**COURSEWORK SUPPORT**

**INTERNATIONAL MARITIME LAW**

**‘THE 1972 LONDON DUMPING CONVENTION AND "MARPOL" NORMS ARE NOT DESIRABLE BUT FATALLY NECESSARY FOR REGULATING MARITIME POLLUTION.’ - A CRITICAL DISCUSSION**

**QUESTION 3**

Table of Contents

[Introduction 2](#_Toc132652009)

[The 1972 London Dumping Convention and MARPOL 2](#_Toc132652010)

[The traditional approach to dumping regulation 5](#_Toc132652011)

[Analysing the challenges associated with the two conventions while regulating dumping practices 8](#_Toc132652012)

[Gaps in the Conventions and Their Limitations 11](#_Toc132652013)

[Potential solutions and improvements to address these limitations 12](#_Toc132652014)

[Conclusion 14](#_Toc132652015)

[References 16](#_Toc132652016)

# Introduction

The study has witnessed the articulation of the “1972 London Dumping Convention” as well as “MARPOL” norms that are considered instrumental environmental aspects of developed waste management protocols. In this regard, the “1972 London Dumping Convention” is considered one of the “first global conventions” bestowed for the “marine environment” from “human activities”. The convention aims to prevent marine pollution from being susceptible to the “dumping of wastes” and other matter. The intervention has been upheld by promoting “effective control of all sources” of “marine pollution”. On the other hand, the “Marine Pollution ("MARPOL")” has been considered a governing institution mandated under the “International Convention for the Prevention of Pollution from Ships 1973” for preventing pollution to the marine ecosystem. In this regard, the study has articulated a detailed explanation of these norms along with an analysis of these conventions while regulating dumping practices. This signifies that the unprecedented potential challenges that are subject to impact the marine ecosystems have shed corresponding knowledge for enlightening the intellect of the readers in this study. On the other hand, the precise concepts required for curbing maritime pollutants caused by ships and other carrier vessels have been articulated in this study. Furthermore, the study has provided relevant acts and regulatory norms, which have been instrumental for the controllers of the convention to integrate effective strategies for developing the potential to reduce marine pollution.

# The 1972 London Dumping Convention and MARPOL

The marine shipping industry has been considered as the important one that helps to enhance international trade as well as transport products all around the world. Therefore, this improves the export and import facilities of the country which have made a positive impact on the country's GDP percentages. However, the main problems arose when there have seen deliberate disposal of wastes and other pollutants from vessels, and aircraft in the sea which has resulted in an increasing amount of pollution in the environment. Thus, this ***“1972 London Dumping Convention”*** has been created as an international treaty which has aimed to “protect the marine environment” from “pollution” caused by ocean dumping[[1]](#footnote-2). The main objectives of this law are to increase the safety of the sea from “human activities” and “promote the control” of “marine pollution” by maintaining the “dumpling of the materials”. Furthermore, in the year 1996 the ***“London Protocols”*** agreed and modernised that under these protocols all dumping has prohibited except for “dredged materials”, “fish wastes”, and “organic material of natural origin”[[2]](#footnote-3). The purpose of the “London Convention” has included contracting third parties to prevent maritime pollution and reduce the hazards to a great extent. In this context, the “black and grey list approaches” are applied to the wastages and the “blacklist” items are prohibited from dumping at the sea. Apart from this, the dumping of “grey list materials” has required special rules and permits from the designated ***“national authority*** “where there has required to certain conditions are met in a systematic manner. Contrarily, every vessel in the sea regardless of their size has generated oil wastages that have fetched a negative impact on the species living in the sea by polluting the water particles. Therefore, the ***“international convention for the Prevention of Pollution from Ships 1973”*** is referred to as the “MARPOL” which creates an “organic regulation” for ensuring the safety of the sea[[3]](#footnote-4). The main thing is that this ***“MARPOL convention”*** has consisted of ***“six implemented annexe”*** that has improved the seawater by eliminating and controlling marine pollution.

Besides this, the six annexes have dealt with several factors such as ***“Annexe 1”*** has developed regulations for oil pollution. The main purpose of ***“annexe 2”*** has focused on controlling the hazard pollution creates by these liquid substances[[4]](#footnote-5). In this context, ***“annexe III”*** has prevented pollution that has been carried at the sea in packaged forms and the ***“annexe IV”*** has dealt with the issues of materials that have sewage from different ships. Moreover, ***“annexe V and VI”*** has focussed on the issues of preventing garbage from ships and controlling air pollution as well. Therefore, it can be stated that the annexure of the “MARPOL convention” has addressed different types of pollutants from ships and ensures less pollution and the safety of the water. ***“London Convention and Protocol contracting parties”*** have also focused on adopting a framework for developing scientific research that provides a detailed plan for “environmental assessments”[[5]](#footnote-6). The proper step for risk management has engaged with the licensing, compliances as well as field monitoring of all the necessary factors. In this context, ***“article 6”*** of the “maritime regulation” has designed the rules and protocols to deal with the safety of the seawater by focusing on reducing the pollutants from vessels and humans at the sea level. Besides this, when the “London protocols” have come into force there has seen many regional agreements have come to force. The main purposes of these laws have mainly included designing ***“global rules”*** on dumpling issues to improve the lives of the species on the seas. The ***“national waste management strategies”*** has covered all the sources of pollution in the marine environment and addressed pollution by oil from the ships such as hazardous materials and chemicals.

