

# Just one word: refillables.

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How the soft drink industry  
can – right now – reduce  
marine plastic pollution by  
billions of bottles each year

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January 2020

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**Just one word: refillables.**

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DOI: 10.5281/zenodo.3687106

# Executive Summary

Oceana analyzed packaging market data for the non-alcoholic beverages industry, the market share of PET bottles, and plastic marine pollution data in 76 coastal countries around the world to estimate the total amount of PET plastic bottle marine pollution and the potential of increasing the market share of refillable bottles to reduce marine pollution from PET bottles.

Our analysis found that, based on marine pollution rates from a recent scientific study published in *Science* and on 2018 beverage and packaging sales information from the market analytics firm GlobalData, between 21 and 34 billion PET bottles, out of 445 billion liters of beverages sold in PET bottles, become marine pollution every year. We also found that increasing the market share of refillable bottles by 10% in all coastal countries in place of single-use throwaway PET bottles could reduce PET bottle marine plastic pollution by 22%. This would keep 4.5 billion to 7.6 billion PET bottles per year out of the ocean. A 20% increase in refillable market share of glass and PET bottles in place of single-use throwaway PET bottles could reduce marine plastic pollution by 39%, keeping 8.1 to 13.5 billion PET bottles out of the ocean every year, based on 2018 data.

Refillable bottle systems were formerly the primary delivery system for beverage companies around the world. Beverage companies have significantly reduced the market share of these systems and replaced them with single-use plastic bottle systems. India's refillable beverages share, for example, went from 86% in 1999, to just over 37% in 2018.

Despite this decline, refillable systems continue to have high market shares around the world, including, for

example, in Chile (35.7%), Germany (33.9%), and the Philippines (46.5%). And, according to a recent report by HSBC global beverage analysts, beverage companies are beginning to grow their refillables businesses in important markets because of their appeal to more price-driven customers (primarily in Latin America). These analysts also report that beverage companies and their owners are increasingly concerned about plastic pollution.

Refillable bottles are multiple-use bottles, made of glass or PET plastic, that beverage companies own and that are returned by customers, who are incentivized to return them through deposit return schemes, and then cleaned, re-labeled, refilled, and sold again. Beverage companies report that they use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled.

Because of their high rate of reusability, both refillable PET and refillable glass bottles also have lower carbon emissions per liter, according to data from the German Institute for Energy and Environmental Research (IFEU) and a lifecycle analysis in Chile conducted for Oceana by the engineering and consulting firm Dictuc SA.

The non-alcoholic ready to drink market, worldwide, is driven by a relatively small number of companies. According to Global Data, in 2018, just four companies accounted for over 40% of total sales (in terms of revenue). Beverage companies have the ability to increase the sale of refillable bottles and to decrease marine plastic pollution. Oceana is calling on companies to commit to reducing single-use plastic production and use and to increase the share of refillable bottles.

# PET bottle ocean plastic pollution

Plastic bottles produced and sold by beverage companies are a major source of marine pollution. Based on data from the International Coastal Clean-up <sup>1</sup> analyzed by Oceana, plastic bottles were #1 out of the Top 10 most commonly found plastic items in beach clean-ups in 2017, when measured by weight. The analysis of surveys organized by the #breakfreefromplastic movement in 51 countries found that soft drink companies are #1 and #3 in the Top 10 list of global polluter brands and PET bottles are the #3 item found most often.<sup>2</sup> Additionally, PET plastic bottles – which sink when uncapped – have been found in the water column and on the seafloor. As much as 94% of ocean plastic has been estimated to be below the surface of the ocean.<sup>3</sup>

A team of scientists led by Jenna Jambeck, a professor at the University of Georgia, estimated the amounts of plastic waste going into the ocean from the land, country by country, in a study published in *Science* in 2015. The study estimated that 4.8 to 12.7 million metric tons (10.5 to 27.9 billion pounds) of plastic enter the marine environment every year <sup>4</sup>, with the midpoint

of the range being roughly equivalent to dumping a garbage truck full of plastic into the oceans every minute.

