

# Refill Again

How just a 10-percentage point increase in reusable beverage packaging can help save the oceans by eliminating over 1 trillion single-use plastic bottles and cups.





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# Executive Summary

**In the face of the rapidly worsening plastic crisis, reusable beverage packaging emerges as a real circular solution that can dramatically reduce single-use plastic and marine plastic pollution when put in place of single-use systems.<sup>1</sup> To demonstrate the impact that increasing reusable beverage packaging offers, Oceana analyzed recent and forecasted packaging market and aquatic plastic pollution data.**

The analysis found that a 10-percentage point increase in reusable packaging by 2030 can eliminate over 1 trillion single-use plastic bottles and cups.<sup>2</sup> This shift has the potential to prevent up to 153 billion of these containers from entering the world's oceans and waterways.<sup>3</sup> To put this in perspective, if we were to stack these 1 trillion bottles and cups on top of each other, the resulting single-use plastic tower would reach to the moon and back over 300 times.<sup>4</sup>

Most importantly, this 10-percentage point increase is clearly possible. The world's leading soft drink companies, The Coca-Cola Company and PepsiCo (Coca-Cola and Pepsi), have large existing reusable packaging systems and have already pledged to increase the volume of beverages they sell in reusable packaging by 10 percentage points. Coca-Cola, the world's largest seller of non-alcoholic beverages, sold the equivalent of 52 billion 500 ml bottles in reusable packaging in 2022<sup>5</sup> and has committed to increasing its use of reusable beverage packaging from 14% to 25% by 2030.<sup>6</sup> Similarly, Pepsi has committed to increase the volume of beverages it sells in reusable packaging from 10% to 20% within the same time frame.<sup>7</sup> It is imperative for both companies, which have a history of not meeting commitments,<sup>8</sup> to follow through and for other beverage companies to step up. Governments can also make this shift happen by passing legislation and implementing regulations to mandate an increase in the use of reusable packaging and by ensuring that the proposed international treaty on plastic pollution includes legally binding targets for reusable packaging.<sup>9</sup>

The sheer volume of plastic used to sell non-alcoholic beverages is staggering and requires real solutions. Oceana estimates that in 2022, the global population used the equivalent of 1.5 trillion single-use plastic bottles and cups, and that up to 168 billion of these containers will become pollution in aquatic systems.<sup>10</sup> A study published in the journal *Nature Sustainability* in 2021 found that plastic bottles were the second most common litter item found in surveys across seven aquatic environments globally.<sup>11</sup>

This tsunami of single-use plastic has devastating impacts on marine life. Tens of thousands of individual marine animals have consumed or become entangled in plastic — from zooplankton at the bottom of the food web to seabirds near the top.<sup>12</sup> A recent review found that more than 900 of the larger marine species have ingested or become entangled in plastic.<sup>13</sup> It has been estimated that 11.1 billion plastic items are entangled on coral reefs across the Asia-Pacific region alone.<sup>14</sup> In a 2018 incident, a sperm whale was found dead in Indonesia with nearly six kilograms of plastic waste, including 115 plastic cups and four plastic bottles in its stomach.<sup>15</sup>

The planet, and our oceans, need a proven solution that can address the massive and growing amount of single-use plastic waste and marine pollution. Unfortunately, recycling is a false solution. Only 9% of all plastic waste to date has been recycled.<sup>16</sup> Further, pledges to add more recycled content to single-use plastic bottles do not solve the problem because these



bottles are still designed to be thrown away. According to a study by the firm Eunomia Research & Consulting, pledges made by leading beverage companies to add more recycled content would only reduce marine plastic pollution by 7% if met.<sup>17</sup> Even worse, scientists have recently uncovered evidence suggesting that plastic recycling facilities are releasing huge quantities of microplastics into the environment, exacerbating the marine plastic pollution problem.<sup>18</sup>

The proven solution in the fight against this crisis is reusable packaging. Refillable bottles (also known as returnable bottles),<sup>19</sup> though disappearing in some parts of the world like the United States and the United Kingdom, remain popular in many other countries. They are still widely purchased by millions of consumers in places like Brazil, Chile, Ethiopia, Germany, Mexico, Peru, and the Philippines.<sup>20</sup> Consumers, when offered the choice, buy reusable packaging often because it's more affordable. New systems for reusable cups are emerging as well, in the United States and in Europe.<sup>21</sup> Large live music promoters, like Live Nation, are producing events where those attending buy beverages in packaging that is collected, washed, and reused.<sup>22</sup> Concert halls and stadiums in cities like Washington D.C. and Los Angeles are now selling beverages in

reusable cups. In these reusable beverage packaging systems, the collection rates for the bottles and cups exceed 90%.<sup>23</sup>

Reusable beverage packaging prevents plastic pollution because the bottles can be used up to 50 times and the cups over 100 times.<sup>24</sup> Every instance of reuse prevents a plastic bottle or cup from being thrown away or carelessly trashed, and possibly ending up in our oceans. Reusable beverage packaging can have the lowest carbon footprint of any packaging option as well, and this conclusion has been reached and publicly communicated by Coca-Cola, its bottlers, and leading reusable cup companies.<sup>25</sup> Coca-Cola's head of sustainability Beatriz Perez, in 2023, stated to investors that refillable packaging has "a lower carbon footprint within the business" (as compared to other options).<sup>26</sup>

Oceana is calling on global beverage and bottling companies to increase reuse and to reduce the production and use of single-use throwaway plastic. All beverage and bottling companies should set targets to increase reusable packaging by at least 10 percentage points (and hopefully beyond) and to allocate appropriate investment and marketing resources to ensure growth goals are achieved.

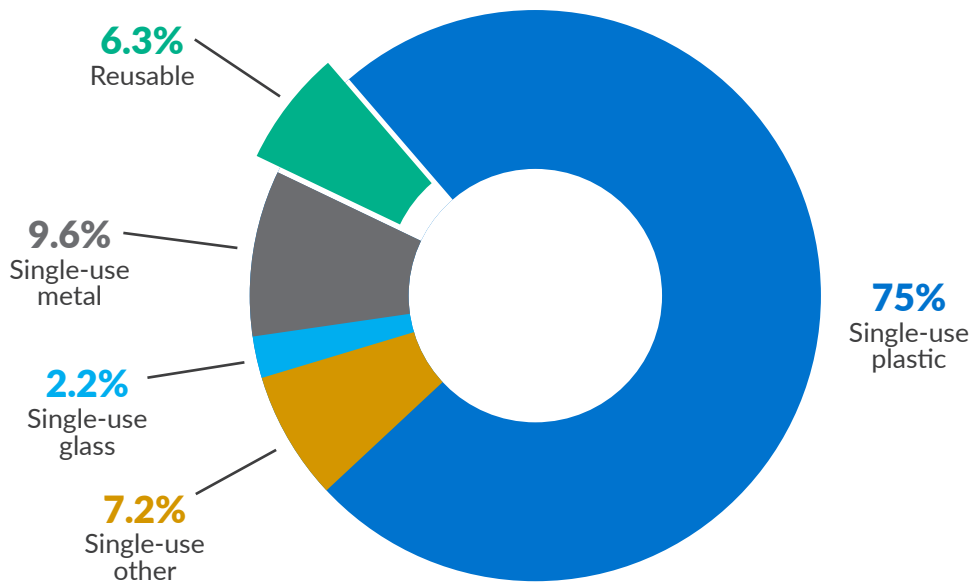


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# Beverage Packaging and Industry Growth

To fully grasp the potential impact of reusable beverage packaging, it's crucial to understand the scale of the industry. In 2022, consumers globally purchased over 755 billion liters of non-alcoholic ready-to-drink (NARTD) individually packaged beverages, excluding bulk water.<sup>27</sup> Over 566 billion liters, or 75% of this volume, was sold and consumed in single-use plastic containers (Figure 1) – the equivalent of 1.1 trillion 500 ml single-use plastic bottles.<sup>28</sup> The vast majority of this single-use plastic (90% or 1 trillion bottles) were polyethylene terephthalate (PET) bottles. Reusable packaging and single-use glass, metal (e.g., aluminum), and to a much lesser extent, paper, made up the remaining 25% of packaging used.

