

REVISTA DE DIREITO INTERNACIONAL
BRAZILIAN JOURNAL OF INTERNATIONAL LAW

The covid-19 pandemic as an impeller for the aggravation of marine plastic pollution and economic crisis: the reverse effect of health protection measures on human lives

A pandemia COVID-19 como impulsor para o agravamento da poluição marinha por plástico e crise econômica: o efeito reserva das medidas de proteção à saúde em vidas humanas

Adriana Isabelle Barbosa
Lima Sá Leitão

Tarin Cristino Frota Mont'Alverne

VOLUME 18 • N. 2 • 2021

DIREITO INTERNACIONAL ECONÔMICO E A
CRISE SANITARIA DO COVID-19

Sumário

CRÔNICAS.....	13
REIMAGINING INTERNATIONAL RELATIONS TEACHING DURING (AND AFTER) COVID-19	15
Magdalena Bas	
DOSSIÊ TEMÁTICO: DIREITO INTERNACIONAL ECONÔMICO E A CRISE SANITÁRIA DO COVID-19 (INTERNATIONAL ECONOMIC LAW AND THE COVID-19 SANITARY CRISIS).....	19
SOME QUESTIONS ABOUT INTERNATIONAL ECONOMIC LAW RAISED DURING THE PANDEMIC	21
Hervé Ascensio	
INTERNATIONAL ECONOMIC LAW AND THE COVID-19 SANITARY CRISIS: AN INTRODUCTION	27
Julien Chaisse	
TRANSPARÊNCIA E COOPERAÇÃO REGULATÓRIA NO COMÉRCIO INTERNACIONAL DE PRODUTOS MÉDICOS PARA A COVID-19: UMA ANÁLISE DA ATUAÇÃO INSTITUCIONAL DA OMC E DAS NOTIFICAÇÕES DO BRASIL EM OBSERVÂNCIA AOS ACORDOS TBT E SPS	35
Magali Favaretto Prieto Fernandes e Michelle Ratton Sanchez Badin	
O DEVER HUMANO DE PROMOÇÃO DA SAÚDE: A AVIAÇÃO COMERCIAL INTERNACIONAL EM PERÍODOS DE CALAMIDADE SANITÁRIA E DO RETORNO À NORMALIDADE	56
Thiago de Oliveira Frizera, Luisa Cortat Simonetti Gonçalves e Adriano Sant’Ana Pedra	
POLICE POWERS DOCTRINE: A RELIABLE STATE DEFENSE IN TIMES OF COVID-19?	73
Thomas Lehmann	
A INEXISTÊNCIA DO CONTROLE PREVENTIVO LEGISLATIVO DE CONVENCIONALIDADE DA MEDIDA PROVISÓRIA N.º 936/2020	91
Danilo Garnica Simini, Gabriel Carvalho Moreira e Rafaela Souza Machado	

A CRITICAL ANALYSIS OF THE IMPLICATIONS OF COVID-19 ON PIRACY OFF THE NIGERIAN COAST.....	108
Kalu Kingsley Anele	
THE COVID-19 PANDEMIC AS AN IMPELLER FOR THE AGGRAVATION OF MARINE PLASTIC POLLUTION AND ECONOMIC CRISIS: THE REVERSE EFFECT OF HEALTH PROTECTION MEASURES ON HUMAN LIVES	135
Adriana Isabelle Barbosa Lima Sá Leitão e Tarin Cristino Frota Mont'Alverne	
ARTIGOS SOBRE OUTROS TEMAS	154
O DIREITO INTERNACIONAL HUMANITÁRIO NOS PARECERES CONSULTIVOS DA CORTE INTERNACIONAL DE JUSTIÇA: UMA CONJUGAÇÃO DE PERSPECTIVAS UTÓPICAS E APOLOGÉTICAS	156
Talis Prado Pinto Junior e Arthur Roberto Capella Giannattasio	
CONTESTING IMMUNITIES IN THE INTERNATIONAL CRIMINAL COURT: AN ANALYSIS OF THE RULINGS OF THE PRE-TRIAL CHAMBERS AND THE APPEALS CHAMBER IN AL BASHIR CASE AND ITS OUTCOMES.....	171
Luisa Giannini e Roberto Vilchez Yamato	
RUMO À PROFISSIONALIZAÇÃO DA PREVENÇÃO DE CONTROVÉRSIAS NOS ACORDOS DE COOPERAÇÃO E FACILITAÇÃO DE INVESTIMENTOS (ACFIs) DO BRASIL?	191
Nitish Monebhurrun e Leonardo Vieira Arruda Achtschin	
THE PREVENTIVE CHARACTER OF DISASTER LAW: TAX INCENTIVES IN ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) INVESTMENTS AS A RISK MITIGATION MECHANISM.....	212
Daniel Dela Coleta Eisaqui e Deilton Ribeiro Brasil	
A URGÊNCIA DE UM MODELO DE GOVERNANÇA INTERNACIONAL DA ÁGUA: ELEMENTOS PARA A DISCUSSÃO	235
José Irivaldo Alves Oliveira Silva	
O FIM DA HIERARQUIA SUPRALEGAL DOS TRATADOS INTERNACIONAIS: ANÁLISE DA ADI N.º 5.543/2020-DF: À LUZ DA TEORIA ARGUMENTATIVA DE NEIL MACCORMICK.....	263
Ana Maria D'Ávila Lopes e Patrícia K. de Deus Ciríaco	

OS DIREITOS HUMANOS FRENTE À NORMATIVIDADE “IMPERIAL” E A RESPONSABILIDADE DAS EMPRESAS TRANSNACIONAIS POR VIOLAÇÃO AOS DIREITOS HUMANOS NA ERA DO “IMPÉRIO”280

Fernando Hoffmam e Jose Luis Bolzan de Morais

O RECONHECIMENTO FACIAL NAS SMART CITIES E A GARANTIA DOS DIREITOS À PRIVACIDADE E À PROTEÇÃO DE DADOS PESSOAIS.....302

Diogo Dal Magro e Vinícius Borges Fortes

O DESENVOLVIMENTO HISTÓRICO DA PROSCRIÇÃO DO DESAPARECIMENTO FORÇADO DE PESSOAS E SUA FENOMENOLOGIA NO DIREITO PENAL INTERNACIONAL E NO DIREITO INTERNACIONAL DOS DIREITOS HUMANOS 331

Marcus Vinícius Xavier de Oliveira

CONSTITUCIONALISMO COOPERATIVO GLOBAL E DIREITO INTERNACIONAL PRIVADO: INSTRUMENTOS PARA UMA GOVERNANÇA DE DIREITO TRANSNACIONAL NA INTEGRAÇÃO362

Anderson Vichinkeski Teixeira, Roberto Correia da Silva Gomes Caldas e Luciane Klein Vieira

PROTEÇÃO DA INOVAÇÃO PELA APLICAÇÃO DO DIREITO DA CONCORRÊNCIA DA UNIÃO EUROPEIA: ANÁLISE DA INDÚSTRIA FARMACÊUTICA379

Pablo Leurquin

The covid-19 pandemic as an impeller for the aggravation of marine plastic pollution and economic crisis: the reverse effect of health protection measures on human lives*

A pandemia COVID-19 como impulsor para o agravamento da poluição marinha por plástico e crise econômica: o efeito reserva das medidas de proteção à saúde em vidas humanas

Adriana Isabelle Barbosa Lima Sá Leitão**

Tarin Cristino Frota Mont'Alverne***

* Recebido em 27/02/2021
Aprovado em 05/07/2021

** Mestrado em curso no Programa de Pós-Graduação em Direito da Universidade Federal do Ceará-UFC (2020-atual). Graduação em Direito concluída na Faculdade de Direito da Universidade Federal do Ceará-UFC (2014-2019). Intercâmbio acadêmico realizado na Universidad Nacional del Centro de la Provincia de Buenos Aires-UNCPBA, Argentina (2017). Advogada com experiência na prestação de serviços jurídicos em grandes escritórios, atualmente com foco na área de direito societário. Integrante do Portal Direito Internacional sem Fronteiras (DIsF) como membro da Linha de Pesquisa Direito Internacional Ambiental como Direito Humano e elemento da ordem pública internacional. Pesquisadora do Grupo de Estudos em Direito e Assuntos Internacionais (GEDAI) da UFC, na linha de pesquisa Direito da União Europeia. Integrante dos projetos de pesquisa “Módulo Jean Monnet” e “Estratégias para a gestão sustentável dos resíduos plásticos nos mares e oceanos”.

Email: adrianasaleitoadv@gmail.com

*** Professora da Faculdade de Direito da Universidade Federal do Ceará (UFC). Foi Coordenadora do Programa de Pós-Graduação em Direito da Universidade Federal do Ceará (2016-2019). Foi Vice-Coordenadora do Programa de Pós-Graduação em Direito da Universidade Federal do Ceará (2012-2016). Doutora em Direito Internacional do Meio Ambiente - Université de Paris V e Universidade de São Paulo (2008). Mestre em Direito Internacional Público - Université de Paris V (2004). Coordenadora do Grupo de Estudos em Direito e Assuntos Internacionais (GEDAI). Coordenadora do Projeto de Pesquisa em Direito do Mar. Foi Professora Convidada na Universidade Paris-Saclay, Universidade Paris V e Universidade La Rochelle.

E-mail: tarinfmontalverne@yahoo.com.br

Abstract

The outbreak of the Covid-19 pandemic brought a series of behavioural changes in society, such as the need for social distancing and the use of protective masks or latex gloves. The increasing consumption of these materials has raised a new alert about marine plastic pollution: if, on the one hand, the use of masks and gloves is essential to prevent contamination by the new coronavirus, on the other, it has a direct impact on human health, since that plastic waste, when it reaches the oceans, becomes part of the food chain, and releases its toxins into living organisms, including humans. The damage resulting from these residues inserted in the environment can also be reflected in the world economy as it affects all ecosystem services to some extent, with a reduction in its provision. The present study, therefore, through the inductive method and starting from theoretical and qualitative research, intends to reveal the relationship between marine plastic pollution and its impacts on human well-being and on economy, outlining that the European Union may emerge in a privileged position to lead a transition without plastics in the future, becoming a true model of action to overcome the current scenario.

Keywords: Covid-19; Health Crisis; Ecosystem Services; Marine Plastic Pollution; World Economy; European Union.

Resumo

A eclosão da pandemia Covid-19 trouxe uma série de mudanças comportamentais na sociedade, como a necessidade de distanciamento social e o uso de máscaras protetoras ou luvas de látex. O consumo crescente desses materiais trouxe um novo alerta sobre a poluição marinha por plásticos: se, por um lado, o uso de máscaras e luvas é fundamental para evitar a conta-

minação pelo novo coronavírus, por outro, tem impacto direto em humanos saúde, já que esse lixo plástico, ao chegar aos oceanos, passa a fazer parte da cadeia alimentar, e libera suas toxinas para os organismos vivos, inclusive os humanos. Os danos decorrentes desses resíduos inseridos no meio ambiente também podem se refletir na economia mundial, pois afetam todos os serviços ecossistêmicos em alguma medida, com redução na sua provisão. O presente estudo, portanto, através do método indutivo e a partir de investigação teórica e qualitativa, pretende desvendar a relação entre a poluição marinha por plásticos e os seus impactos no bem-estar humano e na economia, sublinhando que a União Europeia pode emergir numa posição privilegiada. liderar uma transição sem plásticos no futuro, tornando-se um verdadeiro modelo de ação para superar o cenário atual.