On the contrary, the main problems have mainly arisen when the amount of garbage has increased and this has made a negative impact on the seawater and species. Therefore, this ***“London dumpling convention”*** has been seen as beneficial because it allowed and ensures that waste is reduced, and recycled that increasing economic efficiency[[6]](#footnote-7). The main factor is that under these protocols the dumping sites are effectively monitored so that all the necessary stages have been taken at the early stages. The guidance on the ***“national implementation of London protocols”*** has created an outline of several types of actions that better analyse the degraded materials in the marine environment[[7]](#footnote-8). The best part about this protocol is that it has provided ideas related to the sampling plan and assists the parties with the application of “technological techniques” to deal with sea pollution in an effective manner. Apart from this, the “London protocols” facilitates international treaty and relations by allowing international bodies to exchange the relevant information related to ***“coastal management issues”***. Therefore, by eliminating the dumping of different types of hazardous elements this protocol has minimised the pollutants created by vessels and industrial as well as radioactive wastage. This protocol has also taken action to address marine issues such as plastic pollution and advancing climate change issues. This is also considered as the ***“first global treaty”*** to improve the control for “marine geo engineering activities” including “ocean fertilization”[[8]](#footnote-9). Contrarily, the ***“MARPOL protocols”*** by maintaining the “six technical annexe” have applied to all the ships with the ***“flag of state members”*** that operated with “hydrofoil boats”, “air-cushion vehicles”, “floating crafts” in the sea. The other advantages of this protocol included that it has always focused on the “international maritime dangerous goods code” (IMDG) that separated the goods into various categories. Therefore, by analysing the harmful substances marine pollution has been reduced and provides a better atmosphere for aquatic life as well. The “MARPOL” regulations have also divided the harmful substances in the marine environment into ***three categories*** such as ***X, Y, and Z [[9]](#footnote-10)***. In this context, the X threats are related to those factors that have imposed huge threats as compared to Y and Z categories. Therefore, it can be stated that international trade and transport have majorly dependent on maritime transportation, therefore there has developed a high chance of pollution. Hence, the adoption of the “London Dumping Convention and MARPOL” by focusing on reducing pollution has ensured the safety of the seawater in the best possible manner.

# The traditional approach to dumping regulation

The WTO has laid stress on determining the interventions acknowledged by the government for taking necessary measures to “control the dumping of waste”. In this context, the corresponding traditional approaches to dumping regulation have been instrumental in enforcing the***“Anti-Dumping Agreement”***[[10]](#footnote-11). This agreement has been devised for entailing the approaches of respective “Countervailing Measures” and “Subsidies” for regulating the prevention of oil and related disposal of waters into aquatic bodies. On the other hand, ***“Article 6” of the “GATT regulation”***is focused on mandating overarching tactics to take action against dumping[[11]](#footnote-12). Moreover, the article has focused on “binding a tariff” and not “discriminating between trading partners” as per the “GATT” principles. This signifies that the traditional approaches associated with anti-dumping action have laid stress on charging extra expenses associated with import duty on a particular product for normalising the prices[[12]](#footnote-13). In addition, the article has been instrumental in focusing on the removal of “injury to domestic industry” in the “importing country” as well. In this context, the enforcement of the "MARPOL" has been indispensable in initiating a flagship with the “IMO” for mandating potential measures to evade the marine ecosystem from being polluted from accidental and operational discharges of effluents into the sea. In this regard, the traditional approaches associated with the convention included the regulation and measuring the rates of pollution and amalgamating the insights of segregated nations to come closer and sort out a bespoke plan[[13]](#footnote-14). The interventions can generate bespoke outcomes owing to the intervention undertaker discontinuing the ill practices which are subject to harm to both flora and fauna. Moreover, the traditional practices include the acknowledgement of the discharging which is to be evaluated by "MARPOL" in controlling pollution caused by the discharge of noxious liquid substances accumulated in bulk.

The traditional approach to dumping regulations apprehended by the “1972 London Dumping Convention” has included its contribution towards prohibiting the dumping of certain hazardous materials into the water bodies. On the other hand, the initiation of “control and prevention” of “marine pollution” has been held before the dumping of several other identified materials as well. In this regard, the convention has provided for the banning of incineration at sea of industrial wastes as well as phasing out the dumping of industrial wastes as its traditional approach[[14]](#footnote-15). On the other hand, the convention has provided for focusing on initiating a “precautionary approach” which is concerned with necessitating the adoption of preventative measures, which are to be acknowledged for reducing the harm caused to the marine ecosystem. The corresponding enforcement has been instrumental in consolidating a “causal relation” between “inputs and their effects”[[15]](#footnote-16). Moreover, the traditional approaches included the emphasis towards contracting parties for ensuring that relevant protocols are not just enforced for transferring the harmful effluents from transferring from one location to the other.

The enforcement of the London Convention has been significantly outstanding for intervening in the steps to mitigate the impacts of increasing concentrations of CO2 in the atmosphere. The consequent measures undertaken for controlling the marine ecosystem have been a major player towards reengineering the changes in the climate[[16]](#footnote-17). This intervention was acknowledged for imposing the implementation of new technologies that aim to control and regulate adequate attributes of the marine ecosystem. The respective instrumental this acknowledged in advancing corresponding regulatory instruments, which can be considered key regulation enforced for addressing carbon capture and sequestration in sub-sea geological formations. On the other hand, the determination of the approaches for enforcing international regulatory instruments has been instrumental in addressing carbon capture and sequestration in sub-sea geological formations and marine climate engineering.

