POLICY BRIEF

4

INTERNATIONAL TREATY ON PLASTIC POLLUTION

Intergovernmental Negotiating Commitee INC4

23 TO 29 AVRIL 2024 | **Ottawa, CANADA**

For a systemic approach that meets global challenges

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FROM APRIL 23RD TO 29TH,

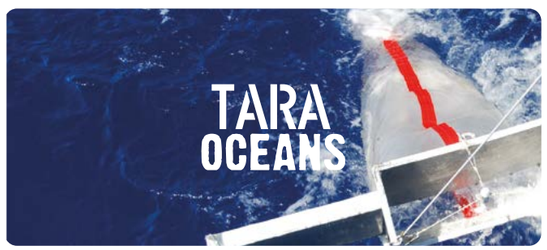
the Intergovernmental Negotiating Committee for the International Treaty on Plastic Pollution will convene for its fourth negotiating session. At the dawn of this significant meeting, all hope is permitted. Indeed, the revised zero draft text provided by the United Nations Environment Programme (UNEP) Secretariat, which negotiators will debate, is extremely disorganised. It will require significant effort for clarification. Certainly, the negative influence of States and pressure groups representing petrochemical interests remains a major concern for the quality and future of the text. Certainly, the place left for scientists remains poorly defined. But never before has an environmental issue been raised so high by such diverse actors. 70 States, as well as representatives of environmental rights, human rights, women's rights, indigenous peoples, and representatives of plastic industry workers, are coming together to demand an internationally legally binding text addressing all issues posed by plastics throughout their full life cycle. In this document, the Tara Ocean Foundation returns to the observations of pollution and the stakes. It outlines robust and realistic solutions regarding objectives and feasibility and sets out fundamental expectations for this Treaty, from the Ocean's perspective.

TARA AND PLASTICS · A HISTORY OF COMMITMENT

The Tara Ocean Foundation is the first foundation dedicated to the Ocean acknowledged to be of public utility in France. It has two main missions: to explore the Ocean to understand it better and to share scientific knowledge to raise public and collective awareness. For 20 years, it has supported high-level Ocean science, in collaboration with the CNRS and top international research laboratories, to understand and anticipate the upheavals in biodiversity linked to climate and environmental risks. In order to make the Ocean a common responsibility and to preserve it, the Tara Ocean Foundation raises awareness of Ocean science, educates the young generations and mobilises decision-makers.

Tara's research on plastics since 2010

Since 2010, from the Arctic to the Pacific, passing through the Mediterranean, the nets of the schooner *Tara* have been collecting an abundance of life, invariably mixed with plastic debris. The observation is clear: microplastics are omnipresent in the Ocean. New life zones are being created, blending living organisms and plastic, and forming the "plastisphere". The Tara Ocean Foundation's research has therefore naturally focused on these new pollutants, particularly the nearly invisible and still poorly studied microplastics. It has played a pioneering role in research on these issues.



Firstly with a research project on plastics in the Arctic Ocean in 2010 during the ***Tara Oceans expedition (2009-2013)*** dedicated to the study of plankton. This expedition led to the discovery of a new plastic debris accumulation zone, proving that plastic pollution generated close to human homes can impact the most isolated regions and, consequently, affect virgin ecosystems.

During the ***Tara Mediterranean expedition (2014)***, in one of the world's most polluted seas, a unique, quantitative and ecological study of the impact of microplastics on the Mediterranean ecosystem was carried out, allowing the creation of a database that will be freely accessible to the scientific community, listing 75,000 plastic particles.

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In 2018, during the ***Tara Pacific expedition (2016-2018)*** dedicated to coral reefs, scientific teams went to the heart of the "plastic continent" in the North Pacific to continue identifying the presence of microplastics and associated biodiversity. From the schooner's deck, the continent turned out to be a "soup" of microplastics, which comprises over 90% of the surface of this oceanic gyre.

In 2019, the ***Tara Microplastics expedition (2019)*** led the schooner to conduct an unprecedented investigation into plastic pollution in the land-sea continuum, collecting samples from nine major rivers over six months. This initiative, led by the Tara Ocean Foundation in partnership with 19 research laboratories and coordinated by CNRS, aimed to identify sources of pollution, understand the fragmentation of microplastics, and assess their impacts on marine biodiversity. Preliminary results revealed the widespread presence of microplastics and highlighted plastic fragmentation occurring much further upstream in rivers than expected, shedding light on the complexity of impacts on ecosystems and human health.