Palavras-chave: Covid-19. Crise de saúde. Serviços de ecossistema. Poluição marinha de plástico. Economia mundial. União Europeia.

1 Introduction

The Covid-19 crisis has had its most deleterious effects last year, with the World Health Organization—WHO declaring a pandemic case on March 11, 2020¹. With that, mankind went on alert, starting to seek the implementation of several health protection measures to contain the spread of the virus across borders.

Social detachment and the use of social masks have been socially encouraged precautions², which are essential in this scenario, however, it cannot be denied the adverse effect that such measures have caused on the environment. Scholars conjecture that there may be an average consumption of 129 billion facial masks and 65 billion latex gloves per month, in case the 7.8 billion inhabitants of the planet use these materials³. This re-

presents a huge increase for the already existing overload of plastic waste on the planet.

In this sense, plastic pollution, especially in marine ecosystems, is aggravated due to the sanitary measures adopted and the absence of proper disposal of plastic waste. Within the European Union—EU, efforts and actions are taken to manage the disposal of plastics, especially after the pandemic, however, it has nonetheless been found that disposable gloves and masks have inevitably found the oceans as their final reservoir⁴.

The presence of plastic waste in the seas is proving to be more and more harmful. There are statistics that point out that for the year 2025, the world's oceans are expected to contain one ton of plastic for every three tons of fish and, by 2050, it is conjectured that there are more kilograms of plastics than fish in the world seas⁵.

It is essential, thus, to turn our attention to the management of plastic waste, since these materials, commonly discarded after a single use, can be inserted into the food chain, not being yet certain what is the level of damage that the presence of these micro or nanoparticles can generate in animal organisms, especially in human beings⁶.

In this context, there are normative instruments that already deal with problematic issues related to plastic pollution in the oceans, such as European Strategies and Directives for Plastics, the European Green Deal, the 2030 Agenda for Sustainable Development and the Basel Convention. It appears that these devices are essential mechanisms for overcoming the environmental crisis aggravated by the Covid-19 pandemic insurgency

Access on: 31 Jul. 2020.

⁴ FRANCE INFO. *Effet déconfinement: sur la Côte d'Azur, masques et gants jetables polluent déjà les fonds marins*. Published on 05/24/2020. Available on: <https://france3-regions.francetvinfo.fr/provence-alpes-cote-d-azur/alpes-maritimes/antibes/effet-deconfinement-cote-azur-masques-gants-jetables-polluent-deja-fonds-marins-1832828.html>.

⁵ DIXON, Sean; LEES, Zachary; LESHAK, Andrea. *The Big Apple's Tiny Problem: A Legal Analysis of the Microplastic Problem in the N.Y./N.J. Harbor*. *Roger Williams University Law Review*, v. 22, n. 2, article 5. p. 385-430, 2017. p. 390. Available on: https://docs.rwu.edu/cgi/viewcontent.cgi?article=1629&context=rwu_LR. Access on: 10 Aug. 2020.

⁶ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP FRONTIERS 2016 REPORT: *Emerging Issues of Environmental Concern*. United Nations Environment Programme, Nairobi. ISBN: 978-92-807-3553-6. Job Number: DEW/1973/NA. Available on: https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf.

¹ According to the World Health Organization, COVID-19 can be characterized as a pandemic, the first being caused by a coronavirus.

² WORLD HEALTH ORGANIZATION. *Covid-19 Strategy Update*. 14 April 2020. Geneva, Switzerland. Available on: https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf?sfvrsn=29da3ba0_19.

³ PRATA, Joana C.; SILVA, Ana L.P.; WALKER, Tony R.; DUARTE, Armando C.; SANTOS, Teresa Rocha. COVID-19 Pandemic Repercussions on the Use and Management of Plastics. *Environmental Science & Technology*, v. 54, n. 13, p. 7760–7765 2020. Published on June 12, 2020. <https://doi.org/10.1021/acs.est.0c02178>. Available on: <https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c02178>.

and its preventive health measures, as well as for the implementation of the Sustainable Development Goal 14– SDG 14 and, consequently, for the promotion of human well-being.

The analysis now proposed, therefore, traces the relationship between the Covid-19 pandemic and the environmental crisis, then demonstrating its contribution to the worsening of marine plastic pollution that has direct reflexes and impacts on human health and on the world's economy. It highlights, finally, that there is a financial unfeasibility on maintaining the current patterns of production and consumption of plastics, being the ecological balance essential for a healthy quality of life, for what the protection of the oceans is paramount.

This is theoretical, bibliographic, descriptive, exploratory and qualitative research of national and international bibliography, with priority for recently published scientific articles, in addition to legislation and international documents relevant to the object under analysis.

2 The outbreak of the Covid-19 Pandemic: origin and relation with the environmental crisis

The health crisis caused by the new coronavirus demonstrates, both in its origin and in its impacts, the diverse and interconnected risks, and vulnerabilities to which human beings are subjected⁷. The adversities now faced have led specialists and scientists to investigate the origins of the pathology, with the main aim of achieving success in obtaining a cure and, mainly, preventing future pandemics from threatening human existence again.

The WHO initially reported that the likely source of transmission of the new coronavirus could be ecological. The disease may have been transmitted by a bat or another wild or domestic animal⁸.

⁷ BARCHICHE, Damien. Réaliser l'Agenda 2030 pour le développement durable: indispensable horizon pour la sortie de crise, mais comment faire? Billet de Blog, *Institut du développement durable et des relations internationales*. May 12, 2020. Available on: <https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/realiser-lagenda-2030-pour-le-developpement-durable>. Access on: 18 Jun. 2020.

⁸ WORLD HEALTH ORGANIZATION. *Coronavirus disease 2019 (COVID-19) Situation Report – 94. Data as received by WHO from national authorities by 10:00 CEST*. April 23, 2020. Available on: <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200423-sitrep-94-covid-19.pdf>.

Diseases transmitted from animals to humans are expanding⁹ and intensifying as the natural habitats of these beings are degraded due, mainly, to human activities with a negative impact. Researchers warn that deteriorated environments can stimulate accelerated evolutionary processes and thus diversify zoonosis, since pathogens easily spread from herds to humans¹⁰.

On the other hand, regarding the origins of Covid-19, there are researches that reveal the existence of the new coronavirus before the first case reports of people affected by the disease in 2019, based on the analysis of frozen sewage samples from several countries¹¹. As a result of the new discovery, experts conjecture that the virus might already exist, but inactivated and, due to favourable environmental conditions, it has emerged disseminating its effects¹².

It appears, therefore, that regardless of the origin attributed to the new coronavirus in a definitive character, the fact is that the majority of studies carried out so far have pointed out that environmental issues have a direct interference in this phenomenon. That is: the health crisis of 2020 stems directly from the environmental crisis that has been going on for decades.

In view of the above, it is inconceivable to dissociate environmental disasters— in which one cannot ignore

⁹ KNIGHT, Tim; MADDOX, Tom; WILLIAMS, Nathan. The environmental implications of the Covid-19 pandemic. *Fauna & Flora International*. p. 14, Mayo 2020. Available on: https://cms.fauna-flora.org/wp-content/uploads/2020/06/FFI_2020-The-Environmental-Implications-of-the-Covid-19-Pandemic.pdf. Access on: 25 Jul. 2020.

¹⁰ NAÇÕES UNIDAS BRASIL. Surto de coronavírus é reflexo da degradação ambiental, afirma PNUMA. *Environment Programme*. Reportagem. Ecosystems and Biodiversity, March 03, 2020. Available on: <https://www.unep.org/pt-br/noticias-e-reportagens/reportagem/surto-de-coronavirus-e-reflexo-da-degradacao-ambiental-afirma>. Access on: 13 Jun. 2020.

¹¹ BARCELO, Damia; ORIVE, Gorka; LERTXUNDI, Unax. Early SARS-CoV-2 outbreak detection by sewage-based epidemiology. *Science of The Total Environment*, v. 732, 25 August 2020, 139298. Elsevier B.V. Available on: <https://reader.elsevier.com/reader/sd/pii/S0048969720328151?token=A1B28889329278A4FDBA881BF3EF6847956C294746BD7C761731B7B4E305B1335CAE53E5961CAED4F11E54AA91892369>; <https://doi.org/10.1016/j.scitotenv.2020.139298>. Access on: 23 July 2020.

¹² KNAPTUN; Sarah. Exclusive: Covid-19 may not have originated in China, Oxford University expert believes. *The Telegraph*. Available on: <https://www.telegraph.co.uk/news/2020/07/05/covid-19-may-not-have-originated-china-elsewhere-emerged-asia/>. Access on: July 23, 2020.

the influence of human actions¹³ – from the impacts and damages to people's health. The frequent damage and attacks on the environment, far beyond decimating biodiversity, immediately interfere with the conditions and quality of life on Earth¹⁴.

The protective measures that have been adopted during the Covid-19 pandemic have changed the routine of most people, such as social isolation rules and the mandatory use of face masks that protect the respiratory tract. It could be considered that, with these new behaviours, would arise the opportunity to introduce sustainability concepts and manners into society, hoping that the experience now imposed on the population would become a real awareness in favour of ways of living more aware of the environment.

This expectation, however, must be put into perspective. The situation could be considered as favourable to reflect on ways of living, producing, consuming, and living differently from those that have been cultivated and perpetuated in recent decades. However, the effects of the pandemic on the environment have been increasingly alarming.

In addition to having its origins in the environmental crisis, Covid-19, due to the protection measures adopted by society, has been a real factor of aggravation of the crisis, overloading the environment with more and more plastic waste, which accumulates, especially in the oceans.

3 The sanitary measures implemented and the worsening of marine plastic pollution: a warning about the risks to human health

It is undeniable that plastics have revolutionized society and have been essential as a material used in several ways and with affordable price, with the health crisis triggered by Covid-19 increasing its consumption worldwide, especially the ones that are disposable after single use. It turns out that plastic waste is not inert in the environment, on the contrary, although at first, they are used for the protection of individuals and have relevance for that, they are extremely harmful when disposed inappropriately, still being a vector of transmission of the new coronavirus, which survives on plastic surfaces for up to three days¹⁵.