The traditional approaches undertaken by ***"MARPOL"*** are concerned with reversing the discharge of garbage into the sea as articulated in regulations **3, 4, 5 and 6 of the Annex.** On the other hand, **Regulation 7** of the annexe deals with the provision of limited exceptions to these regulations in emergency and non-routine situations[[17]](#footnote-18). This signifies that the discharge of wastes and harmful effluents into the sea includes the reduction of identified residues in cargo animal carcasses, identified cleaning agents and additives as traditional approaches to conduct the protection of the environment. On the other hand, **Annex V of "MARPOL"** has been significant for the management of technology for fostering adequate evolution, which can generate a periodic review of the status of the marine habitat. Moreover, ***Regulation 8*** has provided for the government to entrust the provision of adequate port reception facilities regarding the reduction of garbage[[18]](#footnote-19). On the contrary, the 1972 London Protocol has provided for installing a ***“precautionary approach”***, which requires “appropriate preventative measures which are to be apprehended accordingly. In this regard, the determination of the fact concerning the dumping of waste is incurred for a valid reason. The causal relation between inputs and their effects is the faces that are causing a serious impact on the top ten marine ecosystems[[19]](#footnote-20). Moreover, the convention has stated that the polluter is to be liable for causing the damage and hence bear the expenses. In addition, the traditional approaches apprehended by ***“The Contracting Parties to the London Convention and Protocol”*** had been instrumental in undertaking respective mitigation measures to counteract the increasing concentrations of harmful gases in the atmosphere. This traditional approach can play a key role in controlling their impact on the water bodies.

# Analysing the challenges associated with the two conventions while regulating dumping practices

**Environmental problems**

The main purpose of the "London Dumping Convention" is to enable the control of all the resources related to marine pollution, as well as prevent the level of pollution in the sea which consists of waste materials. This convention has regulated the "black-and grey-list" approach which is applicable for wastes and considered for the disposal of waste materials[[20]](#footnote-21). However, the process of dumping is prohibited for the items belonging to the blacklist. It has created issues for the convention while regulating organisational procedures to restrict the use of waste materials. The items belonging to the blacklist have been instructed to dump in the environment by using the open dumps[[21]](#footnote-22). These are negatively impactful for the companies as it causes soil pollution and decreases the maintenance of different vegetation abundance. Problems related to the "Marine environment" have hindered the effectiveness of the "London Dumping Convention". Article IV of the convention contains a general prohibition against dumping any “wastes” or incineration into the sea. However, the increase of sewage and wastes from corresponding plants has become a significant issue in tackling the regulation of dumping practices[[22]](#footnote-23). This signifies that the treatment of the wastes has been insignificant in screening out the incineration from being dumped into the sea. Moreover, non-biodegradable particles are found to be plugged into the water system, which has resulted in the manifestation of debris[[23]](#footnote-24). In this context, the enforcement of the conventions has faced severe challenges: the inability of maintaining the flow of marine debris when handling both legal and illegal dumping practices. Furthermore, the inadvertent release of debris from coastal landfills has become difficult for their reduction due to the illegal dumping of waste aided by the presence of roadside litter[[24]](#footnote-25). In this context, the inability of the stakeholders associated with the convention has not been competent to minimise the flow of offshore petroleum and related liquids from flowing into the sea.

**Lack of resources for managing the change in MARPOL**

The UNCLOS (United Nations Convention on the Law of the Sea) of 1982 integrated the "Constitution for the Oceans" in an unprecedented attempt. MARPOL has regulated their prevention control measures to ensure their land-based waste management facilities. Complimentarily to the MARPOL grounds, surveying, as well as monitoring the marine litter can be responsible for discarding fishing gear of the country by the rules facilitated by IOC (International Oceanographic Commission) and FAO (Food and Agriculture Organization)[[25]](#footnote-26). However, in the flag states, the jurisdiction has possessed restrictions, as well as prohibitions in managing international waters. Lacking the resources to ensure the nationality of vessels can prohibit restrictions while enforcing the rules related to waste management. This is an issue for managing the resources such as international waters to fulfil the duty while lacking the resources.

**Issues in upgrading information in MARCOL groups**

The MARPOL parties are required to integrate and maintain their updated information based on their PRFs. Lack of procedures to upgrade the system of information management has hindered the drafting solutions while adopting amendments and regulating “Arctic warrant”[[26]](#footnote-27). The lack of a PRF database has integrated problems in enabling the "London Dumping Convention”. Moreover, there are eight special areas which are designated under MARPOL but the Arctic is not one of them[[27]](#footnote-28). It is a detrimental omission while focusing on expanding the coverage, as well as the capacities of PRFs for plastics dumped in the Arctic. The lack of managerial perspectives between contracting parties has created hindrances in "London Dumping Convention-72". Lack of licence prerequisite has integrated problems for maintaining authoritative and managerial characteristics[[28]](#footnote-29). Limitations in licence have degraded the performance level as the shipment of oil has enhanced the negative effects in the ecosystem of coastal areas. The enforcement of “MARPOL” has included the rise of pollution of the world’s oceans from ships. On the other hand, the impact on marine ecosystems is caused due to the accumulation of garbage, sewage and other wastewater carried within vessels which ultimately pollutes water[[29]](#footnote-30). The hindrances to controlling the treatment of cargoes have been considered challenges faced while enforcing this convention while regulating dumping practices. On the other hand, the non-feasibility to adhere to the early developments in Vessel-Source Pollution Regulation has resulted in hindrances to protecting marine water bodies after the rapid growth of the global economy[[30]](#footnote-31). These hindrances have generated non-compliance to maintain the degree of protection associated with shipping-related pollution. Furthermore, the growing public concern related to the oil discharges from ships has rendered the increased pollution of the sea and marine habitat. In addition, the convention was incompetent to investigate the status of the ability of coastal and port states to maintain their oil discharge[[31]](#footnote-32). As a result, the dumping practices acknowledged by the stakeholders of the convention were not suitable enough to tackle the alteration of the marine ecosystem.