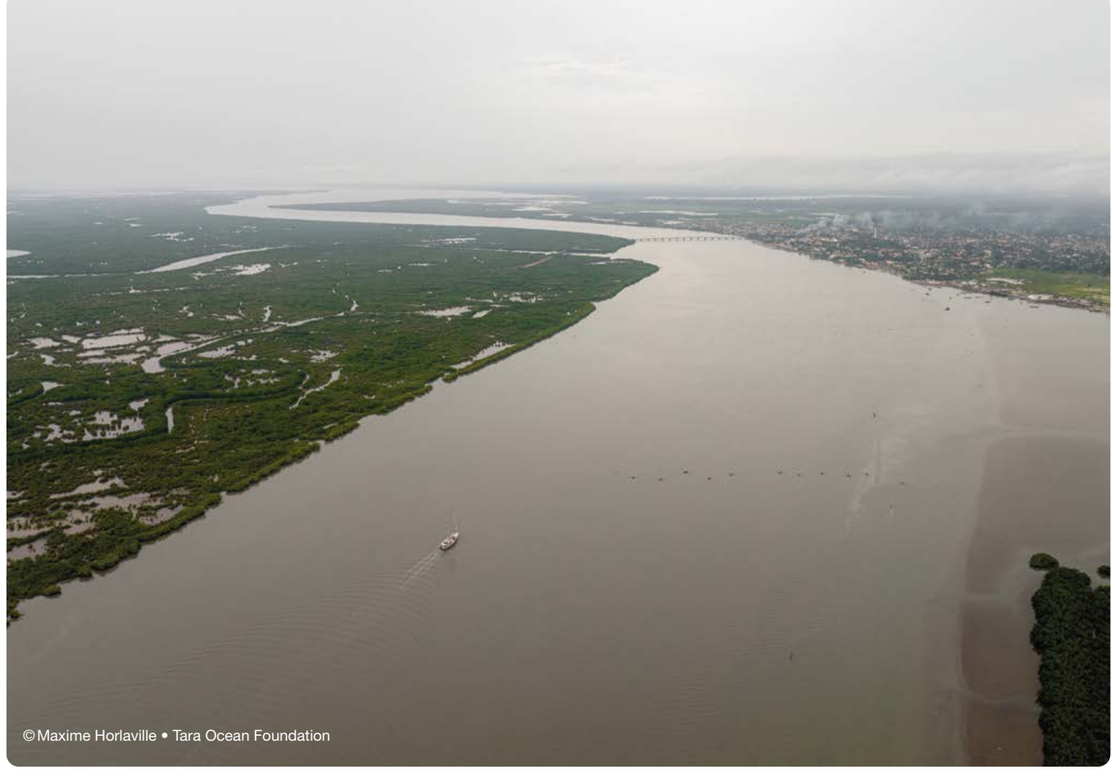
The ***Tara Europa expedition (2023-2024)*** focuses on the land-sea interface of European coastlines and conducts a groundbreaking study on chemical pollutants such as pharmaceuticals, pesticides, and plastic additives. This study aims to enhance our understanding of the impact of these pollutants on marine biodiversity. Everything that humans release into the environment affects them through the air they breathe, the water they drink, and the food they ingest. It is urgent to assess the extent of this impact on global health.

Think Tank “Tara plastics”

The terrestrial origin of marine plastic pollution is estimated at 80%. Because this pollution is climatic, chemical, and physical, often invisible, it becomes uncontrollable once it reaches rivers and the Ocean. Therefore, it is crucial to act upstream of the value chain and prevent their leakage into the environment. The circular economy - in its true sense - is the solution advocated by the Tara Ocean Foundation to address the challenge of reducing pollution. To nurture this reflection and develop pragmatic, ambitious, and effective solutions, a Think Tank has been established, bringing together experts from both hard and social sciences. Thus, rich and interdisciplinary exchanges enable a more systemic understanding of the plastic issue. The proposals developed in this document are largely the result of the expertise and exchanges of this Think Tank.

Dialogue with decision-makers

The Tara Ocean Foundation advocates for these recommendations in constructive dialogue with political and economic decision-makers. Far from opposing these decision-making scales, it seeks to mobilise each according to their competencies and in complementarity; political decision-makers in building a common framework and in the general interest, and businesses in the emergence and deployment of virtuous technological and organisational solutions. These exchanges promote the adoption of pragmatic measures, informed by a precise understanding of the issues, the challenges faced by businesses, and the regulatory and legislative constraints at national, European, and global levels.



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OBSERVATION ON PLASTIC PRODUCTION AND CONSUMPTION

The UNEP Secretariat has produced a synthesis document on the state of knowledge at the beginning of the negotiations. Here, we reproduce and complement these elements, shedding light on the debate about the necessity and urgency to act.

The global plastic production has exponentially increased since the 1950s. According to the Organisation for Economic Co-operation and Development (OECD), the annual production doubled between 2000 and 2019, rising from 234 to 460 million tonnes. It is projected to at least triple by 2060 if no changes are made. These projected increases vary considerably between OECD countries and developing countries.

However, it should be noted that the former are expected to remain the major contributors to global plastic pollution. Thus, **each inhabitant of OECD countries will consume 238 kg of plastics by 2060, compared to 77 kg for inhabitants of non-OECD countries.**

The plastics market is mostly (86%) dominated by thermoplastics, these plastic materials are primarily used in the packaging sectors, followed by construction, transport, and the textile industry.

UNEP notes that the plastics economy is largely linear, leading to massive production of untreated or poorly treated waste. Currently, 353 million tonnes of plastics are produced annually worldwide, a figure expected to soar to 1,014 million tonnes by 2060[1]. **46% of plastic waste is buried in landfills, 17% is incinerated, and 22% is abandoned in the environment. 15% is collected for recycling, but only 9% is actually recycled.** Mismanagement of end-of-life objects constitutes the main known source of macro-waste to date.

UNEP specifies that although many plastics are theoretically recyclable, only a few are actually recycled, and only in certain territories. Unfortunately, these results are unlikely to change significantly since **projections do not suggest an increase in the recycling rate beyond 12% by 2060.** Regarding chemical recycling, UNEP indicates that it is a field of research that could be of interest given the technical limitations of mechanical recycling.

However, it must demonstrate its environmental added value considering its energy costs, the toxic materials involved, and the potentially generated by-products. Chemical recycling cannot be considered a deployable solution due to its lack of industrial maturity and the inability to deduce economic viability. Moreover, this option would not provide a solution for poorly managed waste while potentially undermining efforts to improve waste management.

1. OECD. (2022). Global Plastics Outlook Policy scenario to 2060. https://tinyurl.com/2mnk5f6w

PLASTIC PRODUCTION AND CONSUMPTION, WHAT CONSEQUENCES?

