



## **Written Submission on “The lifecycle of plastics and human rights” – Mandate of the Special Rapporteur on toxics and human rights**

**By Professor Bhavani Narayanaswamy, Graham Hamley, and Tallash Kantai**

**28 March 2021**

The One Ocean Hub is an international programme of research for sustainable development, working to promote fair and inclusive decision-making for a healthy ocean whereby people and planet flourish. The Hub is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF), a key component in delivering the UK AID strategy to tackle the Sustainable Development Goals. It addresses the challenges and opportunities of South Africa, Namibia, Ghana, Fiji and Solomon Islands, and will share knowledge at regional (South Pacific, Africa and Caribbean) and international levels. The One Ocean Hub is led by the University of Strathclyde, UK and gathers 126 researchers, 21 research partners, and 19 project partner organisations, including United Nations bodies and programmes.

The Hub’s programme of work includes a substantial research theme on Sustainable Fisheries. As part of this research theme, our researchers are working towards an integrated assessment of cumulative pressures on fish species and habitats including micro-plastic bioaccumulation. The One Ocean Hub also includes a research programme on Ocean Governance that seeks to discover the full potential of law and policy across scales to foster inclusive and transparent sustainable blue economies, by considering the inter-dependencies of the marine environment and human rights to connect across sectors still operating in isolation: ocean/land/freshwater/waste management, trade, investment, innovation and intellectual property, and development cooperation.

We welcome the opportunity to provide inputs on [“the lifecycle of plastics and human rights”](#). Our written submission consists of five different sections as follow:

1. Information on plastics generally
2. Impacts of ocean plastics pollution on human rights holders
3. Implications of ocean plastics pollution for duty bearers
4. Implementation of relevant policy and legal frameworks in recycling ocean plastics

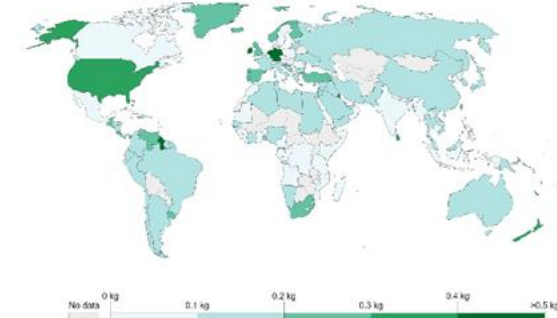
### **1. Information on plastics generally**

There are current estimates of 8 million tons of plastic being deposited into the oceans each year (Jambeck et al. 2015), accounting for 80% of all marine debris. This, however, may be an underestimate.

The amount of plastic waste generated by individuals in many Low- and Middle-Income Countries (LMICs) is often relatively low (Figure 1) as is the plastic waste generated by these countries (Figure 2). However, many LMICs are unable to adequately manage their waste (Figure 3) (Our world in data: accessed March 2021).

Plastic waste generation per person, 2010

Daily plastic waste generation per person, measured in kilograms per person per day. This measures the overall per capita plastic waste generation rate prior to waste management, recycling or incineration. It does not therefore directly indicate the risk of pollution to waterways or marine environments.

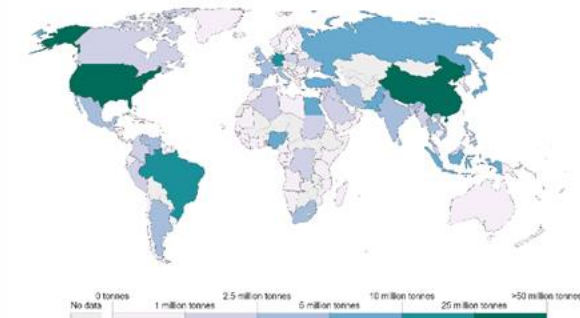


Source: Jambouk et al. (2015)

Figure 1: Plastic waste per capita

Plastic waste generation, 2010

Total plastic waste generation by country, measured in tonnes per year. This measures total plastic waste generation prior to management and therefore does not represent the quantity of plastic at risk of polluting waterways, rivers and the ocean environment. High-income countries typically have well-managed waste streams and therefore low levels of plastic pollution to external environments.

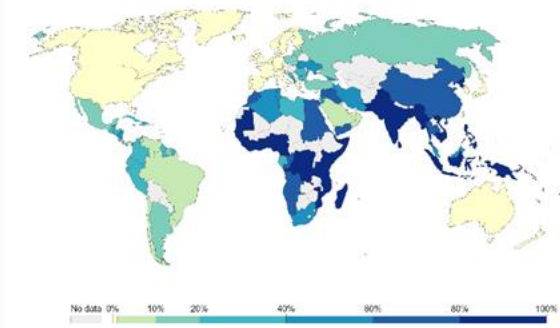


Source: OWD based on Jambouk et al. (2015) & World Bank

Figure 2: Total plastic waste by country

Share of plastic waste that is inadequately managed, 2010

Inadequately disposed waste is not formally managed and includes disposal in dumps or open, uncontrolled landfills, where it is not fully contained. Inadequately managed waste has high risk of polluting rivers and oceans.