**Lack of classified control of waste products in “1972 London Dumping Convention”**

The means of control of waste products in the "1972 London Dumping Convention" have been hindered due to the managerial problems of concerned authorities. On the other hand, a lack of dimensions in integrating the competitive nature of contracting parties can degrade the performance level of organisations while using durable plastics to maintain the use of fishing nets, as well as ropes for regulating the system of reverse list. The principles of contracting parties can be negatively impactful for the preventive measures while incinerating the access of collecting the fees while dumping the substances near marine and sea pollution[[32]](#footnote-33). Lack of classified control over the waste products can be negatively impactful for the dumping procedure of the products in sea. Lack of integration in regulating marine pollution can limit the control capacity while facilitating opportunities in the platforms of operation and production control. However, amendments have been added to the waste plastics according to “Annex II” of the convention[[33]](#footnote-34). The facilitation of catalogue regarding the hazardous waste products is effective for decreasing the negative impact of measures in the source production of plastic wastes.

# Gaps in the Conventions and Their Limitations

“London dumping protocols and MARPOL” has mainly dealt with certain types of wastage and reducing the pollutants that have been created by different vessels. Therefore, by designing several restrictions minimizes the dumping of waste and improves aquatic life as well. However, this convention has observed some limitations as these protocols have made dumpling of wastages more than ***“de minimal levels of radioactivity”[[34]](#footnote-35) .*** Therefore, this has created problems for the environment and the worst thing has mainly arisen because of the ***limited experience in regulating*** ocean dumping. There have also seen multiple ***“regulatory gaps”*** in these conventions related to regimes that have been considered cross-sectored challenges and improved management. The main things are that the purpose of the protocol is considered as more restrictive as this implies all the dumpling has prohibited except that is recycled and reused in the proper ways. Apart from this, the in this protocol there has observed different parties have attached to improve the marine environment. The purpose of these protocols has included developing well-functioning compliance mechanisms and at the same time addressing emerging issues. In this context, the ***“London Convention parties”*** have not agreed to amend the ***“convention act”*** further to maintain the meeting of the different bodies concurrently. The “MARPOL” convention, in short, is the first ***“global convention”*** to protect the environment from vessel pollution and made hazardous substances[[35]](#footnote-36). Therefore, this law has been seen as beneficial to improve the environment and provided protection to aquatic species. However, all the joining countries in this convention have often lacked knowledge related to the amount of dumping at the sea level. Hence, this has enhanced the problems of “increased radioactivity” that has fetched a negative impact on the environment. The other things that have been identified in “The MARPOL” protocol prohibit the ***carriage of non-compliant fuels*** on ships that have not exceeded 0.50%mm. Therefore, the vessels that have been used for transportation have been compelled to redesign their ships as per the requirement of the rules. The other things are that the “MARPOL” convention act has only ***applied to the ships*** that are under the ***“flag of the state members”.*** Therefore, the countries that have not been attached to this act have often failed to maintain the restrictions related to reducing the pollution in the marine environment. This is seen as another gap that has actually resulted in the pollution of oil substances from the vessels and made a negative impact on the lives of the species as well. Therefore, it can be stated that the “London Convention Act and MARPOL” have provided direction to reduce the “ozone-producing pollution” that has better for human health and the marine environment. However, there has required for the governance of these protocols ensures better safety to minimize pollutants and hazardous elements in a better way.

# Potential solutions and improvements to address these limitations

**Enhancing the knowledge-based dimensions over pollution control**

The knowledge of governing bodies in maintaining the performance level of a pollution-free environment can be required for facilitating pollution control measures. Integrating the campaigns to facilitate the knowledge about governing bodies can be beneficial for enhancing the effectiveness of the measures in pollution control[[36]](#footnote-37). Effective investment in waste management can be ensured for formulating the dimensions of pollution control in marine environments. Efficiency in energy use can be effective in using environment-friendly resources while undertaking measures for fuel control[[37]](#footnote-38). The air quality can be improved by strengthening the role of UNEP to reduce the use of plastic products and maintain sustainable mobility[[38]](#footnote-39). Sustainable mobility of the environment can be considered for maintaining the impacts of global solutions in reducing the use of waste products. Facilitating quality education is helpful for managing the solutions while deploying the resources and maintaining energy utilisation in terms of promoting sustainable lifecycles.

**Upgrading the performance level of countries in maintaining the net-zero carbon emissions**

The enhancement of performance levels can be effective for formulating strategies in maintaining "net-zero carbon emissions". Reduction of plastic use and the waste dumps in oceans can be fruitful for countries in reducing their carbon emissions[[39]](#footnote-40). Clear maintenance of baselines and focusing on emission reductions can be fruitful for upgrading the performance level of companies in maintaining “net-zero carbon emissions”. The roadmap to facilitate “net-zero carbon emissions” can be provided to all the countries in order to upgrade the level of performance and ensure carbon offsetting. Conventions can be passed with appropriate arrangements in order to facilitate effective action plans. For instance, the commitment of the government of the UK to “net-zero emissions” by the year 2050 can be regulated for ensuring equal access to reduce the waste dumps in the oceans[[40]](#footnote-41). The carriage of fuels can be regulated with the help of airways in order to reduce the negative impacts on the oceans in the marine sectors.

