous compounds is extremely limited. This may be because there are already two very detailed conventions establishing the legal framework on this subject, that is, ADN and CDNI. Nevertheless, according to the last sentence of the above provision, degassing of petrol into the atmosphere may be allowed only when it is unlikely that these emissions will contribute to significant environmental and health problems. *A contrario*, this norm establishes that ventilation *shall not be* 'permitted in a geographical area where emissions are

⁷⁵ *ibid.* Article 2.

⁷⁶ *ibid.* Article 5.

likely ‘to contribute significantly to environmental or health problems.’ A two-fold reasoning follows. EU law establishes an obligation for member states to prohibit degassing of vapours related to the unloading of petrol when it may contribute significantly to environmental or health problems. In fact, based on the Directive 94/63/EC, degassing of vapours from certain petroleum derivatives is banned on Dutch inland waterways.

Finally, it is to be noted that this directive concerns only petrol emissions and has no provision on degassing of many other dangerous substances. There may be some other EU directives such as the Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, the Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work or the Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work, all as currently in force, which may be relevant to understand the obligations of the Dutch government. Given that these are not directly related to degassing and given the limited scope of this Report, we do not address their potential relevance for mapping out all the potential obligations of the Dutch government related to the question of degassing. In any event, all relevant EU legislation would be interpreted in the light of primary EU law and general principles of EU law, including Article 37 of the EU Charter of Fundamental Rights ("Environmental protection") and the precautionary principle, since the relevant EU law provisions would bring, where applicable, the actions or the inaction of the Dutch state within the scope of EU law.

4. Human Rights Obligations of the State

The previous section has concluded that, under international law, the Dutch government is not prohibited from acting to protect public health in relation to degassing. In this section, we answer the question of whether the Dutch state is under an obligation to prohibit floating degassing of dangerous vapours (see Question 2, Section 2.2 above). We will show that, in certain circumstances, under both domestic and international law, the Dutch state may be obliged to further regulate or ban the floating degassing of harmful substances entirely.

To this end, human rights law, especially certain articles of the European Convention on Human Rights (ECHR) and the relevant case law can provide some answers. While there is not a separate right to a clean environment in the Convention, the European Court of Human Rights (ECtHR) has interpreted environmental protection particularly into Article 2 (the right to life)⁷⁷ and Article 8 (the right to privacy, family life and a home)⁷⁸ in its case law and established positive obligations

⁷⁷ “Convention for the Protection of Human Rights and Fundamental Freedoms” (1950) Article 2(1): “Everyone’s right to life shall be protected by law (...).”

⁷⁸ *ibid.* Article 8(1): “Everyone has the right to respect for his private and family life, his home and his correspondence.”

for states to protect its people from environmental harms.⁷⁹ In addition to obliging states to refrain from interfering with the right to life, Article 2 requires states to take action to safeguard this right of people within its jurisdiction.⁸⁰ This obligation is general, meaning that states should be aware of real and imminent risks to life in cases of pollution, industrial risks and activities harmful to the environment and that they should enact preventive measures to deal with the said risk.⁸¹ The ECtHR has also clarified that the obligation in Article 2 is ‘to afford general protection to society.’⁸² The Court has also clarified the importance of the public right to information.⁸³ Similar to Article 2, Article 8 also requires states to take reasonable and appropriate measures to safeguard the right to private and family life which, according to the Court, can be affected by environmental pollution.⁸⁴ In interpreting the obligation under Article 8, the Court has also placed emphasis on preventive measures, whereby states are required to safeguard the enjoyment of this right against potential risks that may be caused by environmental pollution.⁸⁵ The Court has a rich body of case law confirming that these two articles overlap and can be applied in environmental cases concerning ‘dangerous activities.’⁸⁶ Additionally, when an entire region is exposed to risks of environmental threats, these articles protect the region’s residents and if a state allows pollution of a region, not just the appellants’ rights but the rights of people living in the entire region will be violated.⁸⁷ Floating degassing is an industrial activity which poses risk to life, human health and the environment. At present, it is largely unregulated in Dutch inland waters.

Against this background, *De Staat Der Nederlanden v. Stichting Urgenda* (hereinafter *Urgenda* case) is here briefly discussed as a landmark case concerning the application of Article 2 and Article 8 before Dutch domestic courts in the context of threats to the environment.⁸⁸ The case was first brought before the District Court of The Hague and made its way to the Court of Appeal and eventually, the Dutch Supreme Court. In brief, the Dutch NGO Urgenda claimed that the Government should do more to prevent global climate change. More specifically, Urgenda argued that Dutch greenhouse gas emissions are unlawful because they violate the duty of care of the state to its people, as well as Article 2 of the European Convention on Human Rights

⁷⁹ Norwegian National Human Rights Institution, ‘The European Convention on Human Rights’ (2020) <<https://www.nhri.no/en/report/climate-and-human-rights/5-the-european-convention-on-human-rights/>> accessed 23 November 2022.