Source: Jambouk et al. (2015)

Note: This does not include littered plastic waste, which is approximately 2% of total waste.

Our World in Data app/plastic-pollution • CC BY

Figure 3: Inadequately disposed plastic waste

For example, in Ghana, plastic pollution is a major issue in the Korle lagoon, which is known for its high levels of pollution (Little and Akese 2019). Agbogbloshie, a nickname given to a commercial district, on the banks of the Korle Lagoon has become the destination of electronic (e.g. televisions and computers) and automobile scrap. Much of the waste material is burnt to gain access to precious metals, or ends up in the lagoon itself. The lagoon no longer acts as a flood prevention, so during the rainy season it contributes to pollution into the Gulf of Guinea (Karikari et al. 2009).

### Pathogens:

A number of pathogens have been discovered to preferentially colonise plastic in the marine environment e.g. *Vibrio cholerae* the cholera pathogen which negatively impacts on human health, as well as a fish-related pathogen (Viršek et al. 2017) and harmful algal species which have been found hitchhiking on plastic debris (e.g. Artham et al. 2009). Marine plastics can thus act as vectors for pathogens, which may have harmful consequences on aquaculture and public health.

### Deep-Sea

Plastics are not just found in coastal regions, but also the deep sea, including seamounts in the South West Indian and South Atlantic Ocean (Woodall et al 2015). Fishing gear is a particular issue with abandoned, lost and discarded nets continuing to pose enormous ecological (i.e. continuing to catch valuable fish; endangered fauna e.g. sharks, marine turtles) and socioeconomic problems (Gilman 2015). Plastics have also been found to be ingested by many fauna, including those in the deep sea. Fauna have ingested different types of plastic including acrylic, polyester, polyamide etc (Courtene-Jones et al. (2017; 2019) and Jamieson et al (2019)). This unfortunately is not a new phenomenon with fauna collected in the mid-1970s already clearly having plastics within their stomachs (Courtene-Jones et al. 2019).

## **2. Impacts on human rights holders**

Marine plastics constrain the ability of individuals to enjoy the highest attainable standard of health. Human health is dependent on marine biodiversity in a variety of ways, including for essential ecosystem services (such as atmospheric oxygen production),<sup>1</sup> as an essential source of food and nutrition (including a rich source of omega 3 fatty acids, selenium, iron and vitamin D),<sup>2</sup>

---

<sup>1</sup> Yadigar Sekerci and Sergei Petrovskii, 'Mathematical Modelling of Plankton-- Oxygen Dynamics Under the Climate Change.(Report)' (2015) 77 Bulletin of Mathematical Biology 2325, p. 2326

<sup>2</sup> Hauke Kite-Powell and others, 'Linking the oceans to public health: current efforts and future directions' (2008) 7 Environmental Health S6, p.9; Michael N. Moore and others, *Linking Oceans and Human Health: A Strategic*

and a source of biomedical discovery.<sup>3</sup> Loss and degradation of marine biodiversity due to marine plastic pollution threatens the enjoyment of all of these essential drivers of human health.

Viewed through a human rights lens, the harm to marine biodiversity from plastic pollution threatens the enjoyment of both the right to health and the right to adequate food. Loss and degradation of marine biodiversity — catalysed by marine plastic pollution — threatens enjoyment of these rights in a variety of ways. First, a reduction in marine biomass means that there are fewer resources available to meet human needs as a food source. Second, the ingestion of plastics by marine species presents a food safety risk for humans when contaminated seafood enters the human food chain.<sup>4</sup> The exact nature and scale of the risks posed to humans by consumption of contaminated seafood is still uncertain.<sup>5</sup> However, evidence suggests that such consumption may be particularly harmful to women's reproductive health as a source of endocrine disruptors.<sup>6</sup> Third, there is emerging evidence to suggest that marine plastics may reduce atmospheric oxygen production by inhibiting the growth and functioning of *Prochlorococcus* — a photosynthetic microorganism that produces around ten percent of atmospheric oxygen.<sup>7</sup> Finally, there is an indeterminable range of ways in which marine plastics are capable of reducing the profitability or viability of economic activities that people depend on as a source of income (reduction in harvestable marine resources, reduced market for marine ecotourism because of the aesthetic and ecological impacts of plastic pollution).