**Regulating strict protocols and rules while dumping the wastes**

Strict protocols can be managed by the governing bodies for managing the dumping of waste. It is effective for managing the strict protocols and their maintenance for the governing bodies to manage the negative impacts of high pollution rates in countries[[41]](#footnote-42). The strict maintenance of these protocols can be managed by minimising the use of hazardous chemicals in nature. Pollution measures and waste management of different organisational sectors can be done efficiently in order to ensure the safety of countries while facilitating the conventions. The “Resource Conservation and Recovery Act (RCRA) 1976” can be effective for regulating the maintenance of “solid waste disposal”[[42]](#footnote-43). Pipeline of waste materials and disposal systems can be formulated to ensure resource conservation and safety administration. The challenges in regulating the dumping of waste products can be maintained in order to reduce the negative impact of disposal systems[[43]](#footnote-44). Strict regulations in dumping wastes can be managed in order to formulate the advanced responsibility to eliminate the transport of hazardous materials.

**Utilising the governing support**

The governing support can be utilised to reduce the negative impact of dumping wastes while formulating the disposal maintenance system. The funds allocated by governing bodies to use the non-compliant fuels can be used for maintaining effective governing support in terms of reducing pollution level[[44]](#footnote-45). On the other hand, the challenge in maintaining regulatory dimensions can be covered in an efficient manner to degrade the performance level of organisations in reducing the waste. The protection of aquatic species can be formulated to ensure the utilisation of water transports and regulate the governing support for decreasing the level of pollution[[45]](#footnote-46). The level of increased radioactivity in the oceans can be managed by utilising the funds allocated for waste management programs.

# Conclusion

It can be concluded that the facilities of export and import can be managed to ensure the grounds of protocol arrangements in controlling the pollution level. Optimising solutions related to maintaining governing bodies can be effective for reducing the emergence of dumps while maintaining the increase in pollution level. The protocols of “1972 London Dumping Convention” have prohibited the dumping of all conventions such as “fish wastes”, “dredged materials”, and “organic material of natural origin”. These protocols are effective for maintaining the standards of waste management protocols while prohibiting the dumping of wastes in seas. Elimination of “grey list materials” has integrated special rules in formulating the effective workforce which can enhance the performance level in certain demographic conditions.

According to the “MARPOL convention”, the six placements of conventions have been regulated in order to deploy the objectives required for eliminating the pollution and the measures for “ocean fertilisation”. It is effective for promoting the vehicles which have a role in formulating the ideas and the codes for ensuring effective contingency of regulatory bodies while managing the deployment of conventions. The agreement between state members in London has been managed with deploying the treaty for different maritime activities. It is effective for formulating the rules which ensures the maintenance of “regulatory gaps” during the social convention. The pollution caused by vessels and their non-effective uses can be hindered with the effective maintenance of pollution rate through decreasing the high amount of dumping in the seas.

# References

***Journals***

Aadhirai, S., Mrs Rr Sornalakshmi, and Ms Jayapreethi Manoharan. "Public Opinion on the Impacts of Marine Dumping in India." Baltic Journal of Law & Politics 15.4 (2022): 1006-1015.

Andeobu, Lynda, Santoso Wibowo, and Srimannarayana Grandhi. "Medical waste from COVID-19 pandemic—a systematic review of management and environmental impacts in Australia." International Journal of Environmental Research and Public Health 19.3 (2022): 1381.

Buhalis, Dimitrios, Peter O’Connor, and Rosanna Leung. "Smart hospitality: from smart cities and smart tourism towards agile business ecosystems in networked destinations." International Journal of Contemporary Hospitality Management 35.1 (2023): 369-393.

Dumbili, Emeka, and Lesley Henderson. "The challenge of plastic pollution in Nigeria." Plastic Waste and Recycling. Academic Press, 2020. 569-583.

Dunlop, Claire A., et al. "Does consultation count for corruption? The causal relations in the EU-28." Journal of European Public Policy 27.11 (2020): 1718-1741.

Erostate, M., et al. "Groundwater dependent ecosystems in coastal Mediterranean regions: Characterization, challenges and management for their protection." Water research 172 (2020): 115461.

Ferraro, Gianluca, and Pierre Failler. "Governing plastic pollution in the oceans: Institutional challenges and areas for action." Environmental Science & Policy 112 (2020): 453-460.

Katare, Yasharth, et al. "Microplastics in aquatic environments: Sources, ecotoxicity, detection & remediation." Biointerface Res. Appl. Chem 12 (2021): 3407-3428.

Lewins, Kate. "The regulation of air pollution from ships: MARPOL Annex VI, Sulphur 2020, particulate emissions and emerging challenges." Australian and New Zealand Maritime Law Journal (2019).

Li, Yingying. "Scientific Uncertainty of Marine Microplastic Pollution and the Dilemma of Future International Unified Legislation." International Journal of Environmental Research and Public Health 19.24 (2022): 16394.

Maqsood, Muhammad, and Gunnar Seide. "Biodegradable flame retardants for biodegradable polymer." Biomolecules 10.7 (2020): 1038.

Matin, Asif, et al. "Fouling control in reverse osmosis for water desalination & reuse: Current practices & emerging environment-friendly technologies." Science of the total Environment 765 (2021): 142721.