According to the Jambeck study, the amount of mismanaged plastic waste generated by the coastal population of a single country ranges from 1.1 metric tons to 8.8 million metric tons per year. Oceana analyzed country-level data from the study along with 2018 non-alcoholic beverage ready to drink (NARTD) sales information from GlobalData for 76 coastal countries to determine PET bottle pollution by country. PET bottles sold worldwide contain mostly water and carbonated soft drinks; these two beverages account for 69% of global PET bottle volume sales.<sup>5</sup>

Our analysis found that in 2018, the equivalent of 21 to 34 billion one-liter PET bottles generated by the non-alcoholic beverages industry reached the ocean, representing 706,000 to 1.1 million metric tons of plastic bottle waste.



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*More than 50% of sea turtles are estimated to have ingested plastic debris, which can prove fatal.*

## What plastic waste does to marine life

Plastic debris has been found floating on the surface of the sea, washing up on the world's most remote coastlines, melting out of Arctic sea ice, and sitting at the deepest point of the ocean floor. It is everywhere. As plastics continue to flood into our oceans, the list of marine species affected by plastic debris expands.<sup>6</sup>

Tens of thousands of whales, sea birds, fish, and turtles have been observed suffering from entanglement or ingestion of plastic permeating the marine environment. It is impacting everything from zooplankton and fish, to sea turtles, marine mammals, seabirds, and whales.

The list of marine animals affected by plastic pollution is continually growing. Plastic has been consumed by an estimated 90% of seabird species and eaten by every species of sea turtle.<sup>7</sup>

Some organisms, such as corals, appear even more attracted to plastic than to their natural sources of nutrition.<sup>8</sup> And studies have shown that when corals come into direct contact with plastic debris, their likelihood of contracting a disease increases from 4% to a staggering 89%.<sup>9</sup> Seventeen percent of the species observed to be affected by marine debris are listed as threatened or near-threatened with extinction by the International Union for the Conservation of Nature.<sup>10</sup>

Plastic is also affecting our climate. If plastic were a country, it would be the planet's fifth-largest emitter of greenhouse gases.<sup>11</sup> Studies have shown that plastic contributes to climate change by using fossil fuels and emitting greenhouse gases throughout its life cycle, from production and transportation to waste management.<sup>12</sup>

Plastic never goes away. Instead, it breaks up into smaller and smaller pieces, ultimately becoming microplastics that act as magnets for harmful chemical pollutants. When eaten by fish and shellfish, some of the contaminants from microplastics work their way into our food supply. Everything from salt to honey to beer has been found to contain microplastics. Scientists are still studying how humans might be affected by the plastics that are making their way into our food, water, and air.

## Recycling issues

Beverage companies have made pledges to increase recycled content in their bottles and to buy more recycled PET.<sup>13</sup> Unfortunately, just 9% of all of the plastic waste ever generated has been recycled.<sup>14</sup> In the United States, plastic recycling rates declined from 2016 to 2017, according to the most recent data available from the United States Environmental Protection Agency.<sup>15</sup> Additionally, PET bottles with

increased recycled content still reach and pollute the oceans without systems in place that effectively recover these bottles.

Fortunately, the leading global beverage companies already have a system in place around the world that can, if scaled, effectively reduce marine plastic bottle pollution.

# The refillables system

## How refillables work

Refillable bottles were introduced by Coca-Cola in the 1940s. While many consumers remember the iconic glass refillable bottles, both glass and PET plastic refillable bottles are now widely used in, for example, India, Germany, Chile, the Philippines, and Mexico. According to market data covering the global non-alcoholic beverages industry, refillable systems are currently in place in 94 countries. These countries account for 80% of the worldwide sales of NARTD beverages.<sup>16</sup>

Consumers buy beverages in refillable bottles and, after drinking them, return the bottles to the shop where they bought them. They can buy drinks in refillable bottles at beverage-only retailers or in regular supermarkets with or without a specific department for refillable drinks or at smaller food stores, and they can return the bottles there. Refillable systems are also common in hotels and restaurants. Refillable systems work in combination with deposit return schemes in which consumers pay a deposit per bottle for the first bottle or bottles they buy, and the deposit is paid back when the empty bottles are returned.

Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport firms working with them. These bottles are delivered back to the plant where they are sorted, washed, and put back into the manufacturing process. Recently, these recovery systems have become more efficient, with companies employing retreatment systems to recycle the water used for washing and using solar energy to heat it.<sup>17</sup>

Refillable systems have empty bottle return rates of nearly 100%.<sup>18</sup> The loss rate of these bottles (i.e., bottles thrown away, broken, or not returned) is less than 5% overall. The refillable bottles are closely managed in these systems because they have economic value for the companies that own them, according to industry sources.<sup>19</sup>

## Refillable bottles

According to a PricewaterhouseCoopers (PwC) study about refillable delivery systems, circulation rates for reusable glass bottles are higher (up to 50 refills) than those of reusable PET bottles. The circulation rate depends on breakage resistance, the stability of the packaging, and how fast the material wears out. When refillable glass bottles are removed from the system, they are melted down and then used to produce new glass bottles.<sup>20</sup> Refillable PET bottles, now widely used in markets around the world, can be cleaned and re-filled up to 20 times. Refillable PET bottles are heavier than single-use throwaway PET bottles. For example, a one-liter refillable PET bottle we weighed was 74 grams, 2.2 times heavier than a one-liter single-use throwaway bottle from the same brand. Refillable PET bottles that are deemed no longer usable are recycled and, largely, not converted into new refillable PET bottles.



Refillable PET bottles are heavier than single-use throwaway PET bottles and can be cleaned and re-filled up to 20 times.

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## The business of refillables

The global non-alcoholic ready to drink (NARTD) beverage market is driven by a relatively small number of companies. According to GlobalData, in the countries surveyed in 2018, just four companies accounted for over 40% of total sales (in terms of revenue).<sup>21</sup>

Carlos Laboy, Global Beverage Head, LatAm Food Analyst at HSBC, has noted in sector reports that, after years of decline, some bottling companies (particularly in Latin America) are growing their refillables businesses. HSBC cites the example of Brazil for evidence of this comeback, where market share has rebounded from the low single digits to over 20%. HSBC also notes that the companies they term “the market developers” – those with the highest margins – are increasingly committed to refillables.<sup>22</sup>

Bill Taylor, a beverage industry consultant and former CEO of SPAIPA, a billion-dollar cola bottler in Brazil (acquired by FEMSA in 2013), reported to Oceana in an interview that refillable systems with proper cost-based accounting systems have been financially viable for decades and are becoming more profitable. This is the result, he notes, of innovations such as managed micro-distribution of returnable packages, which utilize mini-warehouses and small electric vehicle delivery systems such as those used in Curitiba, Brazil for the past 25 years.<sup>23</sup>

Companies such as Andina, a large bottler based in South America, are successfully growing refillables sales by targeting price-sensitive customers since the bottles can be sold once and offer a longer-term discount to soft drink consumers. Andina has also recently launched a highly efficient refillable LEED-certified bottling plant in Brazil and is now promoting the sustainable benefits of refillables.<sup>24</sup>

HSBC also reports that the plastic pollution problem could become economically troubling for companies that are not investing in alternative package solutions as many companies in the industry are already struggling to exceed their cost of capital in light of rising sugar taxes. The prospect of additional taxes could profoundly damage the economics of many businesses, including distributors that operate on thin margins.<sup>25</sup>

### Current refillable footprint by country

In the data analyzed by Oceana, representing the largest global non-alcoholic beverage markets, refillable systems today have an overall market share of 23% by volume.

The most robust refillable markets can be found in Latin America, where countries like Mexico, Chile, Peru, and Brazil have strong refillable footprints — all well over 30% market share by volume. Other standouts with high market shares for refillable systems include the Philippines, Indonesia, South Korea, India, and China. Most of the top 10 global non-alcoholic beverage markets, including China, Mexico, Indonesia, India, Brazil, Germany, and Turkey have refillable market shares between 26% and 61%.

Major markets lacking strong refillable footprints include the United States, Japan, and the European Union. In the U.S. and Japan, only 4% of non-alcoholic beverages are sold in refillable bottles. European Union countries, where consumers are thought to be more likely to accept or demand less convenience in favor of more sustainable solutions, are at the low end of the refillable spectrum, with some of the lowest market shares for refillables globally. Finland has only 2% market share of refillables; France, Sweden, Ireland, and the UK have only 3%; Denmark, the Netherlands, and Greece 4%; Romania and Portugal 5%; and Spain 6%. The exception in Europe is Germany, with a refillable market share of 35%.<sup>26</sup>

## Refillables lose ground

Before steel cans, aluminum cans, and plastic bottles were invented, beverages were sold in refillable glass bottles. In the 1960s and 1970s, when an average person bought between 200 and 250 packaged drinks every year, the majority came in refillable bottles.<sup>27</sup> The PET plastic bottle was invented in the 1970s.