The pandemic, therefore, represents a factor of enormous increase for the already existing overload of plastic waste in the environment. In view of that, in France, due to environmental pollution by plastic, the Ministry of Ecological Transition has engaged to alert society about this situation, reporting that many disposable masks and gloves have been thrown inappropriately into nature. A broadcast campaign was launched from 27 June to 15 July 2020, in order to alert the population about the consequences of this behaviour, since the garbage disposed of imprudently can spread the virus and still pollute the environment, fragmenting itself into microplastics¹⁶, which do not disappear from nature – conversely to what has already been believed in

¹³ CAVEDON, Fernanda de Salles. As ecological disasters and human rights: constructing resilience by an environmental and ethical approach. In: OLIVEIRA, Carina Costa de; SAMPAIO, Rômulo Silveira da Rocha (org.). *Instrumentos jurídicos para a implementação do desenvolvimento sustentável*. Rio de Janeiro: FGV, Direito, 2012. ISBN: 978-85-63265-21-0. p. 387-402. Available on: <https://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/10355/Instrumentos%20Jur%C3%ADdicos%20para%20Implementa%C3%A7%C3%A3o%20do%20Desenvolvimento%20Sustent%C3%A1vel.pdf>. Access on: 23 Jul. 2020.

¹⁴ At this point, it is worth clarifying the concept of environmental disaster. "In a more specific delimitation, the so-called environmental disasters consist of events (of natural, human or mixed cause) capable of compromising environmental functions or injuring human interests mediated by some environmental change". In: CARVALHO, Délton Winter de. Bases estruturantes da política nacional de proteção e defesa civil a partir de um Direito dos Desastres Ambientais. *Revista de Direito Ambiental*, São Paulo, v. 18, n. 72, p. 13–38, out./dez. 2013. DTR\2013\9301.

¹⁵ PRATA, Joana C.; SILVA, Ana L.P.; WALKER, Tony R.; DUARTE, Armando C.; SANTOS, Teresa Rocha. COVID-19 Pandemic Repercussions on the Use and Management of Plastics. *Environmental Science & Technology*, v. 54, n. 13, p. 7760–7765 2020. Published on June 12, 2020. <https://doi.org/10.1021/acs.est.0c02178>. Available on: <https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c02178>. Access on: 31 Jul. 2020.

¹⁶ MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE. *Une campagne d'information contre les masques et les gants jetés à terre*. June 26, 2020. Available on: <https://www.ecologique-solidaire.gouv.fr/campagne-dinformation-contre-masques-et-gants-jetes-terre>.

relation to its decomposition^{17,18} –, but, in truth, they accumulate mainly in oceans¹⁹.

In 2017, France already adopted guidelines to prohibit the application of single-use plastic materials, making it clear that the measure had been implemented due to knowledge about the huge volume of plastics polluting the oceans. According to the French Government, floating plastic waste is pushed by sea currents and accumulates to form a continent-sized plate. This seventh continent of plastic would be six times larger than the French state²⁰.

The pandemic, however, has also contributed to delay progress in reaching that measure on prohibiting single-use plastic materials – in addition to the use of disposable personal protective equipment, such as facial masks – because many companies have requested a moratorium on the French Government about taking this decision. The request was especially concerned with the rules on the implementation of environmental measures, especially those related to the fight against waste and encouraging recycling, which was rejected by the Ministry of Ecological Transition²¹.

¹⁷ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP FRONTIERS 2016 REPORT: *Emerging Issues of Environmental Concern. United Nations Environment Programme*, Nairobi. ISBN: 978-92-807-3553-6. Job Number: DEW/1973/NA. Available on: https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf.

¹⁸ In this sense, it must be clarified that there are several types of plastics, manufactured with the most different materials. Those made of polymers such as aliphatic polyesters, bacterial biopolymers and some polymers of biological origin can be biodegradable in the natural environment. However, many plastics labelled as biodegradable – including disposable plastic bags and “take-out” food containers – only decompose completely when subjected to prolonged temperatures above 50 °C. Such conditions are rarely found in the oceans. In: UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP FRONTIERS 2016 REPORT: *Emerging Issues of Environmental Concern. United Nations Environment Programme*, Nairobi. ISBN: 978-92-807-3553-6. Job Number: DEW/1973/NA. Available on: https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf.

¹⁹ AGÊNCIA EUROPEIA DO AMBIENTE. *O lixo nos nossos mares*. Published on July 21, 2014. Available on: <https://www.eea.europa.eu/pt/sinai-da-aea/sinai-2014/em-analise/o-lixo-nos-nossos-mares>.

²⁰ GOUVERNEMENT FRANÇAIS. *Comment réduire l'utilisation du plastique jetable? Fin du plastique à usage unique*. January 01, 2020. Available on: <https://www.gouvernement.fr/les-actions-du-gouvernement/transition-ecologique/comment-reduire-l-utilisation-du-plastique-jetable>. Access on: 6 Sep. 2020.

²¹ LE MONDE. Planète. Coronavirus et Pandémie de Covid-19.

The concern about plastic visible to the naked eye has expanded, while recent research has shown the abundant presence of microplastics in marine environments²². Plastic waste can be physically harmful to wildlife and, more than that, many plastics can be chemically hazardous in some contexts, either because they are toxic or because they absorb pollutants²³.

There are studies that indicate the need to classify plastic waste as hazardous, in order to search for new, safer polymers capable of replacing them²⁴. The threat of plastic inserted in the food chain represents an enormous risk to human health, since analysis carried out with some living beings, including humans, indicate that the ingested and inhaled microplastics are able to reach the cells and tissues of their organisms. Cellular reactions caused by the chemical components of plastic can interrupt major physiological processes, such as cell division and immunity, causing disease or reducing the ability of organisms to escape from predators or to reproduce²⁵.

The use and mismanagement of these materials by the public contribute to the increase in plastic contamination and will be common debris found in the environment for decades, potentially affecting biota in different environmental compartments and biological systems²⁶.

Coronavirus: deux associations dénoncent l'action des lobbys pendant la crise sanitaire. June 03, 2020. Available on: https://www.lemonde.fr/planete/article/2020/06/03/coronavirus-deux-associations-denoncent-l-action-des-lobbys-pendant-la-crise-sanitaire_6041598_3244.html.

²² UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP FRONTIERS 2016 REPORT: *Emerging Issues of Environmental Concern. United Nations Environment Programme*, Nairobi. ISBN: 978-92-807-3553-6. Job Number: DEW/1973/NA. Available on: https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf.

²³ ROCHMAN, C.; BROWNE, M.; HALPERN, B. *et al.* Classify plastic waste as hazardous. *Nature*, v. 494, p. 169–171, 2013. <https://doi.org/10.1038/494169a>. Available on: <https://www.nature.com/articles/494169a.pdf>. Access on: 15 Aug. 2020.

²⁴ ROCHMAN, C.; BROWNE, M.; HALPERN, B. *et al.* Classify plastic waste as hazardous. *Nature*, v. 494, p. 169–171, 2013. <https://doi.org/10.1038/494169a>. Available on: <https://www.nature.com/articles/494169a.pdf>. Access on: 15 Aug. 2020.

²⁵ ROCHMAN, C.; BROWNE, M.; HALPERN, B. *et al.* Classify plastic waste as hazardous. *Nature*, v. 494, p. 169–171, 2013. <https://doi.org/10.1038/494169a>. Available on: <https://www.nature.com/articles/494169a.pdf>. Access on: 15 Aug. 2020.

²⁶ PRATA, Joana C.; SILVA, Ana L.P.; WALKER, Tony R.; DUARTE, Armando C.; SANTOS, Teresa Rocha. COVID-19 Pandemic Repercussions on the Use and Management of Plastics. *Environmental Science & Technology*, v. 54, n. 13, p. 7760–7765 2020. Published

A careful look at the management of plastic waste is, therefore, essential, since these materials, commonly discarded after a single use, represent a risk for both the pollution of ecosystems and for human health, as they are easily inserted into the food chain.

Since 2014, the European Environment Agency has warned of the huge amount of waste disposed of in the seas. Garbage dumped in ocean waters, especially plastics, threatens not only the health of the seas and coasts, but also the economy and communities in different locations, including Europe²⁷. There is research that points out that there are more than five trillion plastic fragments in the oceans, whose weight is more than two hundred and fifty thousand tons²⁸.

In this context, the United Nations – UN has already implemented measures and campaigns²⁹ to reduce plastic pollution, in addition to discussing the possibility of adopting an International Agreement for the sustainable management of plastic waste in seas and oceans³⁰. However, with the outbreak of the Covid-19 pandemic, the actions taken to contain the spread of the disease worsened the situation of waste generation.

It is understandable that public health is prioritized in this situation and that there is an increased demand for plastic products to protect the general public and health professionals³¹. However, it cannot be disregar-

on June 12, 2020. <https://doi.org/10.1021/acs.est.0c02178>. Available on: <https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c02178>. Access on: 31 Jul. 2020.

²⁷ AGÊNCIA EUROPEIA DO AMBIENTE. *O lixo nos nossos mares*. Published on July 21, 2014. Available on: <https://www.eea.europa.eu/pt/sinais-da-aea/sinais-2014/em-analise/o-lixo-nos-nossos-mares>.

²⁸ ERIKSEN, M.; LEBRETON, L.C.M.; CARSON, H.S.; THIEL, M.; MOORE, C.J. *et al. Plastic Pollution in the World's Oceans: More than 5 Trillion Plastic Pieces Weighing over 250,000 Tons Afloat at Sea. PLoS ONE*, v. 9, n. 12, e111913. doi:10.1371/journal.pone.0111913. Available on: <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0111913&type=printable>. Access on: 6 Sep. 2020.

²⁹ NAÇÕES UNIDAS BRASIL. Campanha Mares Limpos celebra dois anos de atividades contra o lixo plástico. *Desenvolvimento Sustentável*. Published on February 26, 2019. Available on: <https://nacoesunidas.org/campanha-mares-limpos-celebra-dois-anos-de-atividades-contra-o-lixo-plastico/>. Access on: 15 Aug. 2020.

³⁰ UNITED NATIONS. *UN convention on wastes makes breakthrough recommendations to address global marine litter and other types of wastes. Environment Programme. Basel Convention. Controlling transboundary movements of hazardous wastes and their disposal*. 2018, Press Release. Available on: http://www.basel.int/Implementation/PublicAwareness/PressReleases/OEWG11Pressrelease/tabid/7655/Default.aspx#_ftn1.

³¹ KLEMEŠ, J.J.; FAN, Y.V.; TAN, Raymond R.; JIANG, Peng. Minimising the present and future plastic waste, energy and envi-

ronmental footprints related to COVID-19. *Renewable and Sustainable Energy Reviews*, v. 127, p. 4, 2020. 109883. ELSEVIER. Published on April 27, 2020. Available on: <https://reader.elsevier.com/reader/sd/pii/S1364032120301763?token=F2E9B1E3E72A8E6733A2D24546C3353E08BF5023D747A7E8FD1EC1ACB3E5FE7CE784F9DE6FC65A3D1F023ABC1D97F367>. Access on: 15 Aug. 2020.

ded that the impacts of these conditions on the environment act in a feedback system: environmental damage directly affects human health and actions to promote health have polluted ecosystems, which causes more environmental issues and, therefore, interferences in human health and well-being.