Nielsen, Tobias D., et al. "Politics and the plastic crisis: A review throughout the plastic life cycle." Wiley Interdisciplinary Reviews: Energy and Environment 9.1 (2020): e360.

Osaloni, Oluwatosin Sunday. The Legal Regulation of Port Waste Management in the United Kingdom and Nigeria: Comparative Analysis of Southampton Port in the UK and Apapa Port in Nigeria. Diss. University of Central Lancashire, 2019.

Osmundsen, Lori. "Port reception facilities and a regional approach: A bridge for abating plastic pollution in the arctic?." Marine Policy 148 (2023): 105436.

Osmundsen, Lori. "Port reception facilities and a regional approach: A bridge for abating plastic pollution in the arctic?." Marine Policy 148 (2023): 105436.

Prajapati, Kishan Kumar, et al. "An overview of municipal solid waste management in Jaipur city, India-Current status, challenges and recommendations." Renewable and Sustainable Energy Reviews 152 (2021): 111703.

Sharma, Akanksha. "The Disregarded Dilemma of Ocean Dumping." Supremo Amicus 18 (2020): 78.

Sharma, Eliza, and Subhankar Das. "Measuring impact of Indian ports on environment and effectiveness of remedial measures towards environmental pollution." International Journal of Environment and Waste Management 25.3 (2020): 356-380.

Sherazi, Sadia. "Mechanism of Marine Pollution-The Case of Pakistan." Journal of Nautical Eye and Strategic Studies 2.2 (2022): 38-55.

Stelzenmüller, Vanessa, et al. "Operationalizing risk-based cumulative effect assessments in the marine environment." Science of the Total Environment 724 (2020): 138118.

Thaker, Mohamed Asmy Mohd Thas, et al. "WAQF LAND AND SUKUK FRAMEWORK FOR WASTE DISPOSAL MANAGEMENT–A CONCEPTUAL STUDY." Labuan e-Journal of Muamalat and Society (LJMS) 16 (2022): 1-12.

Wan, Shuyan, et al. "Emerging marine pollution from container ship accidents: Risk characteristics, response strategies, and regulation advancements." Journal of Cleaner Production (2022): 134266.

Wang, Yuhui, and Shahzada Aamir Mushtaq. "The role of China for trade Liberalization and competition policy after WTO accession; National Security vs. Anti-Dumping agreement, What ailing the WTO?." Journal of Contemporary Issues in Business and Government Vol 27.06 (2021).

Wiering, Mark, et al. "The wicked problem the water framework directive cannot solve. The governance approach in dealing with pollution of nutrients in surface water in The Netherlands, Flanders, Lower Saxony, Denmark and Ireland." Water 12.5 (2020): 1240.

Xu, Ting, et al. "Wetlands of international importance: Status, threats, and future protection." International Journal of Environmental Research and Public Health 16.10 (2019): 1818.

Zhu, Zhiping, et al. "Integrated livestock sector nitrogen pollution abatement measures could generate net benefits for human and ecosystem health in China." Nature Food 3.2 (2022): 161-168.

***Websites***

Epa.gov, *‘Regulatory and Guidance Information by Topic: Waste’* (2023). <https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste> accessed 17 April 2023

Frontiersin.org, ‘The Role of Legislation, Regulatory Initiatives and Guidelines on the Control of Plastic Pollution’ (2023). <https://www.frontiersin.org/articles/10.3389/fenvs.2020.00104/full> accessed 17 April 2023

Imo.org, ‘Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter’, (2023), <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx> accessed 17 April 2023

Imo.org, *‘Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter’* (2023). <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx> accessed 17 April 2023

Imo.org, ‘International Convention for the Prevention of Pollution from Ships (MARPOL)’, (2023), <https://www.imo.org/en/about/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx> accessed 17 April 2023

Marpoltraining.com, ‘Regulation 8 - Port State control on operational requirements\*’, (2023), <http://www.marpoltraining.com/MMSKOREAN/MARPOL/Annex\_III/r8.htm> accessed 17 April 2023

Parliament.uk, *‘Mission zero: Independent review of net zero’* (2023). <https://lordslibrary.parliament.uk/mission-zero-independent-review-of-net-zero/#:~:text=The%20'net%20zero%20target'%20refers,the%20UK%20from%20the%20environment.> accessed 17 April 2023

Sice.oas.org, ‘Article VI’, (2023), <http://www.sice.oas.org/trade/ur\_round/58a.asp> accessed 17 April 2023

Unep.org, *‘A Global response to Pollution*’ (2023). <https://www.unep.org/beatpollution/global-response-pollution> accessed 17 April 2023

Wto.org, ‘Anti-dumping actions’, (2023), <https://www.wto.org/english/thewto\_e/whatis\_e/tif\_e/agrm8\_e.htm> accessed 17 April 2023

Www.epa.gov, ‘THE CONTRACTING PARTIES TO THIS PROTOCOL’ <(2023)https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>accessed 17 april, 2023

Www.iaea.org, ‘Sea disposal of radioactive wastes’<https://www.iaea.org/sites/default/files/publications/magazines/bulletin/bull36-2/36205981216.pdf>accessed 17 april, 2023

Www.imo.org,’MARPOL.’ (2023)<https://www.imo.org/en/KnowledgeCentre/ConferencesMeetings/pages/Marpol.aspx>accessed 17 April, 2023