According to data from GlobalData and reports from the nonprofit Reloop, sales of beverages in refillable

bottles have not declined in absolute terms over the past 20 years, but also have not grown along with the rest of the market. As a result, in the last 20 years, the market share of refillable bottles fell from 58% to 31% in the 20 top countries in terms of volume of beverage sales. Worldwide, the refillable market share dropped from 34% to 20% in the same period.<sup>28</sup>

# If we increase our use of refillables, how much less waste would go into the ocean?

Replacing single-use PET bottles with refillable bottles – either with refillable glass or refillable PET bottles – has enormous potential to quickly reduce marine pollution globally.

Figure 1 below summarizes Oceana's estimate of how much plastic waste from PET bottles could be

prevented from reaching the oceans when the volume market share of refillable bottles in the non-alcoholic drinks sector is increased by 10%, 20%, or 50%, respectively, in every coastal country around the world with a large non-alcoholic beverage market where data was available.<sup>29</sup>

**Figure 1: Potential decrease of PET marine debris with an increase of refillable market share**

	Marine Debris							
	Status Quo				Increase refillables by 10%			
	Million bottles		Tons		Million bottles		Tons	
Total 76 coastal countries	Min	Max	Min	Max	Min	Max	Min	Max
	20.675	34.459	705.506	1,175.844	16.805	26.809	553.620	922.699
Reduction of marine debris compared to status quo					4.590	7.650	151.887	253.144
					22.20%		21.53%	
	Marine Debris							
	Increase refillables by 20%				Increase refillables by 50%			
	Million bottles		Tons		Million bottles		Tons	
Total 76 coastal countries	Min	Max	Min	Max	Min	Max	Min	Max
	12.563	20.939	438.035	730.088	2.810	4.684	118.976	198.294
Reduction of marine debris compared to status quo	8.112	13.520	267.453	445.756	17.865	29.775	586.530	977.550
	39.23%		37.91%		86.41%		83.14%	

Source: Oceana calculation

With a 10%<sup>30</sup> increase in the market share of refillable bottles in all countries we analyzed replacing single-use PET bottles, the number of plastic bottles ending up in the oceans globally would be reduced by 22.2%, or 4.6 to 7.6 billion PET bottles a year. This would mean that, for example, in Chile, the market share of refillable glass bottles would grow from 11% to 16% and that of refillable PET bottles would grow from 25% to 30%. In the Philippines, the market share of refillable glass bottles would grow from 33% to 38% and that of refillable PET bottles would grow from 14%

to 19%. The positive impact would be a 29% decrease in ocean pollution in Chile and a 24% decrease in the Philippines.<sup>31</sup>

In the United States, the second-largest global market for non-alcoholic beverages, the equivalent of an estimated 300 million one-liter PET bottles per year ends up in the ocean. An increase of 10% in the share of refillables in the U.S. market would reduce PET marine pollution by 34%, or 74 to 108 million bottles a year.

Figure 2: Top 20 - Current estimated PET bottles marine debris

Country	Total NARTD volume (million liters)	Total PET waste marine debris (million bottles) 15% low	Total PET waste marine debris (tons) 15% low	Total PET waste marine debris (million bottles) 25% medium	Total PET waste marine debris (tons) 25% medium
China	148.180	9.894	336.400	16.490	560.666
India	33.559	1.805	63.163	3.009	105.272
Indonesia	44.383	1.068	36.320	1.780	60.533
Thailand	14.508	871	29.603	1.451	49.338
Pakistan	11.336	752	25.642	1.254	42.737
European Union	120.390	606	20.641	1.010	34.401
South Africa	9.335	605	20.587	1.008	34.312
Mexico	55.689	449	15.362	748	25.604
Nigeria	10.433	436	14.811	726	24.685
Philippines	9.306	395	13.734	658	22.889
Algeria	5.225	382	13.003	637	21.671
Vietnam	5.842	376	12.778	626	21.296
Egypt	4.938	308	10.501	514	17.502
Russia	13.773	262	8.902	436	14.837
Brazil	31.505	243	8.282	405	13.804
USA	127.024	215	7.324	359	12.207
Turkey	16.368	215	7.314	359	12.191
Iran	3.991	209	7.109	348	11.849
Tunisia	2.406	187	6.370	312	10.616
Ukraine	2.720	159	5.413	265	9.022
<b>Total Top 20</b>	<b>670.912</b>	<b>19.438</b>	<b>663.259</b>	<b>32.397</b>	<b>1.105.432</b>
<b>Other</b>	<b>119.760</b>	<b>1.237</b>	<b>42.247</b>	<b>2.062</b>	<b>70.412</b>
<b>Total 76 coastal countries</b>	<b>790.673</b>	<b>20.675</b>	<b>705.506</b>	<b>34.459</b>	<b>1.175.844</b>