---

*Research Priority for Europe. European Marine Board Position Paper 19*, 2013), p. 49; Josep Lloret and others, 'Challenging the links between seafood and human health in the context of global change' (2016) 96 *Journal of the Marine Biological Association of the United Kingdom* 29; p. 29

<sup>3</sup> Josep Lloret, 'Human health benefits supplied by Mediterranean marine biodiversity' (2010) 60 *Marine Pollution Bulletin* 1640, p. 1642

<sup>4</sup> Madeleine Smith and others, 'Microplastics in Seafood and the Implications for Human Health' (2018) 5 *Curr Envir Health Rpt* 375, pp. 380 - 382

<sup>5</sup> *Ibid*

<sup>6</sup> Elizabeth Royte, 'We Know Plastic Is Harming Marine Life. What About Us?' (2018) *National Geographic*, available at: <https://www.nationalgeographic.com/magazine/article/plastic-planet-health-pollution-waste-microplastics>

<sup>7</sup> Lina Zeldovich, *Is Plastic Pollution Depriving Us of Oxygen?* (JSTOR Daily 2019), available at: <https://daily.jstor.org/is-plastic-pollution-depriving-us-of-oxygen/>

These impacts are unlikely to be felt equally. For developing countries that depend heavily on the ocean as a food source, significant loss of marine species could trigger food security concerns due to a potential lack of viable alternatives.<sup>8</sup> In both developed and developing nations, the greatest burden will likely be borne by already vulnerable groups, including women, children, the elderly, indigenous peoples and local communities, and economically challenged coastal communities.

### 3. Implications for duty bearers

Under the International Covenant on Economic, Social and Cultural Rights (ICESCR), states are obligated to avoid unjustifiable retrogressive measures that would move them further away from fully realizing economic, social or cultural rights — including the rights to health and to food.<sup>9</sup> As noted by the ESCR Committee, “If any deliberately retrogressive measures are taken, the State party has the burden of proving that they have been introduced after the most careful consideration of all alternatives and that they are duly justified by reference to the totality of the rights provided for in the Covenant”.<sup>10</sup> Given the rate of plastic production continues to increase rapidly<sup>11</sup> and the expanding body of knowledge on the ways plastic pollution inhibits the enjoyment of human rights, continued action by states to allow harmful practices around the production, use and disposal of plastics may constitute a breach of the obligation of non-retrogression.

In addition, states have an obligation to ensure non-discrimination, which may be triggered by the uneven health and food impacts of plastic pollution and the subsequent impacts on marine biodiversity described above, which will likely perpetuate existing inequalities.<sup>12</sup> The obligation of non-discrimination does not merely require states to refrain from discriminatory actions, but

---

<sup>8</sup> Lloret and others, 'Challenging the links between seafood and human health in the context of global change', p. 31

<sup>9</sup> CESCR, *General Comment No. 3: The Nature of States Parties' Obligations (Art.2, Para. 1, of the Covenant)* (United Nations 1991), para. 9; CESCR, *General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)* (United Nations 2000), para. 32

<sup>10</sup> CESCR, *General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)*, para. 32

<sup>11</sup> Laurent Lebreton and Anthony Andrady, 'Future scenarios of global plastic waste generation and disposal' (2019) 5 Palgrave communications

<sup>12</sup> CESCR, *General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)*, para. 30, 34 and 43(a); CESCR, *General Comment No.12: The right to adequate food (Art.11)* (United Nations 1999), para. 18; ICESCR, Article 2(2).

also to “take concrete, deliberate and targeted measures to ensure that discrimination in the exercise of Covenant rights is eliminated”.<sup>13</sup>

In addition, minimum core obligations related to the right to health, which states must prioritise without the temporal flexibility afforded by the principle of progressive realisation, include: “(a) to ensure the right of access to health facilities, goods and services [including a healthy ocean as an underlying determinant of health] on a non-discriminatory basis, especially for vulnerable or marginalized groups; (b) to ensure access to minimum essential food which is nutritionally adequate and safe, to ensure freedom from hunger to everyone”<sup>14</sup> “in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture”.<sup>15</sup>

Finally, states must use “maximum available resources,”<sup>16</sup> including not only financial resources, but also human, technological, organisational, natural and information resources, in taking steps to realise the rights to health and food.<sup>17</sup> There is a strong argument that marine biodiversity itself should be considered a “resource” for this purpose. We argue that the failure of states to take measures to protect the marine biodiversity from the threat of marine plastics constitutes a breach of this obligation, building on Robertson’s argument states must prevent others from diminishing the natural resources available to people who depend on them to feed themselves.<sup>18</sup>

---

<sup>13</sup> CESCR, *General Comment No. 20: Non-discrimination in economic, social and cultural rights (Art. 2, para. 2)*, para. 36

<sup>14</sup> CESCR, *General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)*, para. 43

