

Moving Forward
Network →



INTERNATIONAL SHIPPING & OCEAN-GOING VESSELS COUNTRY PROFILE



PANAMA



PRODUCED IN ASSOCIATION WITH

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Moving Forward Network

The **Moving Forward Network (MFN)** is a national network of over 50 member organizations that centers grassroots, frontline-community knowledge, expertise and engagement from communities across the US that bear the negative impacts of the global freight transportation system. MFN builds partnerships between these community leaders, academia, labor, big green organizations and others to protect communities from the impacts of freight. Its diverse membership facilitates an integrated and geographically dispersed advocacy strategy that incorporates organizing, communications, research, legal and technical assistance, leadership development and movement building. This strategy respects multiple forms of expertise and builds collective power.

MFN advocates for effective rulemaking on global and local levels as necessary to maximize zero-emission requirements for marine engines. Regulation and technological development that center zero emissions while prioritizing environmental justice are not just feasible; it is deadly to continue to delay action.



FOR FURTHER INFORMATION, PLEASE VISIT: [MOVINGFORWARDNETWORK.COM](https://movingforwardnetwork.com)

IMPACTS OF MARITIME SHIPPING

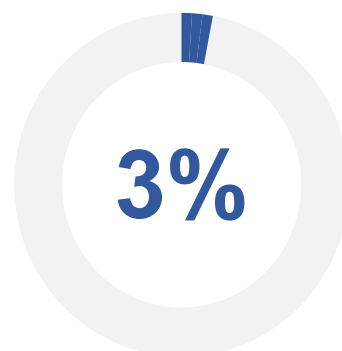
Local & Global

Around 90% of goods are transported by sea, making international shipping the backbone of the global freight transportation system.¹ However, international shipping is also a highly polluting sector which can seriously impact human health and the marine environment.