Waste production

Today, the entire planet is affected by plastic waste, from the atmosphere to the deepest ocean floors! UNEP[2] estimates that 31 million tonnes of **plastic waste** contaminate terrestrial ecosystems annually, with 20 million tonnes in continental aquatic ecosystems and 11 million tonnes in the Ocean. Additionally, open burning of plastic waste accounts for 49 million tonnes. These figures are estimates but are expected to multiply by 2.5 in the next 20 years considering the projections of plastic materials production. By 2040, the quantity of plastic waste that will enter the Ocean is estimated to be around twenty million tonnes per year[3]. 88% of plastic waste found in the environment are macro-waste, meaning larger than 5 millimetres. The source is predominantly linked to waste mismanagement. UNEP indicates that plastics used by the fishing and agriculture sectors should be particularly monitored due to a significant risk of leakage into the environment.

The issue of **microplastics** (less than 5 millimetres) is underscored as one of the major monitoring points. Originating from primary plastic leaks, the degradation of plastic products, or intentional dumping, they represent very significant volumes, at least 12% of the total plastics entering the Ocean[4]. Due to their small size, they penetrate food chains and organisms.

Consequences on the Climate

Drawing on the analysis from the OECD, UNEP points out that **plastic production contributes to 3.4% of global greenhouse gas emissions and that these emissions are expected to quadruple to reach 15% by 2050.**

2. Source PNUE zero draft
3. Jambeck et al., Lebreton et al. 2019, OCDE, 2022
4. OECD. (2022). Global Plastics Outlook. Policy scenario to 2060. https://tinyurl.com/2mnk5f6w

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Consequences on Global Health and Human Rights

Plastics, inherently toxic ?

Plastic, regardless of its type, is a material composed of monomers such as ethylene, styrene, or bisphenols, etc. These monomers are then polymerised to form polymers such as polyethene, polystyrene, or polycarbonate. However, polymerisations are often imperfect, and non-polymerised monomers can be found in plastics, some of which, such as styrenes, bisphenols, etc., pose major health risks. In addition to these compounds, **more than 16,000 chemicals**[5] - including additives (plasticisers, fillers, colourants, flame retardants, antioxidants, etc.) - **are incorporated into plastic formulations** to modify the properties of polymers. Among these, **a quarter are suspected to be toxic and disrupt the proper functioning of living organisms.** There are also non-intentionally added substances (NIAS), including impurities, raw materials used for manufacturing, secondary products, degradation products, or substances that fix to plastics. In most cases, these elements (free monomers, additives, and NIAS) are not chemically bound covalently to the polymer, making them more likely to be released during the “life” of plastics (production, use, post-usage), whether by migration into liquids or solids or by volatilisation. These substances can migrate into food products in the case of food packaging, as well as into the environment.

The concept of **One Health** was introduced in the early 2000s and gradually adopted by UN institutions (World Health Organisation, World Organisation for Animal Health, Food and Agriculture Organisation of the United Nations, and United Nations Environment Programme). It is based on the idea of health that links the environment, non-human species, and humans inseparably, considering their close interactions and interdependencies. This concept has emerged and gained momentum in the context of climate change, destruction of natural habitats, pollution, depletion of natural resources, and global population growth. All these developments generate shifting health pressures and lead to the emergence or re-emergence of diseases. **Thus, the One Health approach encourages us to rethink health, recognising the interdependence of species within a single planet, where all coexist.** Human health is therefore just one aspect of global health affected by plastic pollution, whether directly or indirectly.

The prosperity of humanity is now understood to be inseparable from ensuring the possibility for every living being, human and non-human, to live in good health. This is the essence of the resolutions adopted in 2022 by the United Nations General Assembly and the United Nations Human Rights Council declaring that access to a “clean, healthy, and sustainable environment” is a human right.

Plastics already have significant effects on the health of the living world. In addition to physical risks (entanglement, ingestion, and disruption of food chains by microplastics), the chemicals that compose or are associated with them are implicated in several diseases. Just for the human species, we have identified IQ loss and intellectual impairment, adult-onset diabetes, endometriosis, obesity, cryptorchidism, male infertility, low birth weight, pneumonia, hypothyroidism, polycystic ovary syndrome, breast and kidney cancer, and low testosterone levels leading to premature mortality from cardiovascular disease[6]. **Diseases caused by chemicals used in plastic materials are substantial, already affecting approximately 18 million people. This figure is, in fact, significantly underestimated,** particularly because it dates back to 2010, and since then, plastic production and resulting pollution have multiplied by 1.6.[7] It is further underestimated as it only concerns the United States, the European Union, and Canada, thereby ignoring 90% of the world’s population. Finally, this figure only accounts for diseases caused by four chemical additives added in plastic manufacturing, while in reality, there are thousands of additives.

5. Wagner, M. et al. (2024). State of the science on plastic chemicals - Identifying and addressing chemicals and polymers of concern. https://tinyurl.com/mrxsr3ah
6. Trasande, L., Liu, B., & Bao, W. (2022). “Phthalates and attributable mortality: A population-based longitudinal cohort study and cost analysis”. Environmental Pollution, 292, 118021 https://tinyurl.com/4ppa6mv4
7. Cordier, M., Uehara, T., Jorgensen, B., & Baztan, J. (2024). Reducing plastic production: Economic loss or environmental gain?. Cambridge Prisms: Plastics, 2, e2. https://tinyurl.com/267a3rz6

In conclusion, it is important to note the diversity of impacts of plastics and the complexity of assessing and taking them into account. There is a direct alteration of ecosystem functioning and consequences for biomass production or the degradation of major natural cycles, in addition to, or synergy with, other environmental pressures[8]. **Their presence in the environment, by altering the resilience capacities of ecosystems, could significantly accelerate the most concerning changes.** Plastics therefore pose a threat to humanity and the living world in general. They alter food resources and degrade the living environment. Furthermore, they constitute serious threats to health at each stage, from production to end-of-life, including their use. This concerns actors in production, exposed to polymers and their additives in industrial phases, those in formal and informal waste management sectors, to the entire population exposed to micro and nanoparticles present in the air, water, and food.