Figure 1. Global 2022 NARTD beverage sales by packaging type (percentage of volume sold).



Source: GlobalData, with Oceana calculations.

The top 20 countries with the highest volume of beverages consumed in 2022 accounted for 74% of the total global volume (Table 1).<sup>29</sup> At the very top of this list is the United States, only challenged in dominance

by China, with both countries together representing over a third of both global NARTD beverage consumption, and volume of sales packaged in single-use plastic.

**Table 1. Top 20 countries by volume of NARTD beverage sales in 2022 and estimated single-use plastic sold and lost to aquatic systems (in 500 ml bottle equivalents).**

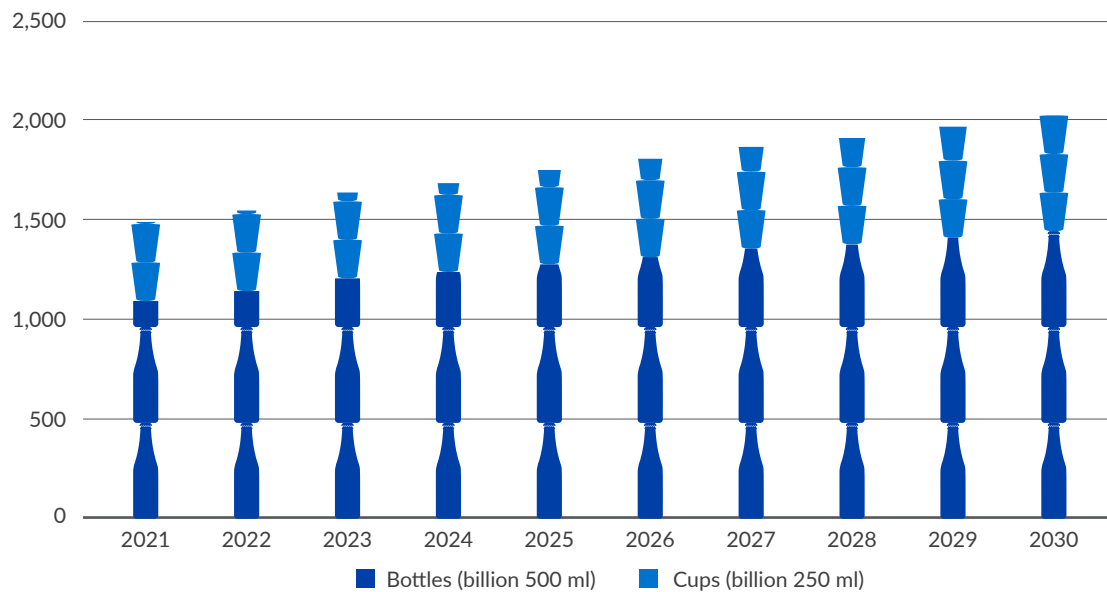
Country	NARTD sales (million liters)	Single-use plastic (million 500 ml bottles)	Pollution to aquatic systems (million 500 ml bottles)
United States	131,617	183,122	1,307
China	120,357	203,552	16,493
Mexico	34,736	49,107	2,305
India	33,528	56,766	12,517
Brazil	28,115	43,225	2,995
Germany	24,803	25,615	167
Japan	22,378	34,716	2,182
Indonesia	16,156	28,938	6,043
France	16,109	24,546	209
Italy	15,839	25,695	1,014
United Kingdom	14,597	20,608	200
Russia	14,111	21,353	9,122
Nigeria	12,677	20,614	3,198
Argentina	11,800	17,437	1,298
Thailand	11,703	18,740	4,589
Spain	11,433	17,141	157
Türkiye	11,128	16,767	2,894
South Africa	9,970	16,022	2,477
Poland	9,678	14,832	89
Canada	8,608	10,395	83
<i>All other countries</i>	196,122	283,980	33,389
<b>Global total</b>	<b>755,464</b>	<b>1,133,172</b>	<b>133,234</b>

Source: GlobalData, with Oceana calculations.

By 2030, the global volume of NARTD beverages sold annually is expected to increase by 27%, reaching just under 959 billion liters.<sup>30</sup> Oceana estimates that the equivalent of approximately 1.4 trillion 500 ml single-use plastic bottles will be sold each year by 2030

(Figure 2). Between 2023 and 2030, Oceana forecasts that a cumulative total of 11 trillion single-use plastic bottles will be produced, briefly used once, and then thrown away.

**Figure 2. Global forecasted single-use plastic bottle and cup sales.**



Source: GlobalData for bottle data and Mordor Intelligence for cup data, with Oceana calculations.

Another major source of plastic pollution generated by the beverage industry are single-use (disposable) cups. Single-use cups are widely used by fast food restaurants, cafeterias, theme parks, and events, including festivals, concerts, and sports games. In 2022, the weight of all the single-use cups used globally made with plastic or plastic-lined paper (herein referred to as ‘plastic cups’) amounted to approximately 1.4 million metric tons.<sup>31</sup> These cups included those which contained both hot and cold beverages, and both alcoholic and non-alcoholic beverages. They also included those sold through commercial or institutional distribution channels (e.g.,

those listed above), but not residential sales (e.g., a consumer buying disposable cups for a backyard barbecue). Over 59% of this weight was of polystyrene (plastic foam) and paper cups (most of the latter having a polyethylene lining<sup>32</sup>), while the remaining 41% was other plastic cups.<sup>33</sup> Given this weight of cups, Oceana estimates that the equivalent of 411 billion 250 ml single-use plastic cups were used globally in 2022.<sup>34</sup>

For cups, like with bottles, the United States was the largest market followed closely by China (Table 2). Both countries together represented 41% of the global weight of single-use plastic cup sales.



**Table 2. Estimated single-use plastic cups sold in 2022 and lost to aquatic systems (in 250 ml cup equivalents).**

Country	Single-use plastic cup sales		Pollution to aquatic systems (million 250 ml cups)
	(metric tons)	(million 250 ml cups)	
United States	296,976	88,386	631
Canada	64,251	19,122	153
<b>Total United States and Canada</b>	<b>361,227</b>	<b>107,508</b>	
China	272,757	81,178	6,578
India	124,953	37,188	8,200
Japan	58,164	17,311	1,088
<i>Rest of Asia-Pacific</i>	103,232	30,724	
<b>Total Asia-Pacific</b>	<b>559,107</b>	<b>166,401</b>	
Germany	53,649	15,967	104
United Kingdom	45,459	13,529	131
France	43,538	12,958	110
Italy	39,020	11,613	458
Spain	32,192	9,581	88
Nordics	3,816	1,136	
<i>Rest of Europe</i>	81,273	24,188	
<b>Total Europe</b>	<b>298,947</b>	<b>88,972</b>	
Brazil	45,556	13,558	939
Mexico	33,439	9,952	467
<i>Rest of Latin America</i>	25,266	7,520	
<b>Total Latin America</b>	<b>99,701</b>	<b>29,673</b>	
<b>Total Middle East and Africa</b>	<b>57,292</b>	<b>17,051</b>	
<b>Global total</b>	<b>1,380,833</b>	<b>410,962</b>	<b>48,320</b>

Source: Mordor Intelligence, with Oceana calculations.