⁸⁰ European Court of Human Rights, “Guide on Article 2 of the European Convention on Human Rights” (2022) para. 10.

⁸¹ *ibid.* para. 20 and Norwegian National Human Rights Institution (n 79).

⁸² See European Court of Human Rights (n 80) and the case law cited therein <https://www.echr.coe.int/Documents/Guide_Art_2_ENG.pdf> accessed 20 January 2023.

⁸³ *ibid.*

⁸⁴ *ibid.* See also: European Court of Human Rights, “Guide on Article 8 of the European Convention on Human Rights” (2022) para. 167 <https://www.echr.coe.int/Documents/Guide_Art_8_ENG.pdf> accessed 20 January 2023.

⁸⁵ Norwegian National Human Rights Institution (n 79).

⁸⁶ *Budayeva and Others v. Russia* App no 15339/02 (ECtHR, 29 September 2008) para. 133; *Öneryıldız v. Turkey* App no 48939/99 (ECtHR, 30 November 2004) paras. 90, 160.

⁸⁷ Norwegian National Human Rights Institution (n 79)

⁸⁸ Timeline of the case and relevant court documents can be found here: ‘Climate Case’ (*Urgenda*, 2020) <<https://www.urgenda.nl/en/themas/climate-case/>> accessed 8 September 2022.

(ECHR) on the right to life and Article 8 on the right to respect for private and family life.⁸⁹ As part of its obligations, Urgenda claimed, the Netherlands must reduce its emissions by a minimum of 25% compared to the emissions levels in 1990. The Court found that ‘the State may act unlawfully by violating its duty of care to prevent dangerous climate change.’⁹⁰ This verdict was challenged by the Government on different grounds, including that Urgenda cannot directly invoke Article 2 and 8 in these proceedings. The Court of Appeal sided with Urgenda and concluded that the Dutch state ‘was failing to fulfil its duty of care pursuant to Articles 2 and 8 ECHR by not wanting to reduce emissions by at least 25% by the end of 2020.’⁹¹ The Court of Appeal’s decisions was taken to the Supreme Court by the Government. The Supreme Court reiterated the Court of Appeal’s conclusions. Namely, it stated that:

In the case of environmental hazards that endanger an entire region, Articles 2 and 8 ECHR offer protection to the residents of that region. The obligation to take appropriate steps pursuant to Articles 2 and 8 ECHR also encompasses the duty of the state to take preventive measures to counter the danger, even if the materialisation of that danger is uncertain.⁹²

It further stressed that:

The fact that this risk will only be able to materialise a few decades from now and that it will not impact specific persons or a specific group of persons but large parts of the population does not mean – contrary to the State’s assertions – that Articles 2 and 8 ECHR offer no protection from this threat (see above in para. 5.3.1 and the conclusion of paras. 5.2.2 and 5.2.3). This is consistent with the precautionary principle (see para. 5.3.2, above). The mere existence of a sufficiently genuine possibility that this risk will materialise means that suitable measures must be taken.⁹³

The reasoning of the Dutch Courts is highly relevant to the question of degassing. As mentioned earlier, degassing refers to the removal of residual VOCs from ships, which are otherwise harmful to public health. What is most important for the purpose of this case, is that in *Urgenda*, the Appeal and Supreme Courts clarified that the provisions of the ECHR have direct effects in the Dutch legal system. The Court came to this conclusion on the basis of Article 93 of the Dutch Constitution.

It is then meaningful to ask whether in not acting to regulate and prohibit floating degassing, the Dutch government could be breaching its duty to protect under Articles 2 and 8 ECHR. There are at least three sets of considerations indicating that a positive answer to this question is plausible.

⁸⁹ ‘*De Staat Der Nederlanden v. Stichting Urgenda*’ Supreme Court of the Netherlands, Judgement, 20 December 2019, ECLI:NL:HR:2019:2007, para. 2.2.2.

⁹⁰ *ibid.* para. 2.3.1.

⁹¹ *ibid.* para. 2.3.2.

⁹² *ibid.* para. 5.3.2.

⁹³ *ibid.* para. 5.6.2.