To break this cycle is essential. The impacts induced by the pandemic should be used as a foundation and as a lesson to build a better and different society in the future. It is necessary to reflect on how the adopted sanitary measures will be translated, in the long term, into sustainable waste management³², which will make it possible to guarantee and enforce Human Rights to health and to a balanced environment³³.

Plastics, despite being considered as allies in combating the spread of Covid-19, in fact, present themselves exactly as the opposite: they are sometimes ineffective for protection against the new coronavirus and, more than that, they are toxic to health of living beings at different levels. It is essential, therefore, to control and discourage the consumption of plastics and to adopt effective measures for their proper disposal, especially avoiding their discharge into the seas.

4 Ocean vitality: the SDG 14 as an essential objective

The impacts of the pandemic have been reflected especially in the seas, which have already endured coun-

ronmental footprints related to COVID-19. *Renewable and Sustainable Energy Reviews*, v. 127, p. 4, 2020. 109883. ELSEVIER. Published on April 27, 2020. Available on: <https://reader.elsevier.com/reader/sd/pii/S1364032120301763?token=F2E9B1E3E72A8E6733A2D24546C3353E08BF5023D747A7E8FD1EC1ACB3E5FE7CE784F9DE6FC65A3D1F023ABC1D97F367>. Access on: 15 Aug. 2020.

³² KLEMEŠ, J.J.; FAN, Y.V.; TAN, Raymond R.; JIANG, Peng. Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19. *Renewable and Sustainable Energy Reviews*, v. 127, p. 4, 2020. 109883. ELSEVIER. Published on April 27, 2020. Available on: <https://reader.elsevier.com/reader/sd/pii/S1364032120301763?token=F2E9B1E3E72A8E6733A2D24546C3353E08BF5023D747A7E8FD1EC1ACB3E5FE7CE784F9DE6FC65A3D1F023ABC1D97F367>. Access on: 15 Aug. 2020.

³³ COMISSÃO INTERAMERICANA DE DIREITOS HUMANOS. PROTOCOLO ADICIONAL À CONVENÇÃO AMERICANA SOBRE DIREITOS HUMANOS EM MATÉRIA DE DIREITOS ECONÔMICOS, SOCIAIS E CULTURAIS, “PROTOCOLO DE SAN SALVADOR”. El Salvador, November 17, 1988. Available on: http://www.cidh.org/basicos/portugues/e.protocolo_de_san_salvador.htm.

tless damages, with their main characteristics significantly altered as a result of climate changes and changes related to the atmosphere³⁴. Disordered interference in the seas, bipolarized in the pollution of the oceans and in the excessive use of living marine resources generates ecological imbalance and the degradation of marine environmental conditions, affecting an undetermined number of people, who are diffusely affected in their legitimate interests in the use of the seas.

The oceans are still subjected to the undue discharge and emission of dangerous substances, such as heavy metals and persistent organic pollutants, as well as the elimination of solid waste in these spaces and oil discharges, both as operational discharges and because of maritime disasters that occur when ships are loaded³⁵.

Although there are efforts aimed at protecting marine ecosystems, the truth is that, on the one hand, there is a diminished interest of significant multinational companies in protecting the oceans, or even in implementing the SDG 14^{36,37} and, on the other, there is negligence on the part of the population itself regarding the health of the oceans. There is also a mistaken notion that marine resources would be inexhaustible, as if

they were receptacles of an infinite amount of waste and pollution, without consequences.

In this context, the imperative to carry out marine protection arises from the fact that the protection of the oceans and, consequently, the implementation of SDG 14, is fundamental for the achievement of all other Sustainable Development Goals³⁸ and, certainly, for the maintenance of living conditions on Earth, including human well-being and health³⁹.

The implementation of SDG 14 is designed to eliminate overfishing and illegal and destructive fishing practices, which are necessary preconditions for meeting a large number of SDGs such as no poverty (SDG 1), zero hunger (SDGs 2), good health and well-being (SDG 3) and reduced inequalities (SDG 10). However, individuals have increasingly interfered with marine ecosystems and natural resources, using them for food and energy production, for tourism and transportation, and also dumping different waste into the seas, originated from terrestrial activities. All of this affects the climate regulation by the oceans⁴⁰.

The phenomena that occurred in the last decades, in terms of events and natural disasters, have demonstrated the vitality of the oceans for the maintenance of a minimally stable human life^{41,42}. The rise in sea tempe-

³⁴ CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: http://www.io.usp.br/images/noticias/papel_oceanos_clima.pdf. Access on: July 25, 2020.

³⁵ UNITED NATIONS. *The conservation and sustainable use of Marine Biological Diversity of Areas Beyond National Jurisdiction*. A technical abstract of the first global integrated marine assessment. New York, 2017. eISBN978-92-1-361370-2 (44 p.). Available on: http://www.un.org/depts/los/global_reporting/8th_adhoc_2017/Technical_Abstract_on_the_Conservation_and_Sustainable_Use_of_marine_Biological_Diversity_of_Areas_Beyond_National_Jurisdiction.pdf.

³⁶ PRICE WATERHOUSE COOPERS. PWC. *SDG Reporting Challenge 2017*. Available on: <https://www.pwc.com/gx/en/sustainability/SDG/pwc-sdg-reporting-challenge-2017-final.pdf>.

³⁷ The UN 2030 Agenda for Sustainable Development is a multilateral declaration on the main challenges that the International Community faces and will face. It is made up of seventeen Sustainable Development Goals - SDGs accompanied by a set of targets to assess compliance. The SDG 14 is entitled "Life in the Water" and is intended for the conservation and sustainable use of the oceans, seas, and marine resources for sustainable development. In: MESSENGER, Gregory. *Desarrollo sostenible y Agenda 2030: El rol de Derecho Internacional dentro del Desarrollo Sostenible y la Agenda 2030*. *Revista Española de Derecho Internacional*, Madrid, Sección, FORO, v. 69/1, p. 271-278, ene./jun. 2017. <http://dx.doi.org/10.17103/redi.69.1.2017.2.01>. ISSN: 0034-9380; E-ISSN: 2387-1253. Available on: https://www.researchgate.net/publication/315112818_El_Rol_de_Derecho_Internacional_dentro_del_Desarrollo_Sostenible_y_la_Agenda_2030. Access on: 14 Jul. 2020.

³⁸ CLAUDET, Joachim *et al.* A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action. *One Earth*, v. 2, Issue 1, p. 34-42, Jan. 2020. Available on: <https://www.sciencedirect.com/science/article/pii/S2590332219300934>. Access on: 14 Jul. 2020.

³⁹ UNITED NATIONS. *The Ocean and the Sustainable Development Goals Under the 2030 Agenda for Sustainable Development*. A technical abstract of the first global integrated marine assessment. New York, 2017. eISBN 978-92-1-361371-9 (48 p.). Available on: https://www.un.org/depts/los/global_reporting/8th_adhoc_2017/Technical_Abstract_on_the_Ocean_and_the_Sustainable_Development_Goals_under_the_2030_Agenda_for_Sustainable_Development.pdf.

⁴⁰ CLAUDET, Joachim *et al.* A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action. *One Earth*, v. 2, Issue 1, p. 34-42, Jan. 2020. Available on: <https://www.sciencedirect.com/science/article/pii/S2590332219300934>. Access on: 14 Jul. 2020.

⁴¹ CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: http://www.io.usp.br/images/noticias/papel_oceanos_clima.pdf. Access on: July 25, 2020.

⁴² As an example, it is known that the oceans are one of the main sinks of carbon dioxide - CO₂ and, therefore, contribute decisively to the removal of most of the carbon released by humans in the atmosphere. In: CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: [http://www.io.usp.br/images/](http://www.io.usp.br/images/noticias/)

ratures, a direct consequence of global warming^{43,44} – which, in turn, results directly from anthropic action –, can interfere in the intensification of phenomena such as tropical cyclones of increasing magnitude. The factors that influence its occurrence are known, however, research indicates that the warming of the sea surface temperature is a present phenomenon and that it should continue to intensify tropical cyclones⁴⁵.

It is inconceivable and unacceptable, in this way, that the SDG 14 be seen as an inferior objective in relation to the others when, in reality, it is exactly the opposite. Any company that uses plastic products, for example, has an active participation in ocean pollution, since most of these materials are dumped into the seas in their various forms, whether in macro or micro size⁴⁶.

Aware of the vitality of the oceans for the maintenance of living conditions on Earth, the UN has endeavoured to make the community aware of the terrifying state of the seas, having proclaimed the Decade of Ocean Science for Sustainable Development (2021-2030). The Decade aims to encourage the scientific community, policy makers, the private sector and civil society to think beyond what is conceived as usual in terms of business and companies, aspiring to real changes⁴⁷.

The Decade of the Oceans highlights the prominent place intended for marine protection at all levels. The

ocean is so central to achieving sustainable development in the future (from the present) that it is time to draw a new narrative for the seas, placing the oceans as the centre of human life⁴⁸.

The new coronavirus pandemic cannot be used as an excuse for States to refrain from implementing concrete actions for sustainable development, especially regarding the protection of the oceans. On the contrary, the pandemic reveals the necessity of granting the deserved place of prominence to the environment, especially to the seas. In addition to being indispensable for maintaining the conditions for a quality life to humans, they can be the source of economic recovery in many countries⁴⁹.

5 The economic unfeasibility of marine plastic pollution: an attempt to quantify the loss of ecosystem services

Beyond the damage to the environment and human health, the negative impacts resulting from the release of plastic waste into ecosystems are reflected in the world economy. It is estimated that about 4.8 to 12.7 million metric tons of plastic were launched into the world's oceans from terrestrial sources in 2010 alone, with predictions for the flow of plastics in the marine environment pointing to its increase over the years⁵⁰.

Since the 1950s, the growth in plastic production has largely exceeded that of any other material, with a global shift from the production of durable plastics to

papel_oceanos_clima.pdf. Access on: July 25, 2020.

⁴³ CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: http://www.io.usp.br/images/noticias/papel_oceanos_clima.pdf. Access on: July 25, 2020.

⁴⁴ Verification results show that the capacity of CO₂ absorption by the seas has been reduced due to global warming. One of the effects of the increase in temperature in the ocean is its acidification, which decreases its ability to absorb and retain CO₂. In: CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: http://www.io.usp.br/images/noticias/papel_oceanos_clima.pdf. Access on: July 25, 2020.

⁴⁵ PATRICOLA, Christina M.; WEHNER, Michael F. Anthropogenic influences on major tropical cyclone events. *Nature*, v. 563, p. 339-346, Nov. 2018. Available on: <https://www.nature.com/articles/s41586-018-0673-2#citeas>; <https://doi.org/10.1038/s41586-018-0673-2>. Access on: 14 Jul. 2020.