By 2030, the global weight of single-use plastic cups sold annually is expected to increase by a colossal 41%, reaching just under 2 million metric tons. Oceana estimates that this will amount to the equivalent of approximately 578 billion 250 ml single-use plastic cups per year by 2030.<sup>35</sup> Between 2023 and 2030, Oceana estimates that a cumulative total of 4 trillion single-use plastic cups will be used.

Adding Oceana's estimates for bottles and cups together, in 2022, a total of 1.5 trillion single-use plastic bottles and cups were used (Figure 2). Between 2023 and 2030, an approximate cumulative total of 15 trillion single-use plastic beverage containers will be produced, briefly used once, and then discarded.

# Aquatic Plastic Bottle and Cup Pollution

**Plastic bottles produced and sold by beverage companies are a major source of marine pollution. When capped, they can float and travel extensively with the wind, waves, and currents. When uncapped, they sink and either linger in the water column or fall to the ocean floor.**

A study published in the journal *Nature Sustainability* in 2021 found that plastic bottles were the second most common litter item found in surveys that collected 12 million litter items across seven aquatic environments globally.<sup>36</sup> Over five years of global brand audits organized through the Break Free From Plastic movement — where volunteers count and document brands found in plastic waste — three beverage companies topped the list as the most commonly encountered brands: Coca-Cola, Pepsi, and Nestle.<sup>37</sup> Underwater surveys conducted by Oceana in 2019 and 2020 found that plastic bottles were the third overall most common plastic waste item on the seafloor near popular beach tourist destinations in Brazil, Mexico, Spain, and the United States.<sup>38</sup> Furthermore, over the last three decades, plastic drink bottles have shown the fastest growth rate of all debris types reported on some remote islands.<sup>39</sup>

In 2020, an international team of scientists led by Stephanie Borrelle at the University of Toronto predicted the growth in plastic waste going into aquatic systems (e.g., rivers, lakes, seas, and oceans), country-by-country, each year until 2030.<sup>40</sup> The study — published in the journal *Science* — estimated that 19 to 23 million metric tons (42 to 51 billion pounds) of the plastic generated globally in 2016 entered aquatic

systems. The scientists predicted that annual emissions may reach up to 90 million metric tons (198 billion pounds) by 2030 unless extraordinary efforts are made to transform the global plastics economy.

The Borrelle study assumes that the closer to an aquatic ecosystem that waste is generated and inadequately managed, the greater the probability it will enter that aquatic ecosystem.<sup>41</sup> Oceana analyzed country-level data from the study along with 2022 NARTD sales data obtained from GlobalData and 2022 disposable plastic cup sales data obtained from Mordor Intelligence to estimate aquatic single-use plastic bottle and cup pollution globally, and by country for those with the largest NARTD sales, and for those with cup data available.

This analysis estimates that up to 168 billion of the single-use plastic bottles and cups sold in 2022 will become pollution in our waterways and oceans — the equivalent of 120 billion 500 ml single-use plastic bottles and 48 billion 250 ml single-use plastic cups (Tables 1 and 2). The most plastic pollution is expected in China and India, where Oceana estimates that up to 15 and 14 billion, respectively, of the single-use plastic beverage containers sold in these countries in 2022 will pollute our waterways and oceans.







# What Plastic Pollution does to Marine Life

**Plastic debris pervades every corner of our ocean – from floating on its surface to settling in its deepest trenches, and from isolated shores to melting Arctic ice.<sup>42</sup> Plastic even lingers in the marine atmosphere above the water.<sup>43</sup> It is everywhere. As the influx of plastics into the ocean persists, the roster of marine species impacted by this ubiquitous material continues to grow.**

Tens of thousands of individual marine animals have consumed or become entangled in plastic – from zooplankton at the bottom of the food web to seabirds near the top.<sup>44</sup> A recent review found that more than 900 of the larger marine species have ingested or become entangled in plastic.<sup>45</sup> It is estimated that 11.1 billion plastic items are entangled on coral reefs across the Asia-Pacific region alone.<sup>46</sup> In California, scientists have estimated that blue whales in the area could be eating up to 10 million pieces of microplastic waste per day.<sup>47</sup>

Plastic bottles and cups are responsible for their own unique impacts on marine life. Bottles for example, can become ‘death traps’ for smaller creatures like crustaceans that enter the bottles but can’t escape. In less than a week, trapped crabs in bottles stranded on beaches die from dehydration and sun exposure. This problem is compounded by the behavior of some crabs who release a scent when they die which draws other crabs looking for newly available habitat. On the beaches of two remote islands in the Indian Ocean littered with plastic bottles, scientists documented this phenomenon in populations of hermit crabs.<sup>48</sup> The discarded plastic bottles were found to contain about nine dead crabs each. The scientists estimate that more than half a million hermit crabs die each year after becoming trapped inside plastic bottle waste on these far-flung islands.

Intact plastic bottles and cups may also be ingested by marine animals who mistake plastic pollution for food. Animals can die from even a single sharp piece of plastic, which can pierce the gut wall when swallowed.<sup>49</sup> In 2018, a sperm whale was found dead in Indonesia with nearly six kilograms of plastic waste, including 115 plastic cups and four plastic bottles in its digestive system.<sup>50</sup> In 2020, an albatross died with an entire 500 ml plastic water bottle in its stomach after being found in an emaciated condition on a beach in New Zealand.<sup>51</sup>

Other small pieces of plastic including bottle caps may obstruct the digestive tract of marine animals or accumulate in their stomachs, either way causing a long slow death through starvation. In 2018, a viral video circulated of a fisherman in Costa Rica pulling pieces of plastic – including three bottle caps – out of the stomach of a mahi-mahi (common dolphinfish).<sup>52</sup>

In sea turtles, gas buildup may occur when stomach juices and food are stuck behind plastic obstructions in their digestive tract, eventually causing the animals to float, which also leads to starvation or makes them an easy target for predators.<sup>53</sup> Bottle caps are particularly lethal for sea turtles because they have downward spines in their throats which prevent them from regurgitating any hard substance they swallow. In 2011, a giant sea turtle was found dead on an

Australian beach with 317 pieces of plastic – including bottle caps – in its digestive system.<sup>54</sup>

Plastic packaging can act as a source of toxic chemicals in the ocean when substances that were added during manufacturing leach from plastic pollution into the surrounding water, putting marine life at risk of harm from exposure.<sup>55</sup> Once plastic bottles and cups break

up, they eventually become microplastics that can also attract and harbor chemical pollutants.<sup>56</sup> When eaten by fish and shellfish, some of the contaminants attached to microplastics may harm these animals and they may also enter our food supply.<sup>57</sup> Scientists are still studying how humans might be affected by the plastics that are making their way into our food, water, soil, and air.<sup>58</sup>



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# Recycling Won't Save the Oceans from Plastic Pollution

**Recycling is a false solution to the plastic crisis. It has been estimated that only 9% of all plastic produced since the 1950s has been recycled, with the remaining 91% incinerated, sent to landfills, or lost to the environment.<sup>59</sup>**

Scientists have recently uncovered evidence suggesting that recycling itself could be exacerbating the problem of plastic pollution, releasing huge quantities of microplastics into the environment. In a 2023 study published in the *Journal of Hazardous Material Advances*, researchers revealed high levels of microplastics (13% of the plastic processed) in sampled wastewater from an unnamed UK plastic recycling facility.<sup>60</sup> The authors estimated that the facility could be releasing up to 75 billion plastic particles in each cubic meter of wastewater.