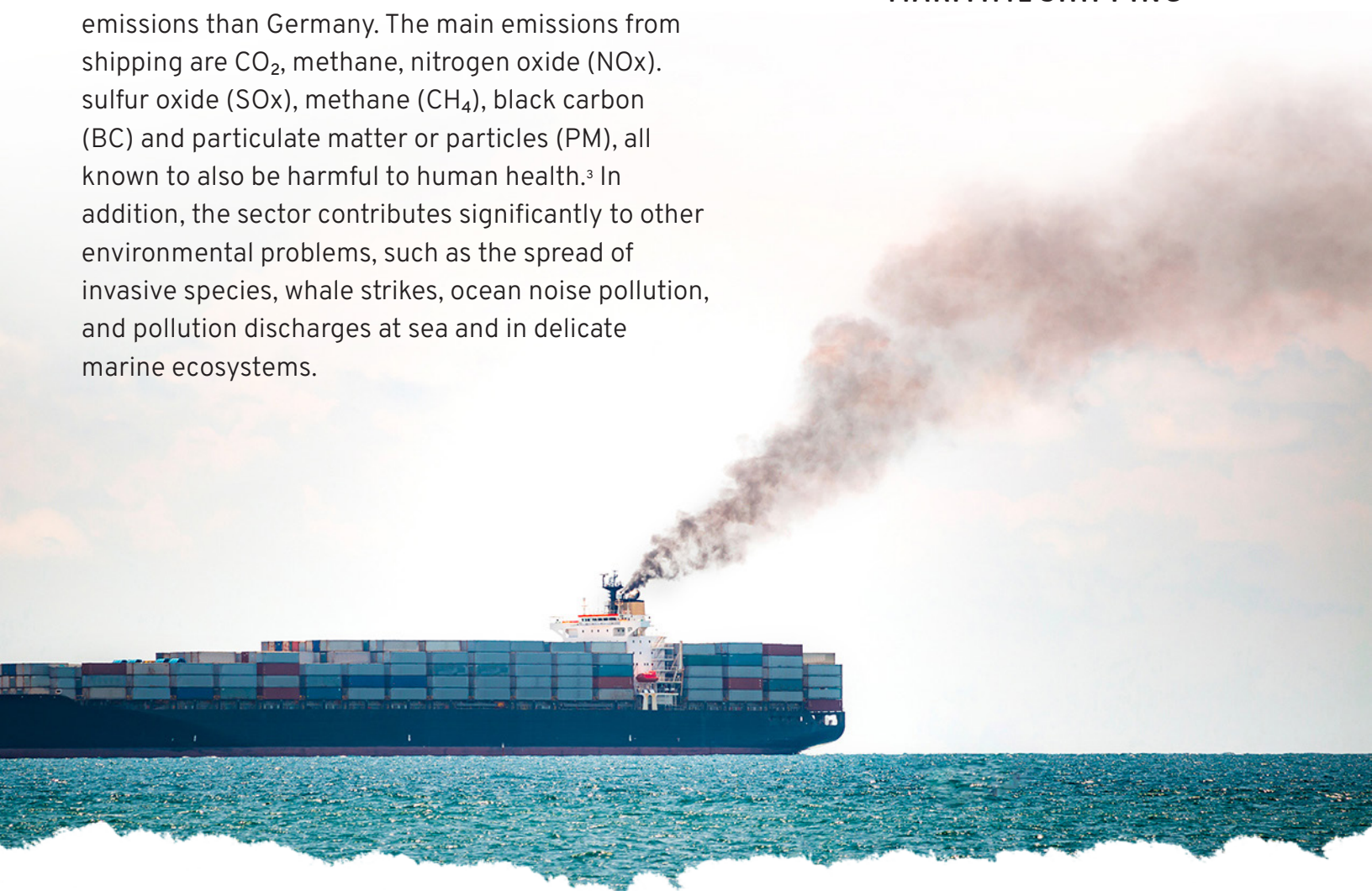
Environmental Impacts

Maritime shipping is responsible for about 3% of all greenhouse gas (GHGs) emissions worldwide every year.² If it was ranked as a country, it would be the sixth-largest emitter in the world, with more emissions than Germany. The main emissions from shipping are CO₂, methane, nitrogen oxide (NO_x), sulfur oxide (SO_x), methane (CH₄), black carbon (BC) and particulate matter or particles (PM), all known to also be harmful to human health.³ In addition, the sector contributes significantly to other environmental problems, such as the spread of invasive species, whale strikes, ocean noise pollution, and pollution discharges at sea and in delicate marine ecosystems.

APPROXIMATELY



OF WORLDWIDE
GREENHOUSE GAS
EMISSIONS ARE DUE TO
MARITIME SHIPPING



In 2022, Panama, Liberia and the Marshall Islands, the world's three leading flags of registration, collectively account for over one third of global carbon dioxide emissions from international shipping.⁴ Panama-registered vessels emitted 113,840,759 tonnes of CO₂ emissions in 2022.⁵ However, it is worth noting that the country of the flag is not necessarily connected to the nationality of the vessel's owner. In 2022, over 70% of global ship capacity in dead weight tons was registered under a foreign flag with beneficial owners and registries being in different countries⁶, which makes it challenging to establish how many of the above-mentioned emissions are actually occurring in Panama. It is estimated that around 37 ships go through the locks every day, emitting an unknown level of pollutants that will impact local communities, and using more than 9bn liters of fresh water for their passage.⁷

Health Impacts

There is a substantial amount of evidence on the wide range of health effects of air pollution, which include respiratory, cardiovascular, and metabolic diseases, stroke, lung cancer, impaired fertility outcomes, preterm birth, reduced birth weight and premature mortality.⁸ PM more specifically triggers heart attacks, strokes, and asthma, causes cancer, exacerbates obesity and diabetes, and contributes to cognitive challenges, including Alzheimer's, dementia, and mental health disorders.⁹ Historically, there have been approximately 266,000 premature deaths per year worldwide from shipping's air pollution impact alone.¹⁰ Nearly 70% of ship emissions occur within 400 km of coastlines¹¹, meaning that the health of coastal communities is often the most impacted by the sector's emissions.