⁴⁶ PRICE WATERHOUSE COOPERS. PWC. *SDG Reporting Challenge 2017*. Available on: <https://www.pwc.com/gx/en/sustainability/SDG/pwc-sdg-reporting-challenge-2017-final.pdf>.

⁴⁷ CLAUDET, Joachim *et al.* A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action. *One Earth*, v. 2, Issue 1, p. 34-42, Jan. 2020. Available on: <https://www.sciencedirect.com/science/article/pii/S2590332219300934>. Access on: 14 Jul. 2020.

⁴⁸ CLAUDET, Joachim *et al.* A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action. *One Earth*, v. 2, Issue 1, p. 34-42, Jan. 2020. Available on: <https://www.sciencedirect.com/science/article/pii/S2590332219300934>. Access on: 14 Jul. 2020.

⁴⁹ EUROPEAN UNION. *The EU Blue Economy Report*. 2020. Publications Office of the European Union. Luxembourg, 180 p. ISBN 978-92-76-19726-3. Available on: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf.

⁵⁰ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

disposable plastics (including packaging)⁵¹. It happens that, due to the constant increase in production and the presence of plastics in the environment, it is not possible to know the extent to which natural ecosystems can support the expansion of an economic system based on unrestrained consumption without suffering damage and irreversible losses. In view of this uncertainty, the ecological economy demands the adoption of a posture of conscious use of natural resources, translated into the precautionary principle, whose function is to consider the unknown factors, as well as the actions taken on the consequences of human intervention in ecosystems⁵².

Although there is the possibility of removing some plastic from the oceans, the procedure is slow, expensive, and inefficient, especially when compared to the speed with which the waste is improperly released into the seas. The conjectures about the reduction of terrestrial ecosystem services due to anthropogenic disturbances point to a 11% to 28% decline in the services of the global terrestrial ecosystem⁵³.

Understanding the concept of ecosystem services is, thus, vital for it to be possible to assimilate the magnitude of the economic problem that involves marine plastic pollution. Ecosystem services, or environmental services, can be defined as flows from natural capital stocks that combine with human services capital to provide well-being to populations. Such services can be classified into four categories: cultural services (aesthetic and recreational elements); regulation (be it climate, floods, pests and water purification); support (nutrient

cycling and soil formation); and provision (supply of food, fresh water, fibres and fuels)⁵⁴.

Regarding the category of cultural services, it should be noted that recreational users of coastal areas have been exposed with increasing frequency to plastics discarded on the coastline, which implies a series of impacts on the well-being. The garbage on the beaches is not appreciated and is continually pointed out as one of the main reasons why visitors will spend less time in these environments or avoid certain places if they imagine that there will be garbage there. This causes a series of expenditures, from the costs with cleaning to the loss of income from tourism⁵⁵.

More than half of global Gross Domestic Product – that is, 55%, which equals US\$ 41.7 trillion – depends on high-functioning biodiversity and ecosystem services. Of the countries in the world, however, 20% are at risk of their ecosystems collapsing due to the decline in biodiversity and related beneficial services. This strong economic dependence on natural resources highlights the fundamental character of sustainable development and conservation for the long-term sustainability of world economies⁵⁶.

In terms of quantifying the loss, it is possible to estimate that a decline of just 1% to 5% in the provision of marine ecosystem services is equivalent to an annual loss of 500 to 2,500 billion dollars in the value of the benefits derived from these services. Given that this amount includes only the impacts of marine natural capital, the total economic cost is likely to be much higher⁵⁷. This calculation of economic costs per ton of

⁵¹ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations. 113p, 2018. Available on: https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf?sequence=1&isAllowed=y. Access on: 9 Nov. 2020.

⁵² ANDRADE, Daniel Caixeta. Economia e meio ambiente: aspectos teóricos e metodológicos nas visões neoclássica e da economia ecológica. *Leituras de Economia Política*, Campinas, v. 14, p. 1-31, ago./dez. 2008. Available on: https://www.eco.unicamp.br/images/arquivos/artigos/LEP/L14/1%20LEP14_Economia%20e%20Meio%20Ambiente.pdf. Access on: 9 Nov. 2020.

⁵³ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

⁵⁴ NUSDEO, Ana Maria de Oliveira. Pagamento por Serviços Ambientais. In: PHILIPPI JR., Arlindo; FREITAS, Vladimir Passos de; SPINDOLA, Ana Luiza Silva. (ed.) *Direito Ambiental e Sustentabilidade*. Barueri, SP: Manole, 2016. p. 619-643. Coleção Ambiental, vol. 18. ISBN 978-85-204-3922-7.

⁵⁵ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

⁵⁶ SWISS RE INSTITUTE. *A fifth of countries worldwide at risk from ecosystem collapse as biodiversity declines, reveals pioneering Swiss Re index*. News release. Available on: <https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html>.

⁵⁷ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine;

plastic in the oceans is fundamental for future global negotiations in order to transform the way plastics are designed, produced, used, reused and reprocessed, taking into account that the ocean economy is essential for the future of human prosperity and which is an essential source of food, energy, minerals, health and leisure on which hundreds of millions of people depend⁵⁸.

Evidence suggests that the productivity, viability, profitability and safety of the fishing and aquaculture industry are highly vulnerable to the impact of plastic deposited in the oceans, especially when associated with broader factors, including climate change, and over-fishing. The high dependence on seafood for nutrition leaves the well-being of a significant proportion of the world population extremely susceptible to any changes in the quantity, quality, and safety of this food source⁵⁹.

Traditional maritime industries will be increasingly influenced by climate change, as alterations in temperature, ocean acidity and rising sea levels affect the movements of fish stocks, opening up new trade routes and affecting port structures, thus creating new destinations and tourist attractions, while others are destroyed⁶⁰. It should be noted that the destruction of the Aral Sea has led to economic collapse and mass migration from the surrounding coastal area, which provides an extreme illustration of how the collapse of an ecosystem can affect the local economy⁶¹.

The interactions between society, the economy and the environment have an important influence on marine ecosystems through their dynamics and their broader biogeochemical cycle. This is because ecosystem services depend on each other and have complex interactions that result in compensation for the concession of an ecosystem service in relation to the provision of others. For the ocean economy this is relevant because these relationships indirectly determine the viability of ocean-based industries. Human activities that directly or indirectly intervene in the functioning of marine ecosystems therefore have the potential to undermine the economic viability of the ocean economy⁶². Evidence shows that, in acting to reduce marine plastic pollution, society invests both in the current and future supply of marine ecosystem services, and in the human benefits they provide⁶³.

A solid understanding of the ecological, social and economic impact of marine plastic pollution is necessary to inform a global transition in the way plastic is handled, reducing its negative impacts, with implications for public behaviour, standards and governance, industry and commerce⁶⁴.

WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

⁵⁸ OECD. *The Ocean Economy in 2030*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251724-en>. ISBN 978-92-64-25172-4. Available on: <https://www.oecd.org/environment/the-ocean-economy-in-2030-9789264251724-en.htm>. Access on: 6 Oct. 2020.

⁵⁹ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

⁶⁰ OECD. *The Ocean Economy in 2030*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251724-en>. ISBN 978-92-64-25172-4. Available on: <https://www.oecd.org/environment/the-ocean-economy-in-2030-9789264251724-en.htm>. Access on: 6 Oct. 2020.

⁶¹ SWISS RE INSTITUTE. *A fifth of countries worldwide at risk from ecosystem collapse as biodiversity declines, reveals pioneering Swiss Re index*. News release. Available on: <https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html>.

releases/nr-20200923-biodiversity-and-ecosystems-services.html.

⁶² OECD. *The Ocean Economy in 2030*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251724-en>. ISBN 978-92-64-25172-4. Available on: <https://www.oecd.org/environment/the-ocean-economy-in-2030-9789264251724-en.htm>. Access on: 6 Oct. 2020.

⁶³ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

⁶⁴ BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/S0025326X19302061#bbb0025>. Access on: 05 Oct. 2020.

6 International normative instruments as drivers for overcoming the problem: the necessary sustainable management of plastic waste

The outbreak of the new coronavirus pandemic, as it has been seen, has negative consequences on human health in several areas: both by the spread of the disease itself and by the increase in environmental pollution by plastic, especially in the oceans, which ends up offering more obstacles concerning the promotion of a healthy quality of life for people.

In view of this, as the legal order is a means for transforming reality⁶⁵, it is essential to apply the already existing normative provisions regarding the management of plastic waste and, in due course, the adoption of an international agreement specifically focused on this topic.

Even before the Covid-19 pandemic broke out in 2020, however, the International Community was already mobilizing in the face of the challenges that society has faced in the 21st century. The implementation of the 2030 Agenda for Sustainable Development is seen as an indispensable means for the egress of adversities and crises that have intensified in recent years in different parts of the globe and, especially at this moment, with the insurgency of the new coronavirus⁶⁶.

It is evident that a real attitude change has been sought in the relations between the actors of the International Community, who, through the adoption of a different posture in relation to nature, may reach a consensus in the global governance of the environment, including the oceans, aimed at sustainable management and benefit sharing. Sustainability will only be achieved

when social problems are truly faced and when wealth is shared.

Within the scope of the United Nations, the Basel Convention is a major exponent with regard to the international management of hazardous waste. The general objective of the instrument is to protect human health and the environment against the adverse effects of this type of waste⁶⁷.

Among the most important contributions of the Convention is the development of a significant number of non-binding public policy instruments, in addition to the development of an extensive body of technical guidelines on the management of specific waste streams. These soft law instruments were designed for use by government actors at all levels, as well as other stakeholders, to provide practical guidance and thus facilitate the management of relevant waste streams⁶⁸.

Prior to the implementation of the 2030 Agenda, the Basel Convention had already played a decisive role in achieving the Millennium Development Goals – MDGs⁶⁹, especially the reduction of poverty, the reduction of child mortality, the improvement of maternal health and the guarantee of environmental sustainability. The minimization of waste, no doubt, made it possible to track the achievement of the MDGs and, in the current context, has a direct influence on the implementation of the SDGs⁷⁰.

In the European scenario, since 2015, the EU has turned its attention to the circular economy, having

⁶⁵ The role of Law to modulate society is also present in the dynamics of environmental disasters, so that “the law plays a prominent role in providing stability and normativity to the pre and post-occurrence phases”. In: CARVALHO, Délon Winter de. Bases estruturantes da política nacional de proteção e defesa civil a partir de um Direito dos Desastres Ambientais. *Revista de Direito Ambiental*, São Paulo, v. 18, n. 72, p. 21, out./dez. 2013. DTR\2013\9301.

⁶⁶ BARCHICHE, Damien. Réaliser l’Agenda 2030 pour le développement durable: indispensable horizon pour la sortie de crise, mais comment faire? Billet de Blog, *Institut du développement durable et des relations internationales*. May 12, 2020. Available on: <https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/realiser-lagenda-2030-pour-le-developpement-durable>. Access on: 18 Jun. 2020.