Coca-Cola, Pepsi, Nestlé, Danone, and Keurig Dr Pepper have pledged to increase post-consumer recycled content in their PET bottles by targets ranging mostly from 25 to 50% by 2025. A recent study commissioned by Oceana exposed the weakness of these plastic recycled content pledges. The analysis, conducted by Eunomia, found that if the top five beverage companies meet their pledges, they will only reduce aquatic pollution from single-use plastic bottles by 7%.<sup>61</sup> This is largely because bottles used for recycling are expected to predominantly be derived from already collected and managed waste streams rather than from mismanaged waste or littering. More recycled content does not necessarily make it more likely that a bottle that ends up in a river will be collected and not become pollution in the ocean.

According to Eunomia's analysis, for the top beverage companies to meet their recycled content targets, this would require collecting an additional 2.57 million metric tons of plastic bottles each year. To successfully collect these extra bottles, the current global bottle collection rate must increase by 43% — equating to the collection of thousands more bottles each second. To make matters more complicated, recycled PET sourced from plastic bottles is high in demand for additional uses like making other packaging, clothes, and toys, and this demand is steadily increasing. So, in addition to the limited impact of the beverage companies' recycled content goals in terms of reducing marine pollution, it is also unclear how and if beverage companies will get the supply of recycled PET needed to meet these goals in the first place.

According to a report commissioned by Coca-Cola, even in Southeast Asia, where collection-for-recycling rates for PET plastic are already very low (26% across the six countries), these rates are expected to drop further.<sup>62</sup> In the region, the informal waste-picking sector is responsible for 97% of the PET bottles collected for recycling in the cities studied, and as these cities and countries develop, the cost of living will increase and selling PET will no longer be attractive.



Regardless of whether recycled content pledges are met or collection rates increase, bottles with recycled content will still be thrown away, sent to landfills, burned, or littered. Some of these bottles will end up in our oceans – and this problem is getting worse

every year. Fortunately, the leading global beverage companies (both Coca-Cola and Pepsi) already have systems in place around the world that can, if scaled, effectively reduce marine plastic pollution – reusable beverage packaging systems.



# Reusable Beverage Packaging Systems

## Refillable bottles

Refillable bottles are a proven alternative to single-use bottles and cans. Where available, they can be purchased from any type of retailer (supermarket or small store), as well as restaurants and hotels. They are bottles that are *returned* when empty – usually to the original point of sale, collected by the bottling company, taken back to the plant, then washed, *refilled*, delivered to the retailer, and sold (*reused*) again. Customers return refillable bottles because they pay a deposit that is refunded to them upon returning the bottle.

Refillable bottles are thicker and more durable than single-use bottles to facilitate reuse. The thicker bottles can also hold carbonation better which industry experts have said can make soft drinks taste better too.

Importantly, refillable bottles can be used up to 25 times if made of plastic and up to 50 times if made of glass.<sup>63</sup> What this means is that a refillable bottle avoids the production and use of up to 50 single-use bottles. Each of those avoided throwaway bottles would have otherwise entered waste streams or been littered, with either pathway possibly leading to the oceans. In contrast, Coca-Cola has reported that 93% of their refillable bottles are collected to be reused.<sup>64</sup> These bottles are closely managed in refillable systems because they have economic value for the bottling companies that own them. Refillable bottles are clearly the winning strategy to minimize plastic pollution.

For decades until the 1970s, when the single-use PET bottle was invented, refillable systems were the primary way beverage companies sold billions of soft drinks around the world. Today, refillables make up just over 6% of the volume of all NARTD beverages sold globally

(23% if including bulk water) but have effectively been fully replaced with single-use bottles and cans in many countries.<sup>65</sup>

While many consumers remember the iconic glass refillable bottles, both glass and plastic refillable bottles are now used in many countries including Chile, Costa Rica, Germany, Mexico, and Nicaragua.<sup>66</sup> Globally, 65% of refillable NARTD beverage packaging is glass, and 32% is plastic. When refillable glass bottles are removed from the system, they are melted down and then used to produce new glass bottles. Refillable plastic bottles that are deemed no longer usable are recycled. Because of high collection rates for refillables, it is unlikely that they will become – like single-use plastic bottles – mismanaged waste or pollution. According to market data covering the global non-alcoholic beverages industry, refillable systems are currently in place in 170 countries.<sup>67</sup>

Robust refillable markets can be found around the world, with countries like Ethiopia, the Philippines, Germany, and Nicaragua leading the way with well over 30% market share by volume.<sup>68</sup> Other standouts with high market shares for refillable systems include Paraguay, Kenya, Sri Lanka, Chile, Mexico, and Zambia – all with refillable footprints over 20% market share by volume. Seven of the top 20 global non-alcoholic beverage markets have refillable footprints of at least 10% market share by volume – Germany, Mexico, Argentina, Nigeria, Italy, Brazil, and Thailand.

Major markets lacking strong refillable footprints include the United States, Canada, Indonesia, the United Kingdom, China, and Poland, where only 1% or less of non-alcoholic beverages are sold in refillable bottles.