Source: GlobalData, Jambeck et. al, Oceana calculation

## Refillable systems at risk – the Philippines

In the Philippines – a country where over 80% of plastic waste is mismanaged and 21% of plastic waste reaches the oceans – it is critical to replace single-use PET bottles with refillables. The waters of the Philippines have the highest level of nearshore diversity in the world. There are more species of coral in 20 hectares of the Central Visayas of the Philippines than in the entire Caribbean. These marine waters also support highly productive fisheries, providing livelihoods and food for millions of people.<sup>32</sup>

While the country is already struggling with plastic pollution, the situation could soon get worse. Currently, 47% of the soft drinks sold in the Philippines are sold in glass, PET, and other refillable bottles, but unfortunately, the market share of refillables is shrinking, and refillable glass and PET bottles are being replaced by single-use PET bottles. Despite a decrease in the overall volume of the Filipino market from 2017 to 2018, the share of PET bottles grew, and the share of refillable bottles fell.<sup>33</sup> This decrease in the market share of refillables in a single year means that more than 16 million more PET bottles likely reached the oceans than would have been the case if the refillables share had held steady.

## Climate and environmental benefits of refillable bottles

Because glass bottles are heavier than plastic bottles and require more energy to produce, transport, and recycle, a common misconception is that refillables necessarily present challenges for the climate and environment. In fact, life cycle analyses in countries as different as Germany and Chile have found that both glass and PET refillables create less environmental impact than single-use PET bottles.

Germany's Institute for Energy and Environmental Research (IFEU) carried out a lifecycle assessment for the Association of mineral water producers, examining the different delivery systems for bottled mineral water. The analysis concluded that refillables had lower carbon footprints than single-use plastic bottles, with 68.7kg

CO<sub>2</sub>e/1000 liter for refillable PET, 85kg CO<sub>2</sub> e/1000 liter for refillable glass bottles, and 139kg CO<sub>2</sub>e/1000 liter for single-use PET.<sup>34</sup>

Additionally, a recent life cycle assessment by the Chilean Dictut Institute, conducted for Oceana, compared carbon footprint, water consumption, and waste generation for refillable glass bottles, recyclable single-use PET bottles, and aluminum cans. The assessment found that refillable glass bottles, despite weighing the most, produced the least environmental impact in terms of water consumption and waste generation and produced 37% lower greenhouse gas emissions than single-use PET bottles.<sup>35</sup>

# The carbon footprint of refillable bottle systems

*Dr. Henning Wilts, Director Circular Economy, Wuppertal Institute*

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Various life cycle analyses have investigated the environmental benefits of refillable beverage containers vs. single-use containers.<sup>36</sup> Looking at the specific case of refillable PET bottles as compared to single-use bottles, these analyses found that refillables save up to 40% of raw materials and 50% of greenhouse gas emissions.<sup>37</sup>

The following are key factors affecting environmental impacts of refillables vs. single-use bottles:

- Trippage rates measured as the number of trips a bottle makes until a bottle is taken out of circulation: refillables are obviously better for the environment the more times the bottles are used.
- Routes for waste collection as well as proper sorting of materials in order to use them as secondary materials: low-quality waste management infrastructure is particularly problematic in single-use systems.
- Distribution systems and resulting transport distances: this is a key difference between the two systems with often significant influences on the assessed environmental impacts; very long transport distances, e.g. for washing and refilling, should be avoided.
- Material transformation and handling processes: the local energy mix, share of recycled material, and the use of allocation rules for by-products, for example, have a clear impact on environmental burdens for single-use and refillable bottles.



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*Beverage companies report that they use refillable glass bottles up to 50 times before they are retired and recycled.*



Governments around the world have begun passing legislation that aims to address the plastic pollution crisis.