⁶⁷ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Stockholm Convention. *Protecting human health and the environment from persistent organic pollutants*. Revised in 2017. Available on: <http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>.

⁶⁸ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Stockholm Convention. *Protecting human health and the environment from persistent organic pollutants*. Revised in 2017. Available on: <http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>.

⁶⁹ The millennium development goals, adopted in 2000, did not contemplate the conservation and sustainable use of the oceans, seas and marine resources in the objective 7, concerning the protection of the environment. In: UNITED NATIONS. *Millennium Development Goals and Beyond 2015*. Goal 7: Ensure Environmental Sustainability. Available on: <https://www.un.org/millenniumgoals/envIRON.shtml>.

⁷⁰ UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Stockholm Convention. *Protecting human health and the environment from persistent organic pollutants*. Revised in 2017. Available on: <http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>.

identified plastics as a major management priority⁷¹. In 2017, the European Commission expressly demonstrated its interest in investing in an intelligent, innovative, and sustainable industry, adopting renewed industrial practices within the EU, as well as a strategy to move towards a circular economy in the field of plastics⁷².

In the European Union, integration is one of the most significant environmental principles. Its purpose is to achieve sustainable development by determining that actions to protect the environment are promoted by the Member States in an integrated manner with other fields, so that sectoral policies are harmonized (administrative and legislative) with environmental protectionist parameters, taking into account that the possible degradation does not respect national or regional borders⁷³, that is, it can spread in a diffuse and cross-border way.

In the scenario triggered by the Covid-19 pandemic, the European Union emerges in a privileged position to lead a transition without plastics in the near future. Equipped with the necessary information and knowledge for the evolution and implementation of projects for the sustainable management of this waste, the EU presented a Strategy that establishes the bases for a new plastic economy, whose production must fully respect the needs of reuse, repair and of recycling to develop more sustainable materials. The EU thus intends to reduce plastic pollution and the negative impact of that pollution on everyday life and on ecosystems⁷⁴.

⁷¹ EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. Closing the loop - An EU action plan for the Circular Economy. Brussels, 2.12.2015. COM (2015) 614 final. Available on: <https://ec.europa.eu/transparency/regdoc/rep/1/2015/EN/1-2015-614-EN-F1-1.PDF>.

⁷² EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. A European Strategy for Plastics in a Circular Economy. {SWD (2018) 16 final}. Brussels, 16.1.2018. COM (2018) 28 final. Available on: <https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy.pdf>.

⁷³ DIZ, Jamile Bergamaschine Mata; LOPEZ, Tania García. La consolidación del principio de desarrollo sostenible en el Derecho Internacional Público y en el Derecho de la Unión Europea. *NO-MOS*, Revista do Programa de Pós-Graduação em Direito- UFC. v. 39 n. 2, 2019. Published on February 27, 2020. 21 p. Available on: <http://periodicos.ufc.br/nomos/article/view/41063/100091>. Access on: 25 Jul. 2020.

⁷⁴ EUROPEAN UNION. DIRECTIVE OF THE EUROPEAN

Still within the European framework, the Green Deal presented by the elected president of the European Commission, Ursula von der Leyen, expresses guidelines, since its proposition, on the need to transform the way it has been produced, consumed and commercialized in the European Union. Preserving and restoring the ecosystem, then, must guide all work carried out within the continent⁷⁵.

At the epicentre of the responses to the climatic, environmental, and social challenges that are now faced, it is presented the European Green Deal, an ambitious set of proposals that lists measures to reduce the emission of greenhouse gases, preservation of the natural environment, among so many other goals consistent with sustainable development⁷⁶.

The European Green Deal shows itself, along with the European Strategy for Plastics, as a promising mechanism in the turn towards the fight against marine plastic pollution and, in this point, both present themselves as instruments for the achievement and implementation of the UN 2030 Agenda, especially regarding the Sustainable Development Goal 14.

It should be noted that within the text of the Green Deal there are, on several occasions, express references to the problematic issue arising from the expressive consumption of plastic and the need to continue the achievement of the Strategy for Plastics, with special emphasis on measures aimed at combating intentionally added microplastics and unintentionally released plastics⁷⁷.

PARLIAMENT AND OF THE COUNCIL ON THE REDUCTION OF THE IMPACT OF CERTAIN PLASTIC PRODUCTS ON THE ENVIRONMENT. Brussels, June 05, 2019, (OR. en). 2018/0172 (COD), LEX 1930, PE-CONS 11/1/19, REV 1. Available on: <https://data.consilium.europa.eu/doc/document/PE-11-2019-REV-1/en/pdf>.

⁷⁵ LEYEN, Ursula von der. POLITICAL GUIDELINES FOR THE NEXT EUROPEAN COMMISSION 2019-2024. *A Union that strives for more- My agenda for Europe*. Available on: https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf.

⁷⁶ EUROPEAN UNION. *The EU Blue Economy Report*. 2020. Publications Office of the European Union. Luxembourg, 180 p. ISBN 978-92-76-19726-3. Available on: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf.

⁷⁷ EUROPEAN UNION. DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE REDUCTION OF THE IMPACT OF CERTAIN PLASTIC PRODUCTS ON THE ENVIRONMENT. Brussels, June 05, 2019, (OR. en). 2018/0172 (COD), LEX 1930, PE-CONS 11/1/19, REV 1. Avail-

With the crisis triggered by the pandemic, the Green Deal expresses itself as a necessary transition proposal for the recovery of the European Union⁷⁸, questioning and presenting alternatives to the predatory economic model still predominantly adopted in the Occident. The European Green Deal, therefore, is seen as a skilful mechanism to guide European Member States – and society as a whole, by virtue of its expressiveness and influence – towards environmental preservation and, consequently, the self-perpetuation of humanity and the maintenance of a balanced global economy.

It cannot be ignored, however, that there are countries that are still moving in diametrically opposite directions, without any responsibility towards ecosystems. What is needed, though, is to boost this transition and reflect it on global sustainability actions, whether multi-lateral, regional, or bilateral.

The European Union should, in the coming years, encourage and even pressure non-member countries to adopt more sustainable behaviours, increasingly linking economic development to environmental conservation and preservation.

Sustainable development and the integration of its three dimensions – environmental, social, and economic⁷⁹ – should not be seen only as a vague and abstract conception, but as a concrete notion to be effectively implemented by States in their internal and external political actions. Development must be understood as a process that, in addition to increasing the resources of a country or region, satisfies the objectives of economic growth, raising the quality of life of the population and respecting the balance of ecosystems, contributing to repair the damage already caused as much as possible⁸⁰.

able on: <https://data.consilium.europa.eu/doc/document/PE-11-2019-REV-1/en/pdf>.

⁷⁸ EUROPEAN UNION. *The EU Blue Economy Report*. 2020. Publications Office of the European Union. Luxembourg, 180 p. ISBN 978-92-76-19726-3. Available on: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf.

⁷⁹ NAÇÕES UNIDAS BRASIL. 17 Objetivos para transformar nosso mundo. *Transformando Nosso Mundo: A Agenda 2030 para o Desenvolvimento Sustentável*. Available on: <https://nacoesunidas.org/pos2015/agenda2030/>. Access on: 14 Jul. 2020.

⁸⁰ DIZ, Jamile Bergamaschine Mata; LOPEZ, Tania García. La consolidación del principio de desarrollo sostenible en el Derecho Internacional Público y en el Derecho de la Unión Europea. *NOMOS*, Revista do Programa de Pós-Graduação em Direito- UFC. v. 39 n. 2, p. 21, 2019. Published on February 27, 2020. Available on: <http://periodicos.ufc.br/nomos/article/view/41063/100091>. Ac-

Furthermore, the High-level Political Forum on Sustainable Development, undertaken since 2013 under the auspices of the Economic and Social Council – ECOSOC, of the United Nations, constitutes an annual meeting to monitor and review the 2030 Agenda. It has a universal intergovernmental character and should provide political leadership, guidance, and recommendations for sustainable development, examining progress in implementing sustainability commitments, highlighting the integration of its three dimensions in a holistic and intersectoral manner at all levels, adopting a focused agenda, dynamic and action-oriented, ensuring that new and emerging challenges of sustainable development are considered⁸¹.

In 2020, participants debated the directions they were taking in relation to the implementation of the SDGs, especially considering the impact of the Covid-19 pandemic. The objective was to discuss and reflect on how the International Community could and can respond to the pandemic so that it is possible to maintain the achievement and implementation of the SDGs, accelerating progress in the decade of action for sustainable development that is still ahead.

At the heart of this situation, it appears that, both in the 2030 Agenda and in the European Green Deal⁸², mention is made of the evident urgency of devoting greater importance to the conservation of the seas. Within the SDGs, the effective protection of the oceans must be seen as a fundamental target of the nations to achieve the implementation of the other objectives and, consequently, perpetuate human development in all its directions and dimensions.

The European Green Deal recognizes that the oceans are being polluted and degraded and, in this

cess on: 25 Jul. 2020.

⁸¹ UNITED NATIONS. Sustainable Development Goals- Knowledge Platform. *High-Level Political Forum 2020 Under the Auspices of ECOSOC*. Available on: <https://sustainabledevelopment.un.org/hlpf/2020>.

⁸² The Deal expressly mentions that “lasting solutions to climate change require greater attention to solutions based on nature, including healthy and resilient seas and oceans”. In: EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. The European Green Deal. Brussels, 11.12.2019 COM(2019) 640 final, p. 14. Available on: https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF.

sense, presents itself as a response to the climatic and environmental challenges of the coming decades. In order to solve the ecologically established problem, the document is emphatic in pointing out that its ambition will not be realized by an isolated European Union but must mobilize neighbour countries and other nations to act together, after all, the environmental crisis is not limited by national borders, especially when it comes to the oceans. The oceans, in turn, bear the direct exploitation of natural resources, with the result that there is a significant decrease in biodiversity worldwide.

In the subdivision “2.1.7- Preserving and restoring ecosystems and biodiversity”, the document determines the continuity of working under the common fisheries policy, in order to reduce the negative impacts of this practice on ecosystems, especially in sensitive marine areas, adopting a zero-tolerance position on illegal fishing. It is also listed that better management and connectivity of marine protected areas will be supported, proposing measures that include more sustainable ways of managing the maritime space to take advantage of its growing renewable energy potential.

It is worth noting that the document determines the establishment of a framework to regulate bio-based and biodegradable plastics, administering measures on single-use plastics, in addition to identifying the necessity of drafting new legislation that establishes objectives and measures to minimize packaging and the production of waste⁸³.

Thus, the Green Deal, along with the European Strategy for Plastics and the Basel Convention, has the potential to be a capable normative instrument for the implementation of the 2030 Agenda and, above all, the SDG 14⁸⁴, making it possible, as a consequence, to

overcome the environmental, sanitary and economic imbalance due to plastic pollution.