The first question to ask is whether a Dutch Court could have jurisdiction. Reasoning by analogy with *Urgenda*, we can fairly conclude that breaches of the human rights of residents of the Netherlands would give rise to the jurisdiction of the Dutch Court.⁹⁴ As the harm is clearly imposed on Dutch residents, the question of jurisdiction should be positively resolved. Another question is whether Articles 2 and 8 ECHR could be applied to the present case. The released substances from floating degassing pose both mortality and morbidity risks and seem then to be squarely covered by those two articles. The fact that the UN General Assembly adopted a Resolution on 28 July 2022 on the human right to a clean, healthy and sustainable environment⁹⁵ may strengthen the line of interpretation that Articles 2 and 8 should be applied in cases where the environment is at risk. The fact the Netherlands has voted in favour of the resolution is evidence of the fact that the Dutch state considers the right to a clean, healthy and sustainable environment as important for the contemporary human rights regime. A third question to assess would be whether the risk is sufficiently specific. If the risks from climate change have been considered to pass this test, a fortiori the risks posed by the floating degassing on human population should be considered passing such a test, as certain substances released in the environment are established to be highly carcinogenic.⁹⁶ In light of the *Urgenda* case, authoritative scholars maintain that ‘under the rules of the Dutch Code of Civil Procedure, courts could take for granted those facts on which the parties agree.’⁹⁷ In her 2021 letter, the Dutch Minister stated that ‘an investigation on the presence of concentrations of substances of very high concern’ is not necessary because it is already factually clear that floating degassing is harmful to public health and the environment.⁹⁸ If residents would initiate a dispute against the Dutch state, then it could be argued that the fact that floating degassing is harming public health can be taken for granted.

Prima facie, this suggests that the Dutch government in allowing floating degassing is potentially breaching the right to life and private life as enshrined in Articles 2 and 8 ECHR, given the highly likely negative effects on public health and the environment. The strength of a legal case initiated by private persons (and/or a public interest NGO) is to be further investigated by a more detailed study.

In this context, it should also be added that by virtue of Art 31.3(c) of the VCLT “any relevant rules of international law applicable in the relations between the parties” should be taken into account in the interpretation of the treaties. This means that when interpreting the Mannheim

⁹⁴ *ibid.* para. 5.9.2

⁹⁵ ‘Resolution Adopted by the General Assembly on 28 July 2022-The Human Right to a Clean, Healthy and Sustainable Environment’ (1 August 2022) A/RES/76/300.

⁹⁶ Koop (n 4) 6–7.

⁹⁷ André Nollkaemper and Laura Burgers, ‘A New Classic in Climate Change Litigation: The Dutch Supreme Court Decision in the *Urgenda* Case’ (*EJIL: Talk!*, 6 January 2020) <<https://www.ejiltalk.org/a-new-classic-in-climate-change-litigation-the-dutch-supreme-court-decision-in-the-urgenda-case/>> accessed 23 November 2022.

⁹⁸ ‘Kamervraag—Het varend ontgassen van kankerverwekkend gif’ (n 35) “(...) dat het bekend is dat varend ontgassen belastend is voor mens en milieu.”

Convention, ADN and CDNI account should be taken of human rights treaties – to which all the parties of the said conventions are also members.

Subsidiarily, it is to be noted that VOCs could be considered as ‘indirect greenhouse gases’ in that while they do not directly increase the concentration of greenhouse gases, they control the abundance of direct greenhouse gases in the atmosphere.⁹⁹ VOCs influence the formation of tropospheric ozone or change the lifetime of methane.¹⁰⁰ They influence the climate by producing organic aerosols and involve in photochemistry, that is, the production of ozone in the presence of nitrogen oxides and light.¹⁰¹ Sources of VOCs include the production, distribution and combustion of fuel coming from emissions from motor vehicles due to evaporation or incomplete fuel combustion.¹⁰² Thus, a reduction in VOC emissions can result in a reduction of greenhouse gas emissions, as ordered by the Court in the *Urgenda* case.

Yet, in *Urgenda*, specific measures that the Government may take to achieve its 25% reduction objective are not mentioned as those were not requested by Urgenda and the courts are not permitted to order the Government to enact legislation with a particular content.¹⁰³ Nevertheless, as the Supreme Court states, courts can issue decisions declaring omissions of the Government unlawful.¹⁰⁴ Hence, it is plausible to assume a similar reasoning to that of the Court in *Urgenda*, should a lawsuit claiming that the Government is acting unlawfully by its omission to prevent uncontrolled degassing of harmful substances by vessels on Dutch inland waterways. If the Court was asked to assess the inaction of the Government concerning imposing of a ban on uncontrolled degassing of harmful substances, looking at the Court’s reasoning concerning the duty of care of the state and Articles 2 and 8 of the ECHR, it could find that the non-implementation of a ban on floating degassing of VOCs is unlawful. Non-implementation of such a ban by the Government could be interpreted as a failure to comply with the duty of care under Articles 2 and 8 of the ECHR.