Wwwcdn.imo.org, ‘LONDON DUMPING CONVENTION.’(2023)< https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/ConferencesMeetings/Documents/London%20Dumping%20Convention%20%E2%80%93%20The%20First%20Decade%20and%20Beyond%20(2).pdf> accessed 17 April, 2023

1. Wwwcdn.imo.org, ‘LONDON DUMPING CONVENTION.’(2023)< https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/ConferencesMeetings/Documents/London%20Dumping%20Convention%20%E2%80%93%20The%20First%20Decade%20and%20Beyond%20(2).pdf> accessed 17 April, 2023 [↑](#footnote-ref-2)
2. Ferraro, Gianluca, and Pierre Failler. "Governing plastic pollution in the oceans: Institutional challenges and areas for action." Environmental Science & Policy 112 (2020): 453-460. [↑](#footnote-ref-3)
3. Www.imo.org,’MARPOL.’ (2023)<https://www.imo.org/en/KnowledgeCentre/ConferencesMeetings/pages/Marpol.aspx>accessed 17 April, 2023 [↑](#footnote-ref-4)
4. Osaloni, Oluwatosin Sunday. The Legal Regulation of Port Waste Management in the United Kingdom and Nigeria: Comparative Analysis of Southampton Port in the UK and Apapa Port in Nigeria. Diss. University of Central Lancashire, 2019. [↑](#footnote-ref-5)
5. Aadhirai, S., Mrs Rr Sornalakshmi, and Ms Jayapreethi Manoharan. "Public Opinion on the Impacts of Marine Dumping in India." Baltic Journal of Law & Politics 15.4 (2022): 1006-1015. [↑](#footnote-ref-6)
6. Sharma, Akanksha. "The Disregarded Dilemma of Ocean Dumping." Supremo Amicus 18 (2020): 78. [↑](#footnote-ref-7)
7. Www.epa.gov, ‘THE CONTRACTING PARTIES TO THIS PROTOCOL’ <(2023)https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>accessed 17 april, 2023 [↑](#footnote-ref-8)
8. Www.epa.gov, ‘THE CONTRACTING PARTIES TO THIS PROTOCOL’ <(2023)https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>accessed 17 april, 2023 [↑](#footnote-ref-9)
9. Www.epa.gov, ‘THE CONTRACTING PARTIES TO THIS PROTOCOL’ <(2023)https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>accessed 17 april, 2023 [↑](#footnote-ref-10)
10. Wto.org, ‘Anti-dumping actions’, (2023), <https://www.wto.org/english/thewto\_e/whatis\_e/tif\_e/agrm8\_e.htm> accessed 17 April 2023 [↑](#footnote-ref-11)
11. Sice.oas.org, ‘Article VI’, (2023), <http://www.sice.oas.org/trade/ur\_round/58a.asp> accessed 17 April 2023 [↑](#footnote-ref-12)
12. Wang, Yuhui, and Shahzada Amir Mushtaq. "The role of China for trade Liberalisation and competition policy after WTO accession; National Security vs. Anti-Dumping agreement, What ailing the WTO?." Journal of Contemporary Issues in Business and Government Vol 27.06 (2021). [↑](#footnote-ref-13)
13. Wiering, Mark, et al. "The wicked problem the water framework directive cannot solve. The governance approach in dealing with pollution of nutrients in surface water in The Netherlands, Flanders, Lower Saxony, Denmark and Ireland." Water 12.5 (2020): 1240. [↑](#footnote-ref-14)
14. Osmundsen, Lori. "Port reception facilities and a regional approach: A bridge for abating plastic pollution in the arctic?." Marine Policy 148 (2023): 105436. [↑](#footnote-ref-15)
15. Dunlop, Claire A., et al. "Does consultation count for corruption? The causal relations in the EU-28." Journal of European Public Policy 27.11 (2020): 1718-1741. [↑](#footnote-ref-16)
16. Buhalis, Dimitrios, Peter O’Connor, and Rosanna Leung. "Smart hospitality: from smart cities and smart tourism towards agile business ecosystems in networked destinations." International Journal of Contemporary Hospitality Management 35.1 (2023): 369-393. [↑](#footnote-ref-17)
17. Imo.org, ‘International Convention for the Prevention of Pollution from Ships ("MARPOL")’, (2023), <https://www.imo.org/en/about/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-("MARPOL").aspx> accessed 17 April 2023 [↑](#footnote-ref-18)
18. Marpoltraining.com, ‘Regulation 8 - Port State control on operational requirements\*’, (2023), <http://www.marpoltraining.com/MMSKOREAN/MARPOL/Annex\_III/r8.htm> accessed 17 April 2023 [↑](#footnote-ref-19)
19. Stelzenmüller, Vanessa, et al. "Operationalizing risk-based cumulative effect assessments in the marine environment." Science of the Total Environment 724 (2020): 138118. [↑](#footnote-ref-20)
20. Imo.org, ‘Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter’ (2023). <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx> accessed 17 April 2023 [↑](#footnote-ref-21)
21. Frontiersin.org, ‘The Role of Legislation, Regulatory Initiatives and Guidelines on the Control of Plastic Pollution’ (2023). <https://www.frontiersin.org/articles/10.3389/fenvs.2020.00104/full> accessed 17 April 2023 [↑](#footnote-ref-22)
22. Prajapati, Kishan Kumar, et al. "An overview of municipal solid waste management in Jaipur city, India-Current status, challenges and recommendations." Renewable and Sustainable Energy Reviews 152 (2021): 111703. [↑](#footnote-ref-23)