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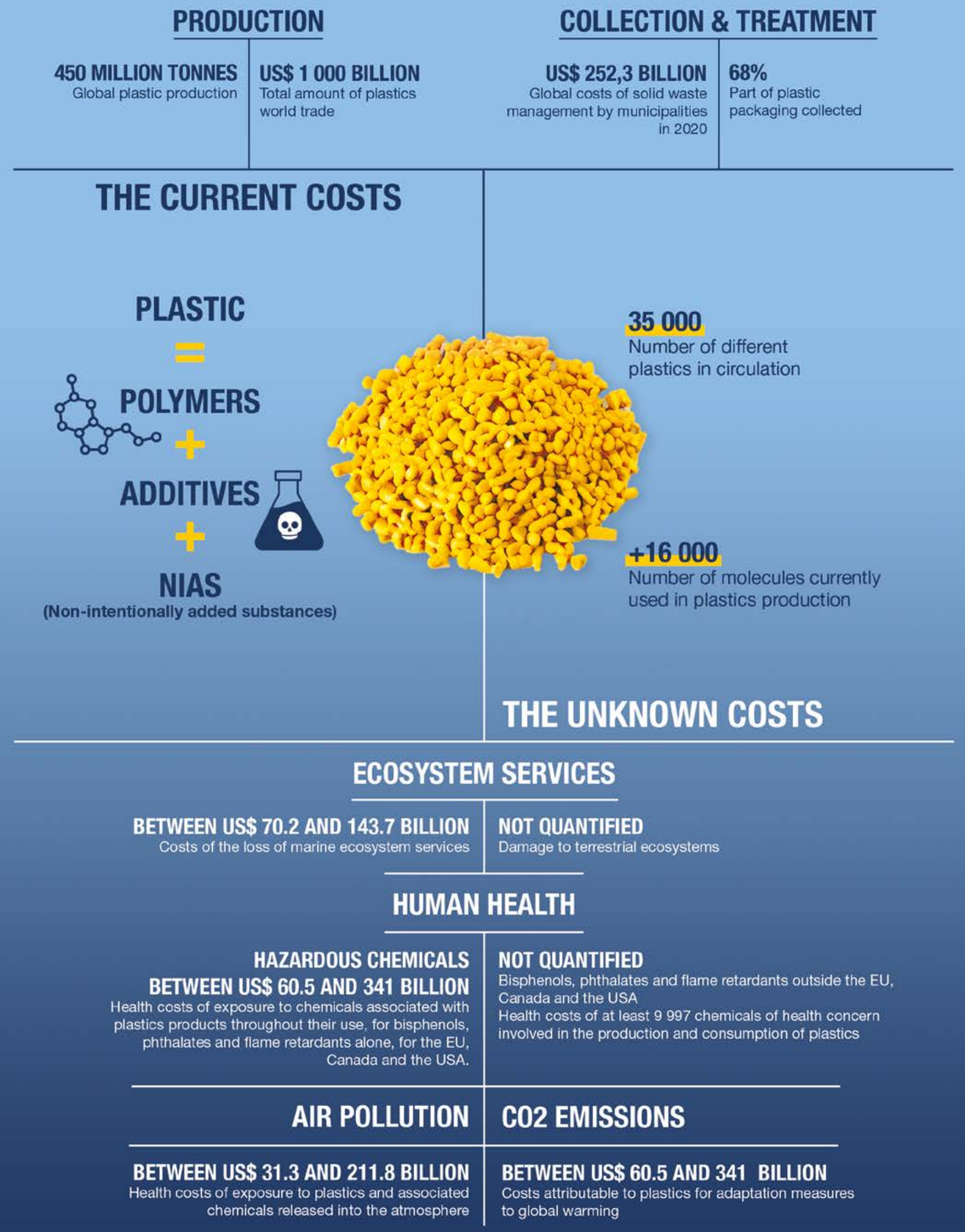
The real costs of plastics

The figures mentioned here simply highlight the costs that are not currently taken into account when calculating the cost of plastics. They do not represent an attempt to exhaustively calculate the costs of plastic production and treatmen.



8. Richardson, K. et al. (2023). Earth beyond six of nine planetary boundaries. Science advances, 9(37), eadh2458 https://tinyurl.com/vkr39esx

An international team of researchers, based in France, Japan, and the United States, has estimated the costs of plastic pollution[9], arriving at an average estimate of $148 trillion globally[10]. It is important to emphasise that this estimate does not reflect the full extent of costs, particularly due to the significant challenge of quantifying economic losses associated with the degradation of essential non-market common goods (health, biodiversity, etc.).

Currently accounting for 3.4% of global greenhouse gas emissions, plastic emissions could rise to 15% by 2050. Plastics thus directly contribute to climate change, which necessitates massive investments for the adaptation of our societies.

As we have seen, the use of plastic also exposes individuals to numerous chemical substances[11] and leads to **health costs amounting to 250 billion dollars (Int$) globally in 2015 alone.**[12]

The life cycle of plastic also affects key economic sectors such as fishing, tourism and agriculture. Plastic pollution in the Ocean reduces fishing yields. Similarly, the significant presence of plastic greatly impacts the attractiveness of tourist sites.