While we were unable to find up-to-date data on this matter, it is estimated that in 2019, 823 deaths were attributed to air pollution in Panama.¹² Additionally, a 2016 study has found that there is a likely association between the increasing air pollution in Panama City and an increase in cardiovascular, respiratory, and diabetes mortality.¹³



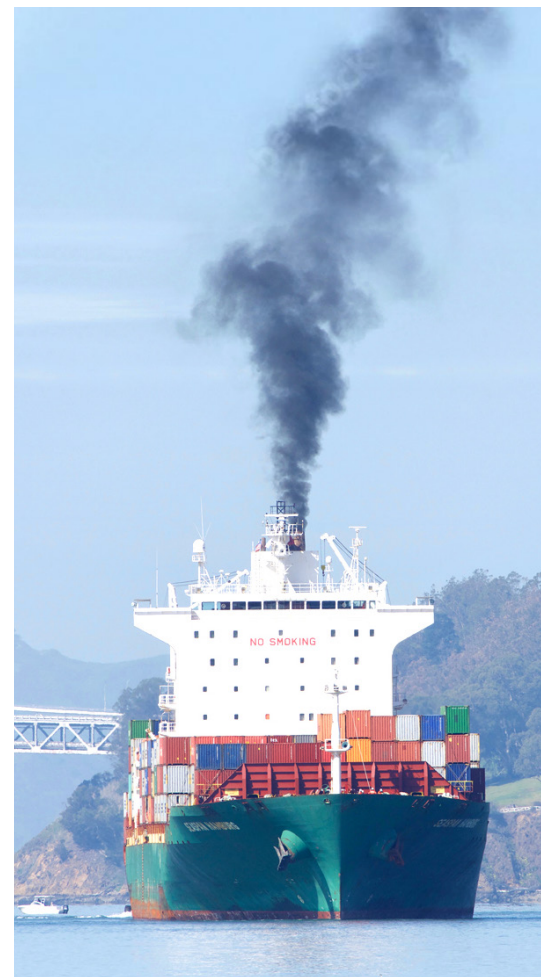
WHAT IS THE INTERNATIONAL MARITIME ORGANIZATION AND WHY DOES IT MATTER?

The International Maritime Organization (IMO) is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.¹⁴ The IMO sets global standards for international shipping through the creation of universally applicable laws, regulations and policy programmes.



**NAVIGATING
THE FUTURE:
SAFETY FIRST!**

Representatives from member countries come together in various committees, subcommittees and working groups in order to make decisions at the IMO.¹⁵ There are currently 175 countries that are members of the IMO.¹⁶ This makes the IMO a key forum through which countries can ensure that the shipping industry takes meaningful action on climate change and other matters that have serious consequences for environmental justice communities worldwide.



A large red container ship is docked at the Miraflores Locks of the Panama Canal. The ship is loaded with colorful shipping containers. In the background, there are green hills and a clear sky. The water is calm, and the locks' infrastructure is visible.

The Panama Canal
is a major world
trading route serving
more than 180
maritime routes
and connecting
1,920 ports in 170
countries.

Panama Canal at Miraflores Locks

RELEVANCE OF THE IMO TO PANAMA

Economic Relevance of Maritime Industry in Panama

Panama has benefitted from steady economic growth, but poverty and income inequality has been stubborn, disproportionately affecting rural indigenous territories and Afro-Panamanian populations.¹⁷ The maritime and logistics sector is the backbone of Panama's economy making international governance of the shipping sector a high priority. Services represent 83% of the GDP, of which 20%-35% is made up of the maritime, ports and logistics sector including the Panama Canal and airports, and represent 18.4% of the labor market.¹⁸ The Panama Canal is a major world trading route serving more than 180 maritime routes and connecting 1,920 ports in 170 countries¹⁹, and employing approximately 9,000 workers.²⁰ More than 14,000 vessels transited the 80km channel in 2022.²¹ Due to its favorable geographic location, the canal facilitates a unique connection for commercial maritime routes between the Atlantic and Pacific oceans with the Asia-US east coast representing its busiest route.