Another relevant international legal instrument is the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-range Transboundary Air Pollution (Gothenburg Protocol) adopted under the auspices of UNECE. According to the revised version of the Protocol, the Netherlands has committed to reducing its national VOC emissions by 8% in 2020 and beyond compared to 2005.¹⁰⁵ According to 2011 estimates, VOC emissions from degassing accounted for 1.2% of the entire national emissions of the Netherlands.¹⁰⁶ Such

⁹⁹ M Prather and others, ‘Atmospheric Chemistry and Greenhouse Gases’ in *Climate change 2001: the scientific basis : Contribution of Working Group I to the third assessment report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2001) 243.

¹⁰⁰ *ibid* 241.

¹⁰¹ *ibid* 257.

¹⁰² *ibid*.

¹⁰³ ‘*De Staat Der Nederlanden v. Stichting Urgenda*’ para. 8.2.6.

¹⁰⁴ *Ibid*.

¹⁰⁵ UN ECOSOC, ‘1999 Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone to the Convention on Long-Range Transboundary Air Pollution, as Amended on 4 May 2012’ (2013) 31, ECE/EB.AIR/114.

¹⁰⁶ Buck and others (n 1) 43.

commitments by states may, under certain circumstances, give rise to international legal obligations. Hence, the obligation of the Netherlands to reduce VOC emissions may be derived from its commitment in the Gothenburg Protocol. Again, while the Protocol does not indicate specific measures that the Netherlands could take in order to achieve its commitments, the reduction of VOCs coming from degassing can be extremely helpful in achieving them. In light of the above, the Gothenburg Protocol may then also be considered when assessing the potential international obligations of the Dutch state in relation to regulating floating degassing.

Should a lawsuit be brought before Dutch courts, a successful case arguing that the Government is obliged to implement a ban on floating degassing of harmful substances can be built based on some of the arguments described above. The reasoning in *Urgenda* and the possibility that the Government can be found accountable for its failure to protect the environment and the life of its residents can be considered to open a way to refer to international legal sources and to claim that the non-implementation of a nationwide degassing ban of harmful compounds is unlawful.

5. Conclusion

Uncontrolled degassing is the process of letting any lingering vapours in the tanks of ships carrying oil or certain liquid chemicals into the open air. Floating degassing happens on a regular basis in an uncontrolled way in Dutch rivers. In recent years this practice attracted public scrutiny, due to its impacts on public health and the environment. As the Dutch legal system tolerates and allows the practice of floating degassing in various places in the Netherlands, vessels continue to release gases out into the air. This may also be related to the fact that there is only one degassing station in the Netherlands, meaning that it takes inland boats significant time and resources to degas at such a station.

ADN is mainly responsible for setting up the current international legal framework for floating degassing on inland waterways. Another important source is the 2017 Amendments to CDNI. These Amendments will enter into force, once France and Switzerland ratify them. The Dutch government has maintained that the current international legal framework on uncontrolled degassing on inland waterways does not allow it to regulate degassing on its own, even though floating degassing is harmful to public health and the environment.

In this study, we found that the international legal framework does offer governments adequate policy space to take unilateral domestic actions to regulate floating degassing to protect public health and the environment. The international legal agreements referred to by the Dutch government to justify its inability to regulate contain no specific provisions prohibiting states to regulate floating degassing. Even more, existing international legal rules on degassing include specific provisions granting states the right to regulate to protect public health and the environment.

This report also discusses the obligations that the Dutch government may have vis-à-vis regulating degassing, under human rights law. The Report shows that there are valid legal arguments under international human rights law for the claim that the Government is actually required to regulate floating degassing to protect the right to life and the respect for private and family life of its residents, as guaranteed by the European Convention on Human Rights. The reasoning of the Dutch Supreme Court in *Urgenda* case suggests that a dispute against the Dutch government for its inaction in regulating degassing could be initiated before domestic courts.

In short, the international legal framework on floating degassing entrusts the Government the right to regulate floating degassing and may even require the Government to regulate it through unilateral domestic measures to mitigate the harms posed by floating degassing to public health and the environment.