It is critical to emphasise that these costs do not impact populations equally. Their incidence is particularly high on the most vulnerable, across scales. Small Island Developing States (SIDS) are the most impacted by changes related to global warming, the omnipresence of plastic waste and the loss of fishery resources. In developed countries, workers in plastic production centres and populations with the lowest incomes bear the brunt of increased exposure to plastics.

Therefore, despite low production costs, the economic repercussions of plastic production, use and disposal make it a huge expense for society, potentially surpassing its value creation. **Choosing to reduce plastics is therefore not an economically counterproductive choice or a sacrifice of a comfortable lifestyle, quite the opposite.** This approach is an essential prerequisite to ensure a sustainable quality of life and a sustainable economy.

9. Cordier et al. (, 2024).
10. Moyenne d'une fourchette comprise entre 13 711 milliards et 281 802 milliards de dollars (l'écart des valeurs entre l'estimation basse et haute est très important en raison des imprécisions inféodées aux données disponibles)
11. Trasande, L., et al. (2024). "Chemicals used in plastic materials: an estimate of the attributable disease burden and costs in the United States". Journal of the Endocrine Society, 8(2), bvad163. https://tinyurl.com/4auavcp8
12. Annals of Global Health, vol. 89 / Boston college, Minderoo foundation, Centre scientifique de Monaco

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EXAMPLES OF ECONOMIC COSTS OF PLASTIC

BETWEEN $1.63 TO 8.14 BILLION
Costs of prenatal care due to phthalate exposure in 2018 in the United States[13]

$8.8 BILLION IN 2010
Costs of premature death from cardiovascular causes due to reduced testosterone caused by phthalate contamination in the United States.

$145 BILLION
Costs of lost productivity for individuals born in 2015 due to exposure to PBDE in the United States[14]

11 TO 25%
Decrease in crop yields for China due to plastic usage in agriculture[15]

$164.5 MILLION
Loss of productivity caused by plastic pollution in the tourism sector for Fiji in 2019

BETWEEN $76.5 AND 247.5 MILLION
Direct costs globally attributable to plastic for residual damages due to sea level rise in the 21st century[16]

US$ 600,000
Estimated loss of fishing yields for Fiji in 2019[17]

13. Trasande, L., et al. (2024). "Prenatal phthalate exposure and adverse birth outcomes in the USA: a prospective analysis of births and estimates of attributable burden and costs". The Lancet Planetary Health, 8(2), e74-e85. https://tinyurl.com/msmvy6c5
14. Annals of Global Health, vol. 89 / Boston college, Minderoo foundation, Centre scientifique de Monaco
15. FAO. (2021). Assessment of agricultural plastics and their sustainability – A call for action. Rome. https://tinyurl.com/5xdtdzay
16. OCDE. (2019). Hausse du niveau des mers : Les approches des pays de l'OCDE face aux risques côtiers. Éditions OCDE, Paris. https://tinyurl.com/52ydneuv
17. RAES, D. et al. (2023). The economic impact of plastic pollution, and the benefits of reducing mismanaged waste. IUCN Economics Team and Ocean Tea. https://tinyurl.com/yuz944v2.

REDUCING PRODUCTION AND CONSUMPTION OF PLASTIC, THE MAIN CHALLENGE OF THE TREATY

Reduction of toxic chemicals

More than 16,000[18] chemicals have been found in plastics. Information on the toxicity of these compounds is only available for approximately 5,600 of these products, of which more than 4,000 are considered toxic. Given the extremely large number of chemicals, it is difficult to define the toxicity of each one and, therefore, to propose a definitive whitelist of authorised products. This list would inevitably be modified as knowledge of toxicity profiles improves over time. **Establishing a whitelist also poses practically insurmountable problems due to the number of chemicals to consider.** Indeed, their safety should be demonstrated across several representative species from different taxonomic or functional groups to approximate the diversity of the living world. It should also take into account the fact that combinations of products can modify the toxicity of individual products. Therefore, since it is impossible to test all combinations, an authorised substance could prove to be toxic under certain circumstances. **Due to these limitations, an approach using red, orange, and yellow lists, regularly revised, appears to be more relevant.** It would thus be possible to identify families of chemicals in which several representatives present proven toxicity for one or more taxonomic groups. By taking into account several types of toxicity, a list of fifteen priority chemical families has been established, including aromatic amines, aralkyl aldehydes, alkylphenols, salicylate esters, aromatic ethers, bisphenols, phthalates, benzothiazoles, organometallic compounds, parabens, azodyes, acetobenzophenones, chlorinated paraffins, and per- and polyfluoroalkyl substances. Beyond this list, chemicals having one or more of the following characteristics - persistent, bioaccumulative, toxic, or chemicals used in very large quantities or those highly dispersed during plastic use - should be given priority. The same rules apply for polymers, to which the following properties can be added: degradability, and presence of free monomers or oligomers.

Among the diversity of formulated plastics, which ones already have deleterious effects on health and the environment? Today, nearly three out of four chemicals involved in plastic production are toxic. However, the total number of these products and the lack of transparency regarding formulations, along with the absence of any independent pre-marketing assessment, require precautionary measures that take into account the proven risk that plastics pose to global health. The fifteenth principle of the Rio Declaration, adopted in 1992, states: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” It is in strict application of this declaration that the following measures could be adopted:

- The establishment of a mandatory public register prior to marketing, including not only the molecules used but also volumes, uses, and disposal prospects
- Simplification of formulations
- Support for academic research
- Reduction of plastic volumes put on the market

18. Wagner. M. et al. op. cit.

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Reduction of volumes

Pure and simple approaches to reducing the marketing of unnecessary plastics and replacing them with alternative materials (paper, cardboard, reusable glass, etc.) could lead to **a 50% reduction in plastic production by 2040 globally compared to the 2021 production levels.**

As significant as it may seem, this percentage is based on a robust and realistic economic approach. It relies on organisation and technological devices that are already operational. **It implies mobilising all available solutions that promote a circular economy in the true sense of the term, to move away from a linear economy. This means strict compliance with the 3Rs hierarchy**[19] (Reduce, Reuse-Repair, and Recycle).