Refill Again

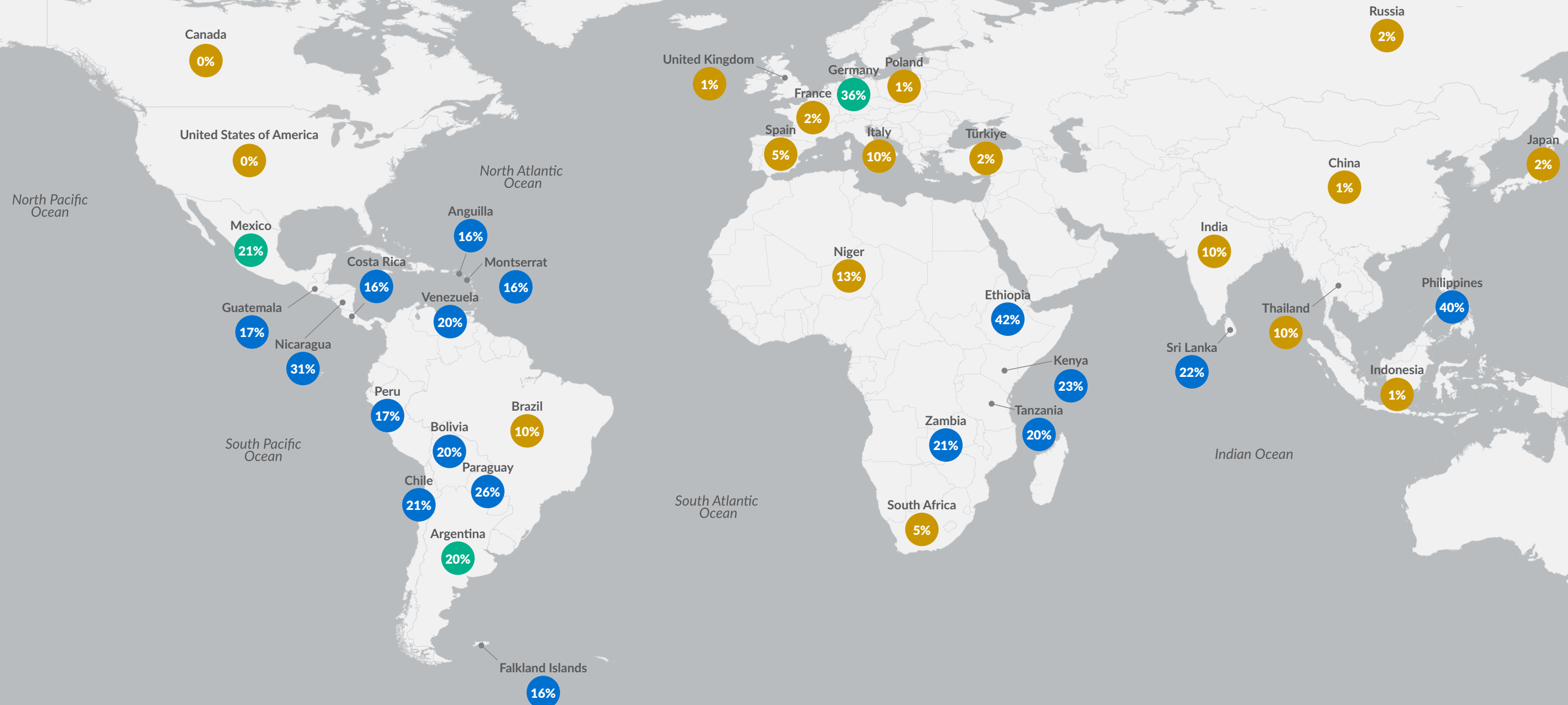
Coca-Cola  
Coke





# 2022 Worldwide Refillable Packaging Percentages

Arctic Ocean



● Top 20 countries by percentage of NARTD packaging as refillable   ● Top 20 countries by volume of NARTD sales   ● Top 20 countries by both percentage of NARTD packaging as refillable and by volume of NARTD sales

As of 2022, over half of all Small Island Developing States (SIDS) for which data is available had a refillable footprint of at least 10% market share by volume.<sup>69</sup> SIDS are a group of 29 States and 18 Associate Members of United Nations regional commissions that face unique social, economic, and environmental vulnerabilities. These environmental vulnerabilities include plastic pollution, and many SIDS either have low or no capacity for plastic recycling, leaving them with no option but to incinerate, landfill, or export their plastic waste. It is imperative that refillable bottling systems are invested in and built up in SIDS, not shut down, which was what happened recently in Samoa for example, when Coca-Cola's local bottler decided

in 2021 to stop bottling in refillable glass bottles.<sup>70</sup> While it is positive that refillables still exist in many SIDS, it is worrying that the refillable footprints of at least 19 have shrunk from 2021 to 2022. SIDS with the highest refillable footprint include Haiti, St. Vincent and the Grenadines, Anguilla, the Cayman Islands, and Montserrat, each where 16% of non-alcoholic beverages are sold in refillable bottles.

According to reports from the nonprofit organization 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.<sup>71</sup>

## The other (giant) refillable system: beer



Huge amounts of refillable bottles are also being sold by global beer companies. Anheuser-Busch InBev, the world's largest brewer, reported that "Approximately 35% of [its] volume is sold in returnable glass bottles, which are nearly five times less carbon-intensive when compared to one-way bottles. The majority of [its] bottles can be used up to 15 times and some can be used up to 100 times."<sup>72</sup> This would mean that the company sold the equivalent of over 40 billion 500 ml refillable bottles in 2022 (as their total sales volume in that year was 595 million hectoliters).<sup>73</sup>

The second largest brewer in the world – Heineken – is also prominent with its use of refillable bottles. In 2022, the company reported that approximately 38% of its packaging is produced in a returnable format.<sup>74</sup> The company has also stated that "[f]or packaging, [it is] reducing emissions by shifting to returnable rather than single-use bottles..."<sup>75</sup> Unlike Coca-Cola, Heineken sells refillable beer bottles in Indonesia, one of the countries that suffers most globally from plastic pollution.



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## Reusable cups

The basic concept of reusable cups is familiar. This is how most of us consume beverages at home and in restaurants. In recent years however, new, innovative, large-scale systems for reusable cups have emerged. These systems reduce plastic waste produced at events, and other places where large numbers of single-use cups are used such as cinemas, airports, shopping centers, and restaurants.

Two examples of such systems are TURN and r.World. TURN describes itself as the “world’s leading scalable reuse system”, and r.World as “the first large-scale reuse company in the U.S.”, and both offer integrated end-to-end services including deliveries, pick-ups, cup collection bins, washing, and inventory management.<sup>76</sup>

TURN and r.World use polypropylene cups which can be reused over 100 times, and TURN’s system can also use stainless steel and aluminum cups, the latter of which can be used 25 times, on average. Both systems also have an app through which users can earn rewards, providing an incentive for consumers to attend events and venues that have reusable cups, and to return the cups.

Notably, in 2022, Live Nation Entertainment, the world’s leading live entertainment company, announced a strategic investment in TURN and began rolling out TURN’s reusable cup system at their many festivals and venues that summer.<sup>77</sup> In 2023, Coca-Cola announced a partnership with r.World, to bring their reusable cup system to a range of U.S. venues and cities.<sup>78</sup>

**“We believe it’s inevitable that single-use will be made obsolete. To accelerate this transition, we’ve seen that rewarding people for reuse is particularly powerful. Through our partnership with Live Nation and others, we average over 90% return rates through our design system. Backed by this, we are rapidly scaling our solution across North America, Australasia, and into Europe next year. Live Nation has been the perfect partner for us, the combination of their global footprint, commitment to sustainability and engagement with fans is unparalleled and we look forward to bringing TURN’s reuse system to more venues and festivals soon.”**

**- Ryan Everton, Founder, TURN**



# Corporate Commitments to Increase Reusable Beverage Packaging

2022 was an important year in global efforts to protect our oceans and the wider environment from single-use plastic packaging. In February, Coca-Cola announced its commitment to a new global goal to reach 25% reusable packaging by 2030, up from a baseline of 16% in 2020.<sup>79</sup> Then, in December, Pepsi announced its own reusable packaging goal, pledging to double the percentage of all beverage servings it sells delivered through reusable models from 10% to 20% by 2030.<sup>80</sup> The companies are also now publicly advocating in support of governments introducing legally binding targets to increase reusable packaging in the context of the Global Plastics Treaty.<sup>81</sup>

Despite these encouraging first steps, as of the date of this report's publication (November 2023), neither Pepsi nor Coca-Cola have demonstrated meaningful progress towards their goals, calling into question whether real change is on the horizon. In Coca-Cola's latest sustainability report published in April 2023, the company disclosed that the share of its products sold in reusable containers was 14% in 2022, marking a decline of two percentage points from the 16% share disclosed when the company announced its pledge in 2022. The company did not highlight the decline nor explain it in its sustainability report. In response to a request for information from Oceana, Coca-Cola explained that part of this decline was attributable

to changes in reporting metrics. Furthermore, major Coca-Cola bottlers have also reported declines in sales of beverages in reusable packaging since Coca-Cola's announcement in February 2022.<sup>82</sup> Four bottlers that Oceana estimates accounted for nearly half of Coca-Cola's current reusable sales in 2022 — Coca-Cola FEMSA, Arca Continental, Coca-Cola Andina, and Coca-Cola Hellenic Bottling Company (HBC) — all reported shares in 2022 that were smaller than those reported in 2021. As for Pepsi, in its latest sustainability report published in July 2023, it failed to quantitatively detail progress towards its new reusable packaging goal.<sup>83</sup>