5% of world maritime trade transits through the Panama Canal. Panama has one of the largest port systems in the Latin American and Caribbean region, underscoring the country's importance as a trading hub.²²

Panama's Flag Registry is also of high importance to the country's economy, as well as its position in the global economy and its position at the IMO. In 2022, Panama was the second largest flag of registration by dead weight tons in the world, with 8,174 vessels registered adding up to 365,096 thousands dead weight tons (dwt).²³ This, alongside the Panama Canal, attracts a variety of companies that provide auxiliary services from inspection, class, and certifications for the shipping registry and to shipping agencies, towage, ship repair services, chandlery, bunkering, consultancy, port construction, security, and IT services, and maritime, shipping and port equipment, among others.²⁴

Climate Change Impacts Will Worsen Without Global Action

Panama contributes only 0.045% of global GHG emissions, and with a high forest coverage of about 65.4%, it is also one of the only three countries that are known as carbon negative.²⁵ Despite this, Panama is highly vulnerable to the increased frequency and intensity of extreme weather events like storms, floods, and droughts, threatening the health and safety of the people and ecosystems and negatively affecting the livelihoods of the poorest and most marginalized.²⁶ A failure to reduce the emissions of the international shipping sector will only exacerbate these climate change impacts.

Increasingly, the climate impacts have been more evident in the functioning of the Panama Canal too. The water used to raise and lower vessels in the canal's system of locks is obtained from Gatun Lake²⁷, which has been dwindling during a 20-year drought. As a result, there is not as much water for vessels to sail through – or for local communities to drink.²⁸ In August 2023, commercial ships were facing long queues and delays to travel through the Canal as a lengthy drought in Panama led the Panama Canal Authority (ACP) to introduce restrictions on the number of transiting vessels, creating a bottleneck.²⁹ The CPA announced that limits on daily transit and vessel draft will stay in place for the rest of the year and throughout 2024.³⁰ These water shortages will also affect over two million people in surrounding towns, including Panama City, who rely on the Gatún and nearby Lake Alajuela for water.³¹



Sarigua, Panama



Gatun Lake River in Panama Canal



Chiriqui Gulf, Panama

Potential Additional Financing for Adaptation and Mitigation of Climate Change Impacts

Various measures that will help international shipping reduce its climate impact are currently being discussed at the IMO. This includes economic measures, such as a levy on GHG emissions from ships, that could also be used to generate finance for adaptation and mitigation in countries most impacted by climate change. In particular, this is advocated for by many Pacific Island States. The revenues raised from such a measure could be significant. According to the World Bank, between \$1 trillion to \$3.7 trillion could be raised by 2050.³² All measures, and in particular their impacts on countries around the world, are currently being assessed. This research will provide the basis for discussions at the meetings of the Intersessional Working Group on GHG emissions and the Marine Environmental Protection Committee, where the measures will eventually be adopted. The levy and its revenues could be of use to Panama and other countries for climate adaptation and mitigation.

PANAMA'S PARTICIPATION AT THE IMO



Panama joined the IMO in 1979. It has ratified many Conventions and Protocols which have been created under the auspices of the IMO - an overview of ratifications per country is available on the IMO's website.³³

The Permanent Mission of Panama to the International Maritime Organization (MPPO), is a section of the Panama Maritime Authority. Details of the Permanent Mission are available on the website of the Embassy on Consulate of Panama in the United Kingdom.

Recently (July 2023), Mr. Arsenio Dominguez from Panama was elected as the Secretary-General of the IMO, with effect from 1 January 2024, for an initial term of four years. The IMO Council voted to appoint Mr. Dominguez during its 129th session (C 129). Arsenio Dominguez Velasco has been Director of IMO's Marine Environment Division since January 2022. He joined the IMO Secretariat in 2017, first as Chief

of Staff to the Secretary-General, Kitack Lim, before being appointed in 2020 as Director of the Organization's Administrative Division.³⁴

Outside the formal IMO negotiations, the Maritime Technology Cooperation Center for Latin America (MTCC-Latin America) - one of five specialized centers that form part of the IMO's Global MTCC Network (GMN) - is headquartered at the International Maritime University of Panama. Established by the IMO with funds provided by the European Union, this network of Regional Centres was conceived as a mechanism to increase awareness and develop capacities to implement climate change mitigation measures to address greenhouse gas emissions from ships. The MTCC-Latin America has a regional mandate and in cooperation with different key actors in the maritime transport sector seeks to promote the adoption of energy efficient technologies and practices that help to reduce GHG emissions from ships.³⁵



OTHER RELEVANT EVENTS

Panama was the host nation of the 8th edition of the ‘Our Ocean’ conference this year (2023). Under the slogan–”Our Ocean, Our Connection.”