It is also worth mentioning the European Directive for the reduction of the environmental impact of certain plastic products, approved by the members of the European Parliament. The document, in addition to contextualizing the core of the problem that gave rise to its elaboration, intends to ban the use of certain single-use disposable plastics by 2021 in the European continent, such as disposable plastic plates, cutlery, straws and cotton swabs⁸⁵.

It is seen that, despite the magnitude of the problem, there is a possibility of reversing such disastrous circumstances. The normative instruments discussed here are not mere international documents, but examples of political will, financing and specific action aimed at maintaining the balance of the environment, especially for the oceans, constituting a guide for humanity to strive for their own survival in dignified conditions.

7 Final Considerations

The awareness about the close relationship between the environmental crisis and the outbreak of Covid-19 gives rise to a reflection on the adverse effects arising from the adoption of protection and containment measures for the new coronavirus and, also, on how harmful plastic pollution is to human health.

The highlighted links between a pandemic that affects human health, and terrestrial or marine biodiversity should contribute to emphasize the importance of environmental protection and, thus, the global discourse on the health of the planet should be reinforced in the highest degree, always linked with ecosystem conditions.

The present study demonstrates that the consumption of plastic materials and their inappropriate disposal

⁸³ EUROPEAN UNION. DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE REDUCTION OF THE IMPACT OF CERTAIN PLASTIC PRODUCTS ON THE ENVIRONMENT. Brussels, June 05, 2019, (OR. en). 2018/0172 (COD), LEX 1930, PE-CONS 11/1/19, REV 1. Available on: <https://data.consilium.europa.eu/doc/document/PE-11-2019-REV-1/en/pdf>.

⁸⁴ In this regard, the EU Blue Economy Report 2020 notes that “the report must be seen as a tool to support relevant and political initiatives under the auspices of the European Green Deal, which seeks to implement the UN 2030 Agenda by placing the sustainability and the well-being of citizens at the centre of economic policy and the sustainable development at the heart of the political agents of the European Union”. In: EUROPEAN UNION. *The EU Blue Economy Report*. 2020. Publications Office of the European Union. Luxembourg, p. 2. ISBN 978-92-76-19726-3. Available on: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf

⁸⁵ EUROPEAN UNION. DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE REDUCTION OF THE IMPACT OF CERTAIN PLASTIC PRODUCTS ON THE ENVIRONMENT. Brussels, June 05, 2019, (OR. en). 2018/0172 (COD), LEX 1930, PE-CONS 11/1/19, REV 1. Available on: <https://data.consilium.europa.eu/doc/document/PE-11-2019-REV-1/en/pdf>.

sal in the environment, especially in the oceans, directly affects the enjoyment of a healthy quality of life. This is because the pollution and degradation of marine ecosystems interfere with the maintenance of living conditions on Earth, making it difficult, for example, to absorb carbon dioxide or to regulate the climate in the oceans.

The prioritization of public health, during this –still – pandemic period, does not justify the negligence with the indiscriminate disposal of waste in the seas, especially plastics. As has been well demonstrated, marine plastic pollution is a problem that, although at first glance seems remote, directly affects human health and the world economy, with numerous indications and even evidence regarding the environmental damage it causes.

The dissemination of the content of the 2030 Agenda should therefore be seen as the necessary impetus towards a change of conduct in line with the protection of the biosphere and, essentially, of the seas, especially through the implementation of the SDG 14.

The success of the 2030 Agenda and the reduction of marine plastic pollution depend on the cooperation of government officials, institutions, investors, and civil society. Its implementation and achievement, although constituting an immense governance challenge for all countries, must be understood as a means for guaranteeing and maintaining the conditions of human life on Earth, predominantly through the international documents already in force.

It is hoped that, after the pandemic, efforts already made in favour of environmental protection will be maintained and, more than that, deepened, especially regarding the oceans. Humanity endangers its own perpetuity if it does not succeed in achieving the SDGs, above all the SDG 14, which is essential for the perpetuation and for the personal and collective development of human beings.

The issue is not to prevent human activities, but to regulate and stipulate the extent to which such actions may occur, aiming at maintaining, in the long term, marine ecosystems and their environmental services. In being different, the intergenerational right to an ecologically balanced environment will certainly be violated. Yet, if the implementation of the SDGs is achieved and the generation and circulation of plastic waste is reduced, as well as if a real commitment is consolidated by States, companies, and populations in respect and

endeavour to achieving it, human beings will have the opportunity to perpetuate their own existence in conditions of quality and dignity.

References

AGÊNCIA EUROPEIA DO AMBIENTE. *O lixo nos nossos mares*. Published on July 21, 2014. Available on: <https://www.eea.europa.eu/pt/sinais-da-aea/sinais-2014/em-analise/o-lixo-nos-nossos-mares>. Access on: July 25, 2020.

ANDRADE, Daniel Caixeta. Economia e meio ambiente: aspectos teóricos e metodológicos nas visões neoclássica e da economia ecológica. *Leituras de Economia Política*, Campinas, v. 14, p. 1-31, ago./dez. 2008. Available on: https://www.eco.unicamp.br/images/arquivos/artigos/LEP/L14/1%20LEP14_Economia%20e%20Meio%20Ambiente.pdf. Access on: 9 Nov. 2020.

BARCELO, Damia; ORIVE, Gorka; LERTXUNDI, Unax. Early SARS-CoV-2 outbreak detection by sewage-based epidemiology. *Science of The Total Environment*, v. 732, 25 August 2020, 139298. Elsevier B.V. Available on: <https://reader.elsevier.com/reader/sd/pii/S0048969720328151?token=A1B28889329278A4FDBA881BF3EF6847956C294746BD7C761731B7B4E305B1335CAE53E5961CAED4F11E54AA91892369>; <https://doi.org/10.1016/j.scitotenv.2020.139298>. Access on: 23 July 2020.

BARCHICHE, Damien. Réaliser l'Agenda 2030 pour le développement durable: indispensable horizon pour la sortie de crise, mais comment faire? Billet de Blog, *Institut du développement durable et des relations internationales*. May 12, 2020. Available on: <https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/realiser-lagenda-2030-pour-le-developpement-durable>. Access on: 18 June 2020.

BEAUMONTA, Nicola J.; AANESEN, Margrethe; AUSTEN, Melanie C.; BÖRGER, Tobias; CLARK, James R.; COLE, Matthew; HOOPER, Tara; LINDEQUE, Penelope K.; PASCOE, Christine; WYLES, Kayleigh J. Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, v. 142, p. 189-195, Mayo 2019. <https://doi.org/10.1016/j.marpolbul.2019.03.022>. Available on: <https://www.sciencedirect.com/science/article/pii/>

S0025326X19302061#bbb0025. Access on: 05 Oct. 2020.

CAMPOS, Edmo J. D. O papel do oceano nas mudanças climáticas globais. *REVISTA USP*, São Paulo, n. 103, p. 55-66, 2014. Available on: http://www.io.usp.br/images/noticias/papel_oceanos_clima.pdf. Access on: July 25, 2020.

CARVALHO, Délton Winter de. Bases estruturantes da política nacional de proteção e defesa civil a partir de um Direito dos Desastres Ambientais. *Revista de Direito Ambiental*, São Paulo, v. 18, n. 72, p. 13–38, out./dez. 2013. DTR\2013\9301.

CAVEDON, Fernanda de Salles. As ecological disasters and human rights: constructing resilience by an environmental and ethical approach. In: OLIVEIRA, Carina Costa de; SAMPAIO, Rômulo Silveira da Rocha (org.). *Instrumentos jurídicos para a implementação do desenvolvimento sustentável*. Rio de Janeiro: FGV, Direito, 2012. ISBN: 978-85-63265-21-0. p. 387-402. Available on: <https://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/10355/Instrumentos%20Jur%C3%ADdicos%20para%20Implementa%C3%A7%C3%A3o%20do%20Desenvolvimento%20Sustent%C3%A1vel.pdf>. Access on: 23 Jul. 2020.

CLAUDET, Joachim *et al.* A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action. *One Earth*, v. 2, Issue 1, p. 34-42, Jan. 2020. Available on: <https://www.sciencedirect.com/science/article/pii/S2590332219300934>. Access on: 14 Jul. 2020.

COMISSÃO INTERAMERICANA DE DIREITOS HUMANOS. PROTOCOLO ADICIONAL À CONVENÇÃO AMERICANA SOBRE DIREITOS HUMANOS EM MATÉRIA DE DIREITOS ECONÔMICOS, SOCIAIS E CULTURAIS, “PROTOCOLO DE SAN SALVADOR”. El Salvador, November 17, 1988. Available on: http://www.cidh.org/basicos/portugues/e.protocolo_de_san_salvador.htm. Access on: 27 Jul. 2020.

DIXON, Sean; LEES, Zachary; LESHAK, Andrea. *The Big Apple's Tiny Problem: A Legal Analysis of the Microplastic Problem in the N.Y./N.J. Harbor*. *Roger Williams University Law Review*, v. 22, n. 2, article 5. p. 385-430, 2017. p. 390. Available on: <https://docs.rwu.edu/cgi/>

viewcontent.cgi?article=1629&context=rwu_LR. Access on: 10 Aug. 2020.

DIZ, Jamile Bergamaschine Mata; LOPEZ, Tania García. La consolidación del principio de desarrollo sostenible en el Derecho Internacional Público y en el Derecho de la Unión Europea. *NOMOS*, Revista do Programa de Pós-Graduação em Direito- UFC. v. 39 n. 2, 2019. Published on February 27, 2020. 21 p. Available on: <http://periodicos.ufc.br/nomos/article/view/41063/100091>. Access on: 25 Jul. 2020.

ERIKSEN, M.; LEBRETON, L.C.M.; CARSON, H.S.; THIEL, M.; MOORE, C.J. *et al.* *Plastic Pollution in the World's Oceans: More than 5 Trillion Plastic Pieces Weighing over 250,000 Tons Afloat at Sea*. *PLoS ONE*, v. 9, n. 12, e111913. doi:10.1371/journal.pone.0111913. Available on: <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0111913&type=printable>. Access on: 6 Sep. 2020.

EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. Closing the loop - An EU action plan for the Circular Economy. Brussels, 2.12.2015. COM (2015) 614 final. Available on: <https://ec.europa.eu/transparency/regdoc/rep/1/2015/EN/1-2015-614-EN-F1-1.PDF>. Access on: November 08, 2020.

EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. A European Strategy for Plastics in a Circular Economy. {SWD (2018) 16 final}. Brussels, 16.1.2018. COM (2018) 28 final. Available on: <https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy.pdf>. Access on: August 24, 2020.

EUROPEAN COMMISSION. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. The European Green Deal. Brussels, 11.12.2019 COM(2019) 640 final. Available on: <https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75e->

d71a1.0002.02/DOC_1&format=PDF. Access on: February 26, 2021.