The average cost of this reduction scenario has been estimated at $88 trillion globally, or $3.52 trillion per year over 25 years. This economic cost is much lower than the average cost of inaction, which would be very high, reaching $148 trillion, or $5.92 trillion annually (this represents twice the GDP of France or one-third of the GDP of the European Union).

19. Kirchherr, J., Reike, D., & Hekkert, M. (2017). “Conceptualizing the circular economy: An analysis of 114 definitions. Resources, conservation and recycling”, 127, pp. 221-232, https://tinyurl.com/mu3vr4fk; Potting et al., (2017). “Circular economy: measuring innovation in the product chain. Planbureau voor de Leefomgeving, 2544; Johansen, M. R., et al. (2022). “A review of the plastic value chain from a circular economy perspective”. Journal of Environmental Management, 302, 113975, https://tinyurl.com/45vvm4tm.

Plastics recycling, a last resort

The 3Rs hierarchy reminds us that waste primarily reflects the productive system of material goods[20]. By integrating a 3R approach, a more holistic approach to plastics can be adopted. This is all the more true considering the **numerous limitations of plastic waste recycling,** such as:

The complex formulation and diversity of plastics hinder their recycling. Plastics produced and put on the market have unequal recyclability properties. Only plastics belonging to the thermoplastics family are theoretically recyclable. Even for these, the presence of additives and other contaminants (other materials, food residues, or associated chemicals) limits the proportion of plastics that can be recycled.

The structuring of a complete economic value chain is necessary to valorise end-of-life plastics. To achieve this, collection, sorting, and recycling infrastructures need to be developed and optimised, which requires massive investments, sometimes for insufficient volumes or costs higher than those of virgin materials.

The difficult reincorporation of recycled plastic materials (RPMs). Once plastics are transformed into flakes or granules, two possibilities for reintegrating recycled resins emerge, depending on the degree of polymer degradation and the contaminants present. The first option is "closed-loop" recycling where RPMs return to their original use. The second option, "open-loop" recycling (downcycling) involves reintegrating RPMs of difficult-to-control quality (due to many mixtures) and implies a change of use towards applications less demanding in terms of resource quality. The proportion of recycled plastic resins directed towards closed-loop recycling remains very limited, as seen with clear PET plastic water bottles. Almost all other plastic materials follow the open-loop recycling path.

The degradation of the physical properties of RPMs. As recycling cycles increase, RPMs see their qualities degrade, necessitating the addition of virgin raw materials to maintain the desired performance.

The risk of accumulating toxic elements resulting from chemical degradation of the material or its contact with external pollutants[21].

20. Jeanjean, A., Le Lay, S., Roueff, O. (2016). "Où va l'homo detritus ?", « Éditorial », Mouvements, n° 87:3, p. 7-12. 10.3917/mouv.087.0007.
21. Carmona, E. et al. (2023). A dataset of organic pollutants identified and quantified in recycled polyethylene pellets. Data in Brief, 51, 109740. https://tinyurl.com/mud4mj4e

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WHAT MECHANISMS TO MOBILISE TO REDUCE PLASTICS

Reducing global production of monomers

The work of the Stockholm Resilience Centre on planetary boundaries considers plastics as "new entities" whose leakage rate into the environment must be reduced to zero. The impacts generated (greenhouse gases, toxicity, etc.) by plastics are not only linked to the waste they produce but to the entire life cycle of these materials, underscoring the need to reduce their production. Drawing from the example of carbon and noting the failure of 19 years of policies aimed at reducing emissions based on the market logic alone, we put forward the hypothesis of a reduction in plastic production by **creating global quotas for monomer production, limited to 50% of current production.** This figure is based on the assumption of an economically "realistic" reduction developed hereinabove. This strategy would have several virtues:

- The possibility of control by public authorities of production units, of which there are only a few in the world, based on the example of monitoring radioelements.
- The increase in the cost of plastics and, consequently, a reduced economic desirability.
- The increase in the economic desirability of alternatives (both in terms of materials and organisational solutions).
- The establishment of a North-South solidarity fund through the sale of these quotas by public authorities. Financial regulation mechanisms applicable to plastics from countries that are not signatory to the Treaty (chemical or isotopic marking from polymerisation or compounding would ensure tracing of plastics).

Creation of a production quota trading market

The aforementioned quotas can be considered within the framework of a quota trading market, where an industry that has successfully reduced its monomer production could sell its excess quotas to industries producing too much plastic. Tradable quotas offer a market-based approach, promoting efficiency and innovation by allowing companies to negotiate allocations of rights to produce plastic monomers. The quota market system provides clarity in allocating production limits but can be administratively complex and susceptible to market manipulation, as seen in the case of the CO_2 quota market. It is also important to highlight the risk posed by the initial free allocation of a certain quantity of quotas to industries. In this case, it is only when they exceed a certain level of production that they must purchase quotas on the market. This is the example of climate policy and CO_2 quotas, where the initially allocated quantity, set at a far too high level, failed to achieve reduction goals. To prevent such a mistake from happening again, the Plastic Treaty should prohibit free allocations of quotas and require that the number of quotas available on the market be determined by an independent commission.