2023 Latin American and Caribbean Climate Week (Oct 23–27) was hosted by the Government of Panama in Panama City.

LOCAL COMMUNITY GROUPS WHICH MAY BE INTERESTED IN THE WORK OF THE IMO

There are many organizations and citizen’s movements which do or may be interested in getting involved with the work of the IMO or MFN.

WISTA Panama

WISTA Panama is one branch of an international networking organization whose mission is to attract and support women, at the management level, in the maritime, trading and logistics sectors.

AIDA

AIDA uses law and science to protect the environment and communities affected by environmental damage, mainly in Latin America, by advocating with government ministries, development banks, and multilateral agencies.

CIAM Panama (The Environmental Advocacy Center)

A group of environmental lawyers with varied expertise, including marine environment protection and the right to a healthy environment.

ENDNOTES

- 1 IMO, 'Marine Environment'. Available at Marine Environment ([imo.org](https://www.imo.org)).
- 2 Fabel, J. et al. (2020). Fourth IMO Greenhouse Gas Study. International Maritime Organization
- 3 Mueller, N. et al. (2022) 'Health impact assessments of shipping and port-sourced air pollution on a global scale: A scoping literature review', *Environmental Research*, 216(1), pp 1 - 2. Doi: 10.1016/j.envres.2022.114460.
- 4 UNCTAD (2023) Review of Maritime Transport 2023. Available at: <https://unctad.org/publication/review-maritime-transport-2023>.
- 5 UNCTAD (2023) Review of Maritime Transport 2023. Available at: <https://unctad.org/publication/review-maritime-transport-2023>.
- 6 UNCTAD (2023) Review of Maritime Transport 2023. Available at: <https://unctad.org/publication/review-maritime-transport-2023>.
- 7 Embassy of the Kingdom of the Netherlands in Panama (2023) State of Play of the Panamanian Maritime and Logistics Sector. Available at: <https://www.rvo.nl/files/file/2023-06/Panama%20Maritime%20and%20Logistics%20Report%202023.pdf>.
- 8 Mueller, N. et al. (2022) 'Health impact assessments of shipping and port-sourced air pollution on a global scale: A scoping literature review', *Environmental Research*, 216(1), pp 1 - 24. doi: 10.1016/j.envres.2022.114460.
- 9 Moving Forward Network (2021) Making the Case for Zero-Emission Solutions in Freight: Community Voices for Equity and Environmental Justice. Available at: https://www.movingforwardnetwork.com/wp-content/uploads/2021/10/MFN_Making-the-Case_Report_May2021.pdf
- 10 Sofiev, M., Winebrake, J.J., Johansson, L. et al. Cleaner fuels for ships provide public health benefits with climate tradeoffs. *Nat Commun* 9, 406 (2018). <https://doi.org/10.1038/s41467-017-02774-9>.
- 11 Ramacher, P. et al (2020). 'The impact of ship emissions on air quality and human health in the Gothenburg area - Part II: Scenarios for 2040' *Atmospheric Chemistry and Physics*, 20(17), pp 10667-10686. doi: 10.5194/acp-20-10667-2020.
- 12 Our World in Data (2019) Deaths from air pollution, 1999 to 2019. Available at: <https://ourworldindata.org/grapher/air-pollution-deaths-country?tab=chart&country=PAN>
- 13 Zúñiga et al (2016) 'Assessment of the Possible Association of Air Pollutants PM10, O3, NO2 With an Increase in Cardiovascular, Respiratory, and Diabetes Mortality in Panama City', *Medicine (Baltimore)*. 95(2), pp 1-8. doi: 10.1097/MD.00000000000002464.
- 14 International Maritime Organization ([imo.org](https://www.imo.org)).