23. Maqsood, Muhammad, and Gunnar Seide. "Biodegradable flame retardants for biodegradable polymers." Biomolecules 10.7 (2020): 1038. [↑](#footnote-ref-24)
24. Dumbili, Emeka, and Lesley Henderson. "The challenge of plastic pollution in Nigeria." Plastic Waste and Recycling. Academic Press, 2020. 569-583. [↑](#footnote-ref-25)
25. Frontiersin.org, ‘The Role of Legislation, Regulatory Initiatives and Guidelines on the Control of Plastic Pollution’ (2023). <https://www.frontiersin.org/articles/10.3389/fenvs.2020.00104/full> accessed 17 April 2023 [↑](#footnote-ref-26)
26. Osmundsen, Lori. "Port reception facilities and a regional approach: A bridge for abating plastic pollution in the arctic?." Marine Policy 148 (2023): 105436. [↑](#footnote-ref-27)
27. Osmundsen, Lori. "Port reception facilities and a regional approach: A bridge for abating plastic pollution in the Arctic?." Marine Policy 148 (2023): 105436. [↑](#footnote-ref-28)
28. Sherazi, Sadia. "Mechanism of Marine Pollution-The Case of Pakistan." Journal of Nautical Eye and Strategic Studies 2.2 (2022): 38-55. [↑](#footnote-ref-29)
29. Katare, Yasharth, et al. "Microplastics in aquatic environments: Sources, ecotoxicity, detection & remediation." Biointerface Res. Appl. Chem 12 (2021): 3407-3428. [↑](#footnote-ref-30)
30. Erostate, M., et al. "Groundwater dependent ecosystems in coastal Mediterranean regions: Characterization, challenges and management for their protection." Water research 172 (2020): 115461. [↑](#footnote-ref-31)
31. Sharma, Eliza, and Subhankar Das. "Measuring impact of Indian ports on environment and effectiveness of remedial measures towards environmental pollution." International Journal of Environment and Waste Management 25.3 (2020): 356-380. [↑](#footnote-ref-32)
32. Li, Yingying. "Scientific Uncertainty of Marine Microplastic Pollution and the Dilemma of Future International Unified Legislation." International Journal of Environmental Research and Public Health 19.24 (2022): 16394. [↑](#footnote-ref-33)
33. Li, Yingying. "Scientific Uncertainty of Marine Microplastic Pollution and the Dilemma of Future International Unified Legislation." International Journal of Environmental Research and Public Health 19.24 (2022): 16394. [↑](#footnote-ref-34)
34. Www.epa.gov, ‘THE CONTRACTING PARTIES TO THIS PROTOCOL’ <(2023)https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>accessed 17 april, 2023 [↑](#footnote-ref-35)
35. Nielsen, Tobias D., et al. "Politics and the plastic crisis: A review throughout the plastic life cycle." Wiley Interdisciplinary Reviews: Energy and Environment 9.1 (2020): e360. [↑](#footnote-ref-36)
36. Zhu, Zhiping, et al. "Integrated livestock sector nitrogen pollution abatement measures could generate net benefits for human and ecosystem health in China." Nature Food 3.2 (2022): 161-168. [↑](#footnote-ref-37)
37. Matin, Asif, et al. "Fouling control in reverse osmosis for water desalination & reuse: Current practices & emerging environment-friendly technologies." Science of the total Environment 765 (2021): 142721. [↑](#footnote-ref-38)
38. Unep.org, ‘A Global response to Pollution’ (2023). <https://www.unep.org/beatpollution/global-response-pollution> accessed 17 April 2023 [↑](#footnote-ref-39)
39. Thaker, Mohamed Asmy Mohd Thas, et al. "WAQF LAND AND SUKUK FRAMEWORK FOR WASTE DISPOSAL MANAGEMENT–A CONCEPTUAL STUDY." Labuan e-Journal of Muamalat and Society (LJMS) 16 (2022): 1-12. [↑](#footnote-ref-40)
40. Parliament.uk, ‘Mission zero: Independent review of net zero’ (2023). <https://lordslibrary.parliament.uk/mission-zero-independent-review-of-net-zero/#:~:text=The%20'net%20zero%20target'%20refers,the%20UK%20from%20the%20environment.> accessed 17 April 2023 [↑](#footnote-ref-41)
41. Andeobu, Lynda, Santoso Wibowo, and Srimannarayana Grandhi. "Medical waste from COVID-19 pandemic—a systematic review of management and environmental impacts in Australia." International Journal of Environmental Research and Public Health 19.3 (2022): 1381. [↑](#footnote-ref-42)
42. Epa.gov, ‘Regulatory and Guidance Information by Topic: Waste’ (2023). <https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste> accessed 17 April 2023 [↑](#footnote-ref-43)
43. Epa.gov, ‘Regulatory and Guidance Information by Topic: Waste’ (2023). <https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste> accessed 17 April 2023 [↑](#footnote-ref-44)
44. Dhoraisingam Samuel, Shyamala, Sakthi Mahenthiran, and Ravindran Ramasamy. "CSR Disclosures, CSR Awards and Corporate Governance as Determinants of the Cost of Debt: Evidence from Malaysia." International Journal of Financial Studies 10.4 (2022): 87. [↑](#footnote-ref-45)
45. Xu, Ting, et al. "Wetlands of international importance: Status, threats, and future protection." International Journal of Environmental Research and Public Health 16.10 (2019): 1818. [↑](#footnote-ref-46)