Establishment of an environmental tax on production

Another instrument, a fiscal one, exists to reduce monomer production: environmental taxes. These taxes could directly discourage the generation of plastics through financial disincentives, potentially generating revenue for environmental initiatives. In 2021, 140 countries gathered around the OECD and G20 agreed to raise the minimum tax rate for multinational companies to 15%. This provision came into force for the 27 EU countries on January 1st, 2024, and has already been transposed into French law. This is a first in terms of taxation and opens up possibilities for globalised tax applications in environmental policies related to plastics. However, it should be noted that environmental tax approaches have two shortcomings. On one hand, they can disproportionately affect low-income individuals and small businesses. On the other hand, to our knowledge, an environmental tax has never been implemented on a global scale to reduce polluting emissions. The approach of reduction through taxation would therefore require overcoming additional psychological, political, and organisational barriers and would pose significant challenges in terms of international cooperation. It is not about excluding one or the other of these mechanisms, but rather emphasising that **both approaches (taxes and quotas) offer distinct advantages and challenges, underlying the need for careful consideration of their relevance within broader environmental policy objectives.**

22. Buclet, N. (1997). Politiques d'environnement, trajectoires institutionnelles et contraintes de coordination internationale: la gestion des déchets d'emballages ménagers en Europe (Doctoral dissertation, Paris 7).
23. Vernier, J. (2018). Les filières REP, Ministère de l'écologie, Paris. https://www.ecologie.gouv.fr/sites/default/files/REP_Rapport_Vernier.pdf

Extended Producer Responsibility (EPR)

The Extended Producer Responsibility, or EPR, is a political and regulatory tool that is currently in effect in many countries, aimed at holding producers responsible for some or all of the management of household waste generated by their products. Primarily used for packaging waste, electronic waste, or batteries and accumulators, this tool is based on various organisational forms, depending on national contexts, and has achieved varying results. While the growing attention to plastic waste issues strengthens the interest in this tool, it is worth taking a brief look at its history, accomplishments and limitations.

ERP, a tool for packaging valorisation

Collective EPR emerged in France at the beginning of the 1990s due to a dual constraint faced by the French authorities. The first one was the technical and fiscal saturation of waste packaging management capacities, which at the time was mainly managed by municipalities. Faced with an increase in the volume and mass of waste per inhabitant, as well as a reconsideration of landfilling as the main mode of waste management, public authorities sought a new way to finance waste management. The second constraint was fear, following a Danish precedent, that the idea of very stringent producer responsibility through the implementation of mandatory deposits for all packaging would gain traction and convince the European Union[22]. In response, the French public authorities, in collaboration with packaging industry stakeholders at the time, devised a system for mutualising the responsibility of packaging producers, based on the concept of the Producer Responsibility Organisation (PRO). This private structure is then responsible for collecting eco-contributions on the sale price of products, which are then redistributed to local authorities to finance - in part - the management of household waste, sorted separately and destined for energy (incineration) or material (recycling) valorisation. The French system is distinguished by its collective nature, based on cost-sharing by industries, which are controlled, albeit with some difficulties, by public authorities[23].

Improved collection, a source of funding for local authorities

More than 30 years after its introduction, EPR for packaging waste has undoubtedly improved the separate collection of these materials in France[24] and elsewhere[25]. Furthermore, it has significantly contributed to the financial effort of French local authorities, as 835 million euros are annually redistributed to them by PROs[26]. Exclusively used for waste management purposes, these funds allow, with equal expenditures, to reduce the need for revenue to implement a packaging waste collection service at the local level.

The blind spots of ERP: individualisation, prevention, governance

While it constitutes an interesting tool, EPR also has a number of limitations. Firstly, in its collective form, which is the most common in France and Europe, it largely fails to differentiate products put on the market according to their ecological virtue[27]. In other words, while EPR fulfils a "budgetary" role in financing waste management methods oriented towards valorisation, **it does not succeed in fulfilling its "incentive" vocation for reduction and in discouraging producers from selling the most polluting products**[28].

24. ibid. 25. OCDE. (2023). 26. Haeusler, L. et al. (2023). Déchets chiffres-clés. Angers: ADEME.
27. Jourdain, V. (2023). "L'influence variable du discours économique dans un instrument d'action publique : les bonus-malus dans les filières de gestion des déchets". Revue Française de Socio-économie, 31(2), pp.153-174. doi: 10.3917/rfse.031.0153
28. Joltreau, E. (2021). "Développer une économie circulaire : politiques publiques et réponses des acteurs économiques". Thèse de doctorat, Université Paris sciences et lettres.

Secondly, it is poorly designed to enable a reduction in the quantities of waste produced. Indeed, under the “polluter pays” principle, a product put on the market “compensates” for the environmental damage it could cause. However, this compensation is incomplete in integrating environmental costs into waste management costs and fails to reduce the use of single-use plastics[29].

Lastly, a system for resource allocation and organisation of sectors controlled by private entities may raise questions, as waste management is a prerogative of public authorities. The privatisation of part of its financing entails a reduction in collective, democratic, and public control over environmental and economic challenges. **Today, for example, all EPR schemes in France represent more than 1.7 billion euros in contributions, compared to the total public budget related to waste, which is around 20 billion euros.**[30]

Suggestions for improvement

There are several options for overcoming the limitations of this instrument. The first, and most radical, would be to question the relevance of a “collective” tool based on PROs and to consider alternatives such as financial deposit systems or full product liability through the individualisation of responsibility. The second, if one accepts to maintain a so-called collective system, is to ensure the restructuring of its functioning to allow for the inclusion of civil, non-profit, and democratic stakeholders. The global bases and common mechanisms for the implementation of either of these systems could be included in the Treaty, with particular emphasis on:

- **Setting fees at a level sufficient to cover the full costs of plastics** (health, environment, costs of economic losses, etc).