## Refillable stronghold at risk: The Philippines

The archipelagic nature of the Philippines makes it particularly vulnerable to marine pollution, affecting both its rich biodiversity and its population relying on these waters for sustenance. The Philippines is also one of the largest markets for refillable bottles on the planet. Here, refillable glass bottles account for about 40% of all non-alcoholic packaged beverages sold. Given the Philippines' struggle with marine plastic pollution and plastic waste mismanagement, refillables are also essential as they replace significant numbers of single-use plastic bottles that would have otherwise possibly ended up in the ocean. In a study commissioned by Coca-Cola, it was found that the national collected-for-recycling rate of PET bottles in the country was only 21% as of 2018.<sup>84</sup>

In August 2023, Coca-Cola Europacific Partners (CEP) announced its intention to acquire Coca-Cola Beverages Philippines in partnership with Aboitiz Equity Ventures Inc. (AEV). This acquisition, if completed, could make the company the largest Coca-Cola bottler in the world, by both market capitalization and sales volume.

Refillable bottles currently account for nearly 50% of all Coca-Cola products sold in the Philippines.<sup>85</sup> As a result, the Philippines accounts for an estimated 7% of all refillable sales by Coca-Cola worldwide.<sup>86</sup> Only 15% of CEP's packaging units in Europe were refillable in 2022. The company has not committed to safeguard or grow refillables in the Philippines. It has also not yet committed to increase its share of refillable packaging globally or in other key ocean countries, like Indonesia, which was acquired by CEP in 2020.

Should this acquisition be completed, Oceana urges CEP to commit to increase, and not decrease, the share of refillable bottles sold in the Philippines and to use the strong refillable base in the Philippines as a model for bringing refillables back to Indonesia. This commitment is critical for protecting the health of the oceans and one of the most important refillable strongholds in the world.



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# How Reusable Beverage Packaging Can Help Save the Oceans by Eliminating Over 1 Trillion Single-Use Plastic Bottles and Cups

**Oceana estimates that by increasing reusable beverage packaging globally by 10 percentage points between 2023 and 2030, over 1 trillion single-use plastic bottles and cups can be eliminated. This increase — applied separately to bottles and cups — is roughly in line with what Coca-Cola and Pepsi have pledged to do. Coca-Cola has committed to increasing their use of reusable beverage packaging from 14% to 25%, and Pepsi from 10% to 20%.<sup>87</sup>**

Oceana also estimates that this 10-percentage point global increase in reusable beverage packaging can prevent up to 153 billion plastic bottles and cups from entering the world's oceans and waterways.

Oceana's global estimates are based on the addition of the findings of two separate analyses on bottles and on cups together.

For bottles, Oceana compared scenarios where the global NARTD market grows and maintains its 2022 status of 6.35% refillable bottles for all years until 2030; and where refillable bottles increase in place of single-use plastic by 10 percentage points by 2030.<sup>88</sup> This allowed us to estimate that a 10-percentage point increase in refillable bottles can eliminate the equivalent of approximately 851 billion 500 ml single-use plastic bottles between 2023 and 2030 and prevent up to 117 billion of these bottles from entering

aquatic systems.<sup>89</sup> We also made these same calculations at the country-level for the top 20 countries with the largest volume of NARTD beverages sold in 2022 (Table 3).

For cups, we compared scenarios where the global disposable plastic cup market was assumed to grow from 2022 to 2030 with no replacement of the cups by reusable packaging; and where reusable packaging gradually replaces 10% of the forecasted single-use plastic cups sold by 2030.<sup>90</sup> This allowed us to estimate that a 10-percentage point increase in reusable cups can eliminate the equivalent of approximately 260 billion 250 ml single-use plastic cups between 2023 and 2030 and prevent up to 36 billion of these cups from entering aquatic systems.<sup>91</sup> We also made these same calculations at the country-level for those countries with data available (Table 4).





**Table 3. Estimated single-use plastic eliminated and prevented from entering aquatic systems (in 500 ml bottle equivalents) if refillable bottles increase by 10 percentage points from 2023 to 2030 in place of single-use plastic.**

Country	Single-use plastic eliminated (million 500 ml bottles)	Prevented single-use plastic pollution to aquatic systems (million 500 ml bottles)
China	157,204	14,630
United States	134,404	1,094
India	61,884	15,668
Mexico	37,446	2,030
Brazil	32,584	2,634
Indonesia	21,331	5,097
Japan	20,131	1,434
Germany	19,978	149
Italy	18,015	807
Nigeria	16,601	3,054
France	15,994	154
Russia	15,751	7,628
United Kingdom	15,533	172
Thailand	15,412	4,268
Türkiye	12,057	2,350
Argentina	11,981	1,017
Spain	11,241	117
South Africa	11,173	1,991
Canada	9,977	91
Poland	9,589	64
<i>Total top 20 countries</i>	<i>648,285</i>	<i>64,450</i>
<i>All other countries</i>	<i>202,975</i>	<i>52,399</i>
<b>Global total</b>	<b>851,260</b>	<b>116,848</b>

Source: GlobalData, with Oceana calculations.

Table 4. Estimated single-use plastic cups eliminated and prevented from entering aquatic systems (in 250 ml cup equivalents) if reusable cups increase by 10 percentage points from 2023 to 2030 in place of single-use plastic.

Country	Single-use plastic eliminated (million 250 ml cups)	Prevented single-use plastic pollution to aquatic systems (million 250 ml cups)
China	55,033	5,121
United States	53,025	432
India	27,657	6,999
Canada	13,130	120
Japan	10,115	720
Germany	8,753	65
Brazil	8,679	701
France	7,897	76
Italy	7,514	335
Mexico	7,085	384
United Kingdom	6,891	76
Spain	5,934	62
<i>Total 12 countries</i>	<i>211,713</i>	<i>15,091</i>
<i>All other countries</i>	<i>48,350</i>	<i>20,577</i>
<b>Global total</b>	<b>260,063</b>	<b>35,668</b>

Source: Mordor Intelligence, with Oceana calculations.