<sup>15</sup> CESCR, *General Comment No. 12: The right to adequate food (Art. 11)*, para. 8

<sup>16</sup> ICESCR, Article 2(1)

<sup>17</sup> See: Veronika Bílková, 'The nature of social rights as obligations of international law: resource availability, progressive realization and the obligations to respect, protect, fulfil' in Christina Binder and others (eds), *Research Handbook on International Law and Social Rights* (Edward Elgar Publishing 2020), pp. 24-25; Allison Corkery and Ignacio Saiz, 'Chapter 14: Progressive realization using maximum available resources: the accountability challenge' in Jackie Dugard and others (eds), *Research Handbook on Economic, Social and Cultural Rights as Human Rights* (Edward Elgar Publishing Limited 2020), p. 286.

<sup>18</sup> E. Robertson Robert, 'Measuring State Compliance with the Obligation to Devote the "Maximum Available Resources" to Realizing Economic, Social, and Cultural Rights' (1994) 16 *Human rights quarterly* 693, p. 708

#### 4. International legal framework in recycling marine plastics

In 2019, parties to the Basel Convention on the Transboundary Movement of Hazardous Waste and their Disposal agreed to address marine plastic pollution by designating as hazardous certain types of plastic waste. This resulted in amending the Convention's Annex VIII to include plastic and plastic mixtures as a hazardous waste, and therefore subject to the Prior Informed Consent (PIC) procedure. In designating this waste as hazardous, potential importing countries must prove that they can deal with it in an environmentally sound manner, thus ensuring it stays out of the ocean. Significantly, countries now also have the right to turn down shipments of such waste, providing a measure of protection to developing countries without the means to deal with it.

In amending Annex IX, states specifically set out the type of plastic waste which is considered non-hazardous, and thus not subject to the PIC procedure, including plastic waste destined for recycling in an environmentally sound manner (including polyethylene (PE), polypropylene (PP), polystyrene (PS), and polyethylene terephthalate (PET)). Finally, states agreed to amend Annex II (which addresses those wastes for which special consideration should be paid) to include plastic waste and plastic waste mixtures, excluding those defined as non-hazardous and/or destined for recycling under Annex IX. The potential for abuse of this permission, however, is significant and would have detrimental effects to the marine environment as the ultimate dumpsite of plastic waste exported to territories without the capacity for environmentally sound management of such waste. We already have worrying examples. Before the amendment was discussed and agreed, the government of the Philippines threatened to return mislabelled household waste (103 containers of household trash, plastic bottles and bags, newspapers and used adult diapers) back to Canada.<sup>19</sup> This waste had been shipped out by a company tasked with waste recycling in Canada.<sup>20</sup>

---

<sup>19</sup> ABS-CBN News *Duterte threatens 'war' vs Canada over trash shipment* 23 April 2019 <https://news.abs-cbn.com/news/04/23/19/duterte-threatens-war-vs-canada-over-trash-shipment>

<sup>20</sup> Ibid.



With only nine percent of the world's plastic ever having been recycled, and the vast majority going into landfills around the world,<sup>21</sup> the Basel Convention plastics amendment may push for more recycled material in the plastics supply chain, thereby reducing the overall production of virgin plastic, although this is in no way guaranteed. The challenge in trying to shift the system towards recycled products, however, comes down to the high cost of recycling and of recycled products against the much lower cost of the production and sale of fossil-fuel based virgin plastic.<sup>22</sup> This in turn leads to another question: have countries set up a global recycling scheme that was doomed to failure from the outset?

Another recent development under the Convention that could also have an effect on the success of the plastics amendment: the Ban Amendment. This amendment entered into force in December 2019. It provides for the prohibition of exports of all hazardous wastes covered by the Convention, including those plastic wastes identified as hazardous under Annex VIII, that are intended for final disposal, reuse, recycling and recovery from countries listed in annex VII to the Convention (Parties and other States which are members of the OECD, EC, Liechtenstein) to all other countries. How these two amendments will work together remains to be seen, but one hopeful option may be that with certain plastic waste off the table for export altogether, more controls are put in place at the national and local levels to encourage recycling, thereby driving down the overall cost of recycled materials.

---

<sup>21</sup> Geyer, R., Jambeck, J. R., & Law, K. L. (2017). *Production, use, and fate of all plastics ever made*. *Science advances*, 3(7), e1700782.

<sup>22</sup> The Guardian, *War on plastic waste faces setback as cost of recycled material soars*, 13 October 2019 <https://www.theguardian.com/environment/2019/oct/13/war-on-plastic-waste-faces-setback-as-cost-of-recycled-material-soars#:~:text=But%20according%20to%20experts%20it,compared%20with%20newly%20made%20plastic.>