- 15 Overview of the structure of the IMO available at: IMO, 'Structure of the IMO'. Retrieved from Structure of IMO
- 16 Full list available at: IMO, 'Member States'. Retrieved from Member States ([imo.org](https://www.imo.org)).
- 17 World Bank (2023) Panama Overview. Available at: <https://www.worldbank.org/en/country/panama/overview>.
- 18 Embassy of the Kingdom of the Netherlands in Panama (2023) State of Play of the Panamanian Maritime and Logistics Sector. Available at: <https://www.rvo.nl/files/file/2023-06/Panama%20Maritime%20and%20Logistics%20Report%202023.pdf>.
- 19 Ibid.
- 20 Canal de Panamá (n.d.) Learn about the history of the Panama Canal: How does it work. Available at: <https://pancanal.com/en/history-of-the-panama-canal/>.
- 21 Embassy of the Kingdom of the Netherlands in Panama (2023) State of Play of the Panamanian Maritime and Logistics Sector. Available at: <https://www.rvo.nl/files/file/2023-06/Panama%20Maritime%20and%20Logistics%20Report%202023.pdf>.
- 22 Embassy of the Kingdom of the Netherlands in Panama (2023) State of Play of the Panamanian Maritime and Logistics Sector. Available at: <https://www.rvo.nl/files/file/2023-06/Panama%20Maritime%20and%20Logistics%20Report%202023.pdf>
- 23 UNCTAD (2023) Review of Maritime Transport 2023. Available at: <https://unctad.org/publication/review-maritime-transport-2023>.
- 24 Embassy of the Kingdom of the Netherlands in Panama (2023) State of Play of the Panamanian Maritime and Logistics Sector. Available at: <https://www.rvo.nl/files/file/2023-06/Panama%20Maritime%20and%20Logistics%20Report%202023.pdf>.
- 25 Ibid.
- 26 Ibid.
- 27 Canal de Panamá (n.d.) Learn about the history of the Panama Canal: How does it work. Available at: <https://pancanal.com/en/history-of-the-panama-canal/>.
- 28 Los Angeles Times (2023) Column: The Panama Canal is running dry. That's the U.S.' fault and the U.S.' problem. Available at: <https://www.latimes.com/opinion/story/2023-09-18/panama-canal-drought-climate-change-deniers>.
- 29 Los Angeles Times (2023) Column: The Panama Canal is running dry. That's the U.S.' fault and the U.S.' problem. Available at: <https://www.latimes.com/opinion/story/2023-09-18/panama-canal-drought-climate-change-deniers>.
- 30 Reuters (2023) Panama Canal water levels at historic lows, restrictions to remain. Available at: <https://www.reuters.com/world/americas/panama-canal-water-levels-historic-lows-restrictions-remain-2023-09-06/>.
- 31 Wired (2020) The Panama Canal is running out of water. Available at: <https://www.wired.co.uk/article/panama-canal-climate-change>.
- 32 World Bank 'Carbon Revenues From International Shipping: Enabling an Effective and Equitable Energy Transition' (World Bank 2022). Available at: <https://www.worldbank.org/en/topic/transport/publication/carbon-revenues-from-international-shipping>.
- 33 IMO, 'Status of Conventions' Retrieved from Status of Conventions ([imo.org](https://www.imo.org)).
- 34 IMO (2023) Mr. Arsenio Dominguez (Panama) elected as IMO Secretary-General. Available at: [https://www.imo.org/en/MediaCentre/PressBriefings/pages/Mr--Arsenio-Dominguez-\(Panama\)-elected-as-IMO-Secretary-General.aspx](https://www.imo.org/en/MediaCentre/PressBriefings/pages/Mr--Arsenio-Dominguez-(Panama)-elected-as-IMO-Secretary-General.aspx).
- 35 MTCC Latin America (n.d.) About Us. Available at: <https://mtcclatinamerica.com/about-us-2.html>.