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# Reusable Packaging is a Winning Strategy to Reduce Carbon Emissions

**Reusable beverage packaging can have the lowest carbon footprint of any packaging option. This is the conclusion of Coca-Cola, its bottlers, and leading reusable cup companies.**

In Coca-Cola's 2022 Business and Sustainability report, the company affirmed that "refillable packages, both glass and plastic, can have the lowest carbon footprints of [its] packaging options."<sup>92</sup> Coca-Cola's head of sustainability Beatriz Perez, also recently stated to investors that refillable packaging has the "lower carbon footprint within the business" (as compared to other options).<sup>93</sup>

Coca-Cola FEMSA, the world's largest Coca-Cola bottler by volume, has reported that the greenhouse gas emissions of their Universal Bottle — a refillable PET bottle used for multiple brands — are up to 47% lower compared to single-use PET bottles.<sup>94</sup> Coca-Cola Andina, another major bottler in South America, reported a slightly better performance for the Universal Bottle at 48.2% lower emissions, citing Coca-Cola's

'Decarbonization Guidebook' as the source for their emissions statistics.<sup>95</sup> Refillable glass bottles were reported as having 10.2% lower emissions than single-use PET bottles. Coca-Cola İçecek (CCI), a major bottler in Western and Central Asia, reported that their use of refillable glass bottles in Türkiye, Pakistan, and Uzbekistan prevented 373,324 tons of CO<sub>2</sub> emissions in 2022.<sup>96</sup>

Regarding cups, leading reusable cup providers TURN and r.World have both touted their reusable cups for having lower environmental footprints than single-use alternatives. TURN reports that their polypropylene cups can be used 120 times on average, and that their 'CO<sub>2</sub> break-even point' — the point beyond which they outperform single-use alternatives from a carbon emissions perspective — is only three uses.<sup>97</sup>

## Refillable bottling enters new age of digital efficiency in Brazil

In 2019, Coca-Cola Andina opened a new plant in Brazil, which more than doubled its production capacity of beverages in refillable bottles. The modern facility has fully automated processes and incorporates the use of artificial intelligence, augmented reality, machine learning, and renewable energy.<sup>98</sup>

In attendance at the launch of the plant, Coca-Cola Chairman and CEO James Quincey commented “[w]ith the new Unit, Andina more than doubles its production capacity for returnable bottles. This will allow us to offer sustainable and convenient packaging, contributing to our commitment to reducing waste. The new factory also includes a high level of technology and uses clean energy, in addition to the highest quality standards.”<sup>99</sup>

In recent years, refillable bottling systems have become more efficient, with companies employing retreatment systems to recycle the water used for washing and using solar energy to heat it. In addition, modern reusable packaging systems use advanced supply chain logistics and software to increase the efficiency of the delivery and return of bottles and cups. Regardless, an often-missed point is that emissions relating to the return of refillable bottles are not as relevant as one may think given that all trucks need to return to the

plant anyways. Coca-Cola Andina’s CFO Andres Wainer in 2022 stated to investors that “the only difference is that we’re putting empty bottles that don’t weigh much. So the carbon footprint of that is very, very low. It is nothing relevant because the truck [has] to return anyways back to the plant. So, there’s no problem in using refillable bottles over long distances... We ship refillable bottles for hundreds of kilometers, and it’s not an issue.”<sup>100</sup>

**“refillables packaging..., whether it's refillable glass, refillable PET... actually has a lower carbon footprint within the business”**

**- Beatriz Perez. Coca-Cola SVP and Chief Communications, Sustainability & Strategic Partnerships Officer at the Bernstein ESG Conference**



# The Return to Reusable Beverage Packaging Systems

## Investing in reuse

The global transition to efficiently designed reusable beverage systems will require investment. Luckily, reusable beverage packaging is not only good for the environment, but it's good for business too. In countries where refillable bottles are accessible and available at scale, people like refillables — they even prefer them. This is the case in Chile, where eight out of 10 households were reported to prefer refillable bottles and between 40-60% of the beverage sales in corner stores are in reusable packaging.<sup>101</sup>

The main reason for the continued popularity of refillable bottles is the lower comparable price. Beverages sold in refillable bottles cost less once an initial deposit is paid for the packaging as the consumers then only need to pay for the beverage inside the bottle each time they return to the store. This deposit system also encourages brand loyalty, which is good for both the bottling and beverage companies, and for investors. Brand loyalty is further reinforced with new digital strategies and tools which prioritize convenience as part of the customer experience. An example of this is an application developed by Coca-Cola Andina in South America, which facilitates the purchase of refillable bottles without requiring the return of a physical bottle at the

time of purchase.<sup>102</sup> Consumers can wait until they have a certain number of empty bottles collected at home before bringing them back and replenishing their stock of 'virtual bottles' on the app. Another example — also deployed by Coca-Cola Andina — is miCoca-Cola.cl, a direct-to-consumer e-commerce website where consumers first order a 'starter kit' of refillable bottles which once empty, can be picked up and exchanged for a new delivery of full bottles.<sup>103</sup> Driven by convenience and customer loyalty, as of 2021, over 50% of sales on miCoca-Cola.cl were of beverages in reusable packaging.

Refillables can be an important strategy for revenue growth management, a point that has been made many times by leading beverage industry analyst Carlos Laboy at HSBC. In a December 2022 report, Laboy and his team state that refillables "are a defining success factor for Emerging Market bottlers... affordable refillable bottles help to drive growth, profitability, brand and market development, and to deal with discount competitors, sugar taxes, plastic taxes, inflation, and devaluations as they open up price-pack combinations that a single-use package portfolio just can't match."<sup>104</sup>

## Reuse: a smart move for businesses of tomorrow

TURN, a leading reusable cup system, has listed the following benefits of reuse for businesses:<sup>105</sup>

**Cost savings in the long run.** Switching to reuse allows businesses to extend the lifecycle of products, reducing the need for constant manufacturing, and lowering both procurement costs and waste disposal expenses.

**Regulatory compliance.** By proactively integrating reuse strategies, companies can ensure compliance with current and future regulations aimed at reducing plastic waste, safeguarding their operations and reputation.

**Competitive edge.** Today's consumers are more likely to choose brands that demonstrate a commitment to sustainability.

Investors can support the global transition to reusable beverage packaging by encouraging beverage and bottling companies to respond to this emerging opportunity for growth. Investors can also encourage companies to include reusable packaging systems as eligible projects funded through green bonds, which they then purchase. In 2022, Coca-Cola HBC — a major bottler in Europe and Nigeria — explicitly included the “purchase and/or manufacturing of returnable glass and refillable PET bottles” and “investments in infrastructure to support the use of refillable packaging” as projects that are eligible to be funded by the net proceeds of the Green Instruments they issue.<sup>106</sup> Similarly, also in 2022, Pepsi issued its second Green Bond, specifying that proceeds from the Green Bond issuance may be allocated to “investments in projects to introduce or expand reusable solutions to drive circularity.”<sup>107</sup>

and replace those of beverages in single-use plastic bottles and cups. To achieve this, beverage and bottling companies need to increase the availability of reusable packaging, and they need to prioritize the marketing of it to increase demand.

Through long-term exclusivity contracts with large, multinational corporate clients (e.g., McDonalds) and other strategic plays, Coca-Cola and Pepsi have been wildly successful in making their beverages available in nearly every corner of the world. As of 2022, each person on the planet consumed on average one Coca-Cola beverage approximately every four days.<sup>108</sup> As far back as 1927, when Coca-Cola was exclusively using reusable packaging, the company's slogan was “around the corner from anywhere”.<sup>109</sup> It is time for Coca-Cola to adopt this vision again for reusable packaging, increasing the accessibility, convenience, and appeal of these products for consumers around the world.