## How legislation and plastic taxes increase costs for single-use bottles and promote refillables

Governments have used legislation to increase the share of refillable bottles and to reduce the plastic waste stream, including some combination of the following seven policy approaches:<sup>38</sup>

- Establish or raise mandatory container deposits, including establishing different deposit levels for refillable and single-use bottles<sup>39</sup>
- Implement “eco-taxes,” “eco-levies,” or “green-fees” on single-use bottles<sup>40</sup>
- Establish or raise quotas for refillable bottles as a percentage of beverage volume<sup>41</sup>
- Establish distribution systems for beverages that are separate from conventional retail food stores as a way of making distribution more compatible with refilling
- Establish industry-specific policies with an aim to preserve existing market share for refillable containers
- Ban single-use containers<sup>42</sup>
- Require the use of standardized bottles<sup>43</sup>

Container deposits, eco-taxes, and refillable quotas are all elements of Extended Producer Responsibility or EPR schemes, which governments use to build into the product life cycle environmental costs associated with it, e.g. adding costs for litter clean up and waste management to production costs.

A growing number of governments are introducing plastic bans, plastic taxes, and EPR measures. For

example, the current Finnish EU presidency states that a plastic tax has broad support from member states as a means to close the €13 billion gap in the EU’s 2020-2027 budget.<sup>44</sup> The new UK government is proposing a tax on the production and import of plastic packaging with less than 30% recycled content, including PET bottles.<sup>45</sup> The tax would not apply to refillable bottles. Italy announced that the 2020 budget will include new taxes on plastic and sugary drinks designed to raise €1.3 billion. The plastic tax obliges firms to pay a one-euro levy per kilogram of plastic produced.<sup>46</sup> The new German packaging legislation includes a quota of 70% refillables for beverages.<sup>47</sup> As the law does not contain specific measures to achieve that quota, taxes on single-use bottles or similar measures are also being considered as ways to enforce and to achieve the quota.<sup>48</sup> In the European Union, the new single-use plastics directive requires EPR schemes for beverage containers until 2024.

ASEAN countries including Indonesia, Vietnam, and Malaysia have already imposed plastic or environmental taxes.<sup>49</sup> In October 2019, Prime Minister Narendra Modi of India announced a proposal to ban small plastic bottles as part of a broader campaign to rid the country of single-use plastics by 2022. That initiative was defeated, but some Indian states have enacted bans on single-use plastics.<sup>50</sup> In Maharashtra, it is illegal to sell and manufacture PET bottles holding less than 0.5 liters.<sup>51</sup>

## The European Union and plastic pollution

*Dr. Henning Wilts, Director Circular Economy, Wuppertal Institute*

In 2018, the European Commission launched its “strategy for plastics in a circular economy.” The strategy describes a vision for the year 2030 in which “plastics and products containing plastics are designed to allow for greater durability, reuse, and high-quality recycling.” The goal is to have, by 2030, all plastics packaging in the EU market be either reusable or be recycled in a cost-effective manner.

As the first step, the European Commission’s “Directive on the reduction of the impact of certain plastic products on the environment”<sup>52</sup> has banned specific single-use plastic products for which environmentally beneficial alternatives are already available, such as straws and plastic cutlery.

For a range of other products, including plastic bottles, new financing obligations as part of EPR schemes or information requirements have been established. Article 9 of the Directive obligates EU member states to achieve a minimum 90% recovery rate for plastic bottles by the year 2029. The recently appointed Head of the European Commission Ursula von der Leyen has announced that an even more ambitious Circular Action Plan 2.0, with a focus on single-use plastics, will be one of six strategic priorities in the coming years.<sup>53</sup>

The European Environment Agency has published a progress report on plastic waste prevention in the EU member states recommending that countries adopt more stringent regulatory requirements including taxes, levies, or specific penalties on single-use plastic products.<sup>54</sup>

It is worth noting that even in Germany, which has a 90%+ rate of recovering plastic packaging waste, the high level of recycling has a limited impact on reducing plastic production. Studies of recycling in Germany have shown that the country’s high recovery rate leads to a reduction of 18.2% in the use of virgin plastic,<sup>55</sup> suggesting that systems with circular business models, like refillables, are a crucial element of a resource-efficient and climate-friendly circular economy.