- **Using modulated fees to promote reduction, reuse, and operational recyclability hierarchically.** In the case of products marketed globally, better incentives for eco-design could also be achieved by harmonising the definition of “environmentally friendly designs”.

- Integrating informal workers into EPR systems in emerging and developing countries. Since 2001, EPR systems have been implemented in many emerging and developing economies. Unlike the most developed OECD countries, a large number of informal workers are involved in waste recycling: it is estimated there are 20 million of them worldwide. Waste collection is often difficult, dangerous, and socially precarious[31]. **EPR systems must integrate - including in their governance - informal operators rather than working against them.**


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29. Glachant, M, & Toubou, S. (2019). “La Responsabilité Elargie du Producteur incite-t-elle suffisamment à la prévention des déchets d’emballages en France ? Une évaluation économique”, in i3 Working papers.
30. Haeusler et al, 2023; Rapport sur l’impact environnemental du budget de l’Etat, 2023, p. 238.
31. OECD. (2001). Extended Producer Responsibility: A Guidance Manual for Governments.

7 RECOMMENDATIONS FROM THE TARA OCEAN FOUNDATION FOR THE INTERNATIONAL TREATY

Recommendations and mechanisms for reduction developed above are part of a comprehensive vision and expectations regarding transparency, efficiency, and equity of the Treaty, which are reflected in 7 proposals put forward by the Tara Ocean Foundation for the international Plastic Treaty.

1 Establish official definitions of key terms such as «plastics», «recyclable», and «recycled»

In its Zero Draft, UNEP highlights the challenges related to terminology and reporting. While some definitions are outlined, they remain, on the eve of INC4, highly inadequate. Fundamental terms such as «plastics», «recyclable», «recycled» etc., remain without official definition, which could significantly alter the scope of the final text.

2 Request States to establish monitoring reports on the marketing of plastic materials

The Tara Ocean Foundation hopes that the future Treaty will require States to submit monitoring reports, not only on waste management but also on marketing, for example, in the form of a register of declarations. This tool would provide better insight into the volumes and types of plastics and, by comparing them with collection and recycling figures, help identify plastics not yet recognised as sources of environmental pollution.

3 Reduction: Quantify a common reduction target and establish an operational timeframe to achieve it

The Tara Ocean Foundation welcomes the «Circular Economy» approach promoted by UNEP and is pleased to see that it involves Reduction, Reuse, and Recycling. However, the effectiveness of this approach will be measured by compliance with the 3Rs value hierarchy. Given that plastic production could triple in the next forty years, an international Treaty that does not set specific targets for limiting production would simply not be credible. Therefore, the reduction objective must be clearly quantified, commensurate with the dangers posed by plastics, and with an operational timeframe and a clear methodology. The definition of «non-essential» items must be refined, and that of problematic polymers and additives must be established.

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4 Reuse: Promote combined approaches of eco-design and regulation to increase the lifespan of plastic objects

With regard to reuse, the Tara Ocean Foundation invites negotiators to particularly focus on increasing the lifespan of objects involving the most complex and problematic plastics, by promoting combined health prevention, eco-design, and regulatory approaches to increase the guaranteed period of use for the user.

5 Recycling: Include an assessment of environmental benefits and risks

Regarding recycling, the Tara Ocean Foundation emphasises that the strategy to be adopted must include an academic assessment of the environmental benefits and risks of recycling. It can only involve operational industrial technologies and devices, to date and scale, and take into account the difficulties inherent to recycling artificial polymers (degradation of material properties, economic competitiveness, etc.).

6 Truly extended producer responsibility

For the Tara Ocean Foundation, it is imperative to address the issue of financial responsibility for plastics marketing costs, not only at the end of life but throughout usage. This point could quickly become a stumbling block for the future Treaty, with questions of responsibility and solidarity bogging down negotiations. To avoid this, the foundation invites negotiators to explore the idea of a globalised model of truly extended producer responsibility. It could draw inspiration from Western EPRs while seeking to overcome their limits and taking into account not only the costs of collection, sorting, and treatment of all waste, including abandoned ones but also the health and environmental costs associated with the full life cycle, as recommended by the OECD and the EU.

7 Articulate the future Treaty with existing international texts

Negotiations must not overlook the articulation of the Treaty with existing texts, particularly trade agreements and the Basel Convention, the latter containing certain elements of response regarding the treatment of plastic waste.

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CONTACT

Henri Bourgeois Costa
Director of Public Affairs · Circular Economy Mission
henri@fondationtaraocean.org

Tara Ocean Foundation
8, rue de Prague - 75012 PARIS

Editorial management and coordination
Henri Bourgeois Costa, Director of Public Affairs - Circular Economy and Plastic Pollution

With the support of
Martin Alessandrini, Advocacy and International Cooperation Officer,
Clara Ngabbo and Eva Matescot, Advocacy and International Cooperation Interns

Contributors to this document include
Henri Bourgeois Costa, Director of Public Affairs
Xavier Cousin, Ecotoxicologist
Marie-France Dignac, Biogeochimist
Mateo Cordier, Senior Lecturer in Economics
Jean-François Ghiglione, Research Director in Microbial Oceanography
Jean-Baptiste Fini, Ecophysiologist
Fabienne Lagarde, Environmental Chemist
Vincent Jourdain, Researcher in Sociology
Pierre Souvet, Cardiologist, Chairman of the Santé Environnement France organisation
Jeanne Perez, Garbology Geographer

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