EUROPEAN UNION. DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE REDUCTION OF THE IMPACT OF CERTAIN PLASTIC PRODUCTS ON THE ENVIRONMENT. Brussels, June 05, 2019, (OR. en). 2018/0172 (COD), LEX 1930, PE-CONS 11/1/19, REV 1. Available on: <https://data.consilium.europa.eu/doc/document/PE-11-2019-REV-1/en/pdf>. Access on: 6 Sep. 2020.

EUROPEAN UNION. *The EU Blue Economy Report*. 2020. Publications Office of the European Union. Luxembourg, 180 p. ISBN 978-92-76-19726-3. Available on: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf. Access on: 10 Aug. 2020.

FRANCE INFO. *Effet déconfinement: sur la Côte d'Azur, masques et gants jetables polluent déjà les fonds marins*. Published on 05/24/2020. Available on: <https://france3-regions.francetvinfo.fr/provence-alpes-cote-d-azur/alpes-maritimes/antibes/effet-deconfinement-cote-azur-masques-gants-jetables-polluent-deja-fonds-marins-1832828.html>. Access on: 31 Jul. 2020.

GOUVERNEMENT FRANÇAIS. *Comment réduire l'utilisation du plastique jetable? Fin du plastique à usage unique*. January 01, 2020. Available on: <https://www.gouvernement.fr/les-actions-du-gouvernement/transition-ecologique/comment-reduire-l-utilisation-du-plastique-jetable>. Access on: 6 Sep. 2020.

KLEMEŠ, J.J.; FAN, Y.V.; TAN, Raymond R.; JIANG, Peng. Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19. *Renewable and Sustainable Energy Reviews*, v. 127, p. 4, 2020. 109883. ELSEVIER. Published on April 27, 2020. Available on: <https://reader.elsevier.com/reader/sd/pii/S1364032120301763?token=F2E9B1E3E72A8E6733A2D24546C3353E08BF5023D747A7E8FD1EC1ACB3E5FE7CE784F9DE6FC65A3D1F023ABC1D97F367>. Access on: 15 Aug. 2020.

KNAPTON; Sarah. Exclusive: Covid-19 may not have originated in China, Oxford University expert believes. *The Telegraph*. Available on: <https://www.telegraph.co.uk/news/2020/07/05/covid-19-may-not-have-originated-china-elsewhere-emerged-asia/>. Access on: July 23, 2020.

KNIGHT, Tim; MADDOX, Tom; WILLIAMS, Nathan. The environmental implications of the Covid-19 pandemic. *Fauna & Flora International*. p. 14, Mayo 2020. Available on: https://cms.fauna-flora.org/wp-content/uploads/2020/06/FFI_2020-The-Environmental-Implications-of-the-Covid-19-Pandemic.pdf. Access on: 25 Jul. 2020.

LE MONDE. Planète. Coronavirus et Pandémie de Covid-19. *Coronavirus: deux associations dénoncent l'action des lobbys pendant la crise sanitaire*. June 03, 2020. Available on: https://www.lemonde.fr/planete/article/2020/06/03/coronavirus-deux-associations-denoncent-l-action-des-lobbys-pendant-la-crise-sanitaire_6041598_3244.html. Access on: 6 Sep. 2020.

LEYEN, Ursula von der. POLITICAL GUIDELINES FOR THE NEXT EUROPEAN COMMISSION 2019-2024. *A Union that strives for more- My agenda for Europe*. Available on: https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf. Access on: 23 Jul. 2020.

MESSENGER, Gregory. Desarrollo sostenible y Agenda 2030: El rol de Derecho Internacional dentro del Desarrollo Sostenible y la Agenda 2030. *Revista Española de Derecho Internacional*, Madrid, Sección, FORO, v. 69/1, p. 271-278, ene./jun. 2017. <http://dx.doi.org/10.17103/redi.69.1.2017.2.01>. ISSN: 0034-9380; E-ISSN: 2387-1253. Available on: https://www.researchgate.net/publication/315112818_El_Rol_de_Derecho_Internacional_dentro_del_Desarrollo_Sostenible_y_la_Agenda_2030. Access on: 14 Jul. 2020.

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE. *Une campagne d'information contre les masques et les gants jetés à terre*. June 26, 2020. Available on: <https://www.ecologique-solidaire.gouv.fr/campagne-dinformation-contre-masques-et-gants-jetes-terre>. Access on: 31 Jul. 2020.

NAÇÕES UNIDAS BRASIL. 17 Objetivos para transformar nosso mundo. *Transformando Nosso Mundo: A Agenda 2030 para o Desenvolvimento Sustentável*. Available on: <https://nacoesunidas.org/pos2015/agenda2030/>. Access on: 14 Jul. 2020.

NAÇÕES UNIDAS BRASIL. Campanha Mares Limpos celebra dois anos de atividades contra o lixo plástico. *Desenvolvimento Sustentável*. Published on February 26, 2019. Available on: <https://nacoesunidas.org/campanha>

ha-mares-limpos-celebra-dois-anos-de-atividades-contra-o-lixo-plastico/. Access on: 15 Aug. 2020.

NAÇÕES UNIDAS BRASIL. Surto de coronavírus é reflexo da degradação ambiental, afirma PNUMA. *Environment Programme*. Reportagem. Ecosystems and Biodiversity, March 03, 2020. Available on: <https://www.unep.org/pt-br/noticias-e-reportagens/reportagem/surto-de-coronavirus-e-reflexo-da-degradacao-ambiental-afirma>. Access on: 13 Jun. 2020.

NUSDEO, Ana Maria de Oliveira. Pagamento por Serviços Ambientais. In: PHILIPPI JR., Arlindo; FREITAS, Vladimir Passos de; SPÍNDOLA, Ana Luiza Silva. (ed.). *Direito Ambiental e Sustentabilidade*. Barueri, SP: Manole, 2016. p. 619-643. Coleção Ambiental, vol. 18. ISBN 978-85-204-3922-7.

OECD. *The Ocean Economy in 2030*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251724-en>. ISBN 978-92-64-25172-4. Available on: <https://www.oecd.org/environment/the-ocean-economy-in-2030-9789264251724-en.htm>. Access on: 6 Oct. 2020.

PATRICOLA, Christina M.; WEHNER, Michael F. Anthropogenic influences on major tropical cyclone events. *Nature*, v. 563, p. 339–346, Nov. 2018. Available on: <https://www.nature.com/articles/s41586-018-0673-2#citeas>; <https://doi.org/10.1038/s41586-018-0673-2>. Access on: 14 Jul. 2020.

PRATA, Joana C.; SILVA, Ana L.P.; WALKER, Tony R.; DUARTE, Armando C.; SANTOS, Teresa Rocha. COVID-19 Pandemic Repercussions on the Use and Management of Plastics. *Environmental Science & Technology*, v. 54, n. 13, p. 7760–7765 2020. Published on June 12, 2020. <https://doi.org/10.1021/acs.est.0c02178>. Available on: <https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c02178>. Access on: 31 Jul. 2020.

PRICE WATERHOUSE COOPERS. PWC. *SDG Reporting Challenge 2017*. Available on: <https://www.pwc.com/gx/en/sustainability/SDG/pwc-sdg-reporting-challenge-2017-final.pdf>. Access on: 14 Jul. 2020.

ROCHMAN, C.; BROWNE, M.; HALPERN, B. *et al.* Classify plastic waste as hazardous. *Nature*, v. 494, p. 169–171, 2013. <https://doi.org/10.1038/494169a>. Available on: <https://www.nature.com/articles/494169a.pdf>. Access on: 15 Aug. 2020.

SWISS RE INSTITUTE. *A fifth of countries worldwide at risk from ecosystem collapse as biodiversity declines, reveals*

pioneering Swiss Re index. News release. Available on: <https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html>. Access on: 9 Nov. 2020.

UNITED NATIONS. *Millennium Development Goals and Beyond 2015*. Goal 7: Ensure Environmental Sustainability. Available on: <https://www.un.org/millenniumgoals/environ.shtml>. Access on: 8 Aug. 2020.

UNITED NATIONS. Sustainable Development Goals- Knowledge Platform. *High-Level Political Forum 2020 Under the Auspices of ECOSOC*. Available on: <https://sustainabledevelopment.un.org/hlpf/2020>. Access on: 14 Jul. 2020.

UNITED NATIONS. *The conservation and sustainable use of Marine Biological Diversity of Areas Beyond National Jurisdiction*. A technical abstract of the first global integrated marine assessment. New York, 2017. eISBN978-92-1-361370-2 (44 p.). Available on: http://www.un.org/depts/los/global_reporting/8th_adhoc_2017/Technical_Abstract_on_the_Conservation_and_Sustainable_Use_of_marine_Biological_Diversity_of_Areas_Beyond_National_Jurisdiction.pdf. Access on: 14 Jul. 2020.

UNITED NATIONS. *The Ocean and the Sustainable Development Goals Under the 2030 Agenda for Sustainable Development*. A technical abstract of the first global integrated marine assessment. New York, 2017. eISBN 978-92-1-361371-9 (48 p.). Available on: https://www.un.org/depts/los/global_reporting/8th_adhoc_2017/Technical_Abstract_on_the_Ocean_and_the_Sustainable_Development_Goals_under_the_2030_Agenda_for_Sustainable_Development.pdf. Access on: 25 Jul. 2020.

UNITED NATIONS. *UN convention on wastes makes breakthrough recommendations to address global marine litter and other types of wastes*. *Environment Programme*. *Basel Convention*. *Controlling transboundary movements of hazardous wastes and their disposal*. 2018, *Press Release*. Available on: http://www.basel.int/Implementation/PublicAwareness/PressReleases/OEWG11Pressrelease/tabid/7655/Default.aspx#_ftn1. Access on: 8 Aug. 2020.

UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP FRONTIERS 2016 REPORT: *Emerging Issues of Environmental Concern*. United Nations Environment Programme, Nairobi. ISBN: 978-92-807-3553-6. Job Number: DEW/1973/

NA. Available on: https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf. Access on: 7 Mayo 2020.

UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations. 113p, 2018. Available on: https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf?sequence=1&isAllowed=y. Access on: 9 Nov. 2020.

UNITED NATIONS. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP. Stockholm Convention. *Protecting human health and the environment from persistent organic pollutants*. Revised in 2017. Available on: <http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>. Access on: 26 Sep. 2020.

WORLD HEALTH ORGANIZATION. *Coronavirus disease 2019 (COVID-19) Situation Report – 94. Data as received by WHO from national authorities by 10:00 CEST*. April 23, 2020. Available on: <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200423-sitrep-94-covid-19.pdf>. Access on: 20 Mayo 2020.

WORLD HEALTH ORGANIZATION. *Covid-19 Strategy Update*. 14 April 2020. Geneve, Switzerland. Available on: https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf?sfvrsn=29da3ba0_19. Access on: February 12, 2021.

Para publicar na Revista de Direito Internacional, acesse o endereço eletrônico
www.rdi.uniceub.br ou www.brazilianjournal.org.
Observe as normas de publicação, para facilitar e agilizar o trabalho de edição.