## Conclusion

Oceana is calling on global beverage companies to reduce the production and use of single-use throwaway plastic. Oceana’s analysis in this paper shows the beverage industry can reduce marine pollution from plastic bottles substantially by scaling up refillable bottle delivery systems in place of single-use throwaway bottles. A 10% increase in refillable bottles would, in the countries surveyed, reduce marine plastic bottle pollution, currently estimated to comprise 34 billion bottles a year, by 22%.

Given that relatively few companies drive the beverage market and that industry experts report that leading beverage companies have grown refillables’ share of total sales in important markets, this change appears to be achievable in the near term. The industry should also continue efforts to develop reusables, zero waste and other approaches that can reduce plastic production and waste in the longer term.

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- <sup>27</sup> National Geographic, How the plastic bottle went from miracle container to hated garbage, quoting Elizabeth Royte (Bottlemania), citing data from Container Recycling Institute. Available at: <https://www.nationalgeographic.com/environment/2019/08/plastic-bottles/#close>
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- <sup>29</sup> Based on: GlobalData (2019) Market Data NARTD and packaging industry. Jambeck et. al (2015). Plastic pollution rates calculated for coastal populations by Jambeck et.al are used to calculate PET bottles waste pollution in 76 coastal countries, where data was available. NARTD volume market data and refillable rates for glass and PET, available from GlobalData have been used to calculate potential increases and decreases in ocean pollution.

- <sup>30</sup> 10% refers to 10% growth of market share in absolute terms, meaning an increase in market share of glass refillables from 5% to 15% and for PET refillables from 6% to 16%, for example, in relation to the entire NARTD market.
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- <sup>33</sup> GlobalData, Market Data Global NARTD market
- <sup>34</sup> IFEU Heidelberg (2008) Im Auftrag der Genossenschaft Deutscher Brunnen eG Ökobilanz der Glas- und PETMehrwegflaschen der GDB im Vergleich zu PET-Einwegflaschen, page 62, quoted in: Rethink Plastic Alliance (2019) Reusable solutions: How governments can help stop single-use plastic pollution. Available at: [https://rethinkplasticalliance.eu/wp-content/uploads/2019/10/bffp\\_rpa\\_reusable\\_solutions\\_report.pdf](https://rethinkplasticalliance.eu/wp-content/uploads/2019/10/bffp_rpa_reusable_solutions_report.pdf)
- <sup>35</sup> Cifuentes L, Cabrera C, Busch P, Dictuc S.A (2019) Life Cycle Assessment of Single-Serve Beverage Packaging for Oceana Chile
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- <sup>38</sup> Morawski, C. The Refillable Beverage Container – Is it Vanishing? And if it is, are there ways to stop it? Reloop Presentation 2019.
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- <sup>41</sup> German legislation mandates a 70% quota for refillables. Verpackungsgesetz - VerpackG. [https://www.bgbl.de/xaver/bgbl/text.xav?SID=&tf=xaver.component.Text\\_0&toctf=&qmf=&hlf=xaver.component.Hitlist\\_0&bk=bgbl&start=%2F%2F%5B%40node\\_id%3D%27356083%27%5D&skin=pdf&tlevel=-2&nohist=1](https://www.bgbl.de/xaver/bgbl/text.xav?SID=&tf=xaver.component.Text_0&toctf=&qmf=&hlf=xaver.component.Hitlist_0&bk=bgbl&start=%2F%2F%5B%40node_id%3D%27356083%27%5D&skin=pdf&tlevel=-2&nohist=1)
- <sup>42</sup> Many municipalities around the world have enacted bans and/or limits on bottled water for certain areas. For example, the New South Wales town of Bundanoon in Australia, several municipalities in Canada, and several municipalities in the United States. The Indian government of Maharashtra banned all single-use plastic beverage bottles in March 2018
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# Just one word: refillables.



Oceana is the largest international advocacy organization dedicated solely to ocean conservation. Oceana is rebuilding abundant and biodiverse oceans by winning science-based policies in countries that control one-third of the world's wild fish catch. With more than 225 victories that stop overfishing, habitat destruction, pollution, and the killing of threatened species like turtles and sharks, Oceana's campaigns are delivering results. A restored ocean means that 1 billion people can enjoy a healthy seafood meal, every day, forever. Together, we can save the oceans and help feed the world. Visit [www.oceana.org](http://www.oceana.org) to learn more.