### Marketing reuse

To reduce single-use plastic pollution, sales of beverages in reusable packaging need to grow faster



## The Olympic Games: a global platform for championing reuse

Part of the Paris 2024 Organizing Committee's successful bid to host the Olympic and Paralympic Games was a pledge to cut the single-use plastic footprint of the Games in half compared to the London 2012 Games.<sup>110</sup> Further to this, in May 2023, Paris Mayor Anne Hidalgo announced a plan to ban single-use plastic from the French capital.<sup>111</sup> As one of the leading sponsors of the 2024 Games, Coca-Cola has announced it will support these pledges by distributing its products in refillable glass bottles, reusable cups, and more than 700 drink fountains positioned in points of sale for the general public.<sup>112</sup>

The reusable cup system inclusive of the cups, and services to deliver, collect, and wash the cups, will be supplied by French company Re-uz through an exclusive partnership.<sup>113</sup> With the world watching, never before has there been such an opportunity to raise awareness and interest in reusable packaging.

To meet their goals of increasing reusable packaging by at least 10 percentage points by 2030, it is clear that Coca-Cola and Pepsi will need to sell reusable products to additional consumers in markets where they already exist as well as in markets where they have not existed — commercially — for decades. This will require pushing bottling partners and marketing teams to sell reusable products more proactively as alternatives to single-use plastic. Fortunately, these companies are among the most successful marketers on the planet and already sell to millions of customers based on the lower cost of refillables in many markets and the environmental appeal of refillables (in markets like Germany). Unfortunately, neither Coca-Cola nor Pepsi have yet unveiled (or invested in) the large-scale campaigns needed to make their goals a reality.

### Regulation

Laws and regulations aimed at reducing plastic waste have recently been enacted or are in the pipeline in countries around the world. Within this changing global regulatory landscape, governments are also beginning to recognize the important role that reusable packaging must play in tackling the plastic pollution crisis.

In South America, following campaigning efforts by Oceana and its allies, in 2021 Chile introduced a

groundbreaking new law, requiring stores to actively display, sell, and receive refillable bottles. By 2024, at least 30% of the beverages displayed in these stores must be in refillable bottles.<sup>114</sup>

In Europe, Austria, France, Germany, Portugal, Romania, Sweden, and Spain have all introduced legislation which would pave the way for reuse systems. Some of this legislation includes legally binding and enforceable reuse targets. In the coming years it is also expected that such legally binding reuse targets will be set across the entire European Union.<sup>115</sup> As of November 2023, the EU is in the process of negotiating a new Packaging and Packaging Waste Regulation, which will provide the opportunity for the EU to follow through on a policy goal it announced in 2019 to make all packaging reusable or recyclable by 2030.

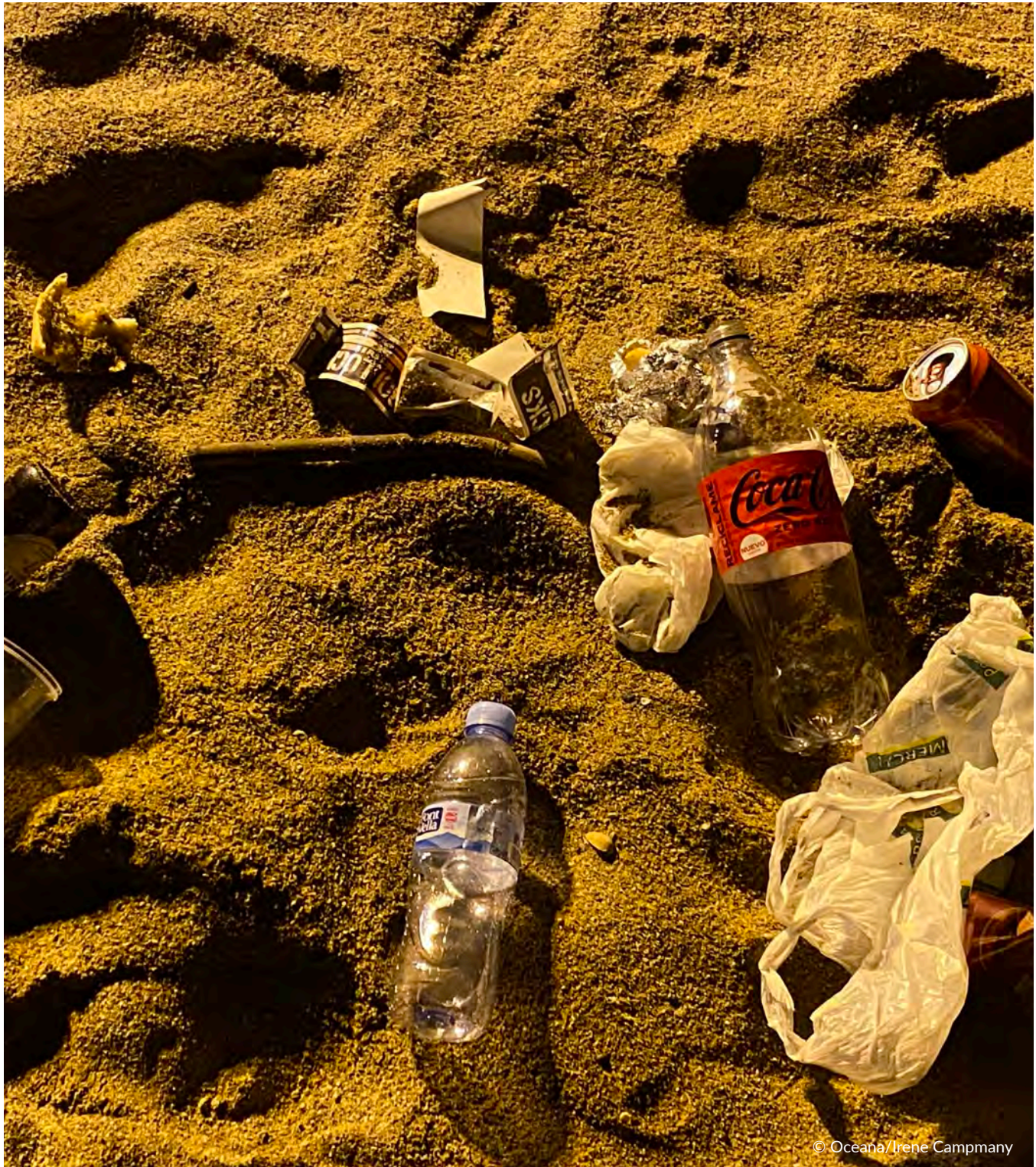
In addition, the United Nations is currently in the process of negotiating a global treaty aimed at ending plastic pollution, which is set to conclude by the end of 2024. As of November 2023, included in the draft text of this treaty is an option for countries to introduce binding targets for both plastic reduction and reusable packaging.<sup>116</sup> Although negotiations have been proceeding under the understanding that 'nothing is agreed until everything is agreed', the presence of this option is a sign of the ambition that exists at the UN level for such a transition to reuse.

Change is undeniably on the horizon with regards to



both global and national regulation that will either require or facilitate reusable packaging systems. There is no time like the present for companies to get an early

start and gain a competitive edge in this transition while the option is still available.



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# Conclusions and Recommendations

Oceana's analysis in this report shows the beverage industry can substantially reduce aquatic pollution from plastic bottles and cups. The key lies in the widespread adoption of reusable packaging systems, effectively replacing single-use throwaway plastic. A 10-percentage point increase in reusable packaging by 2030 could eliminate the equivalent of over 1 trillion single-use plastic bottles and cups and prevent up to 153 billion of these containers from entering our world's oceans and waterways.

Given that the two leading beverage companies — Coca-Cola and Pepsi — have already pledged to increase reusable packaging by 10 percentage points, this change appears to be achievable. However, in a world that is facing unprecedented, catastrophic, and irreversible changes due to both the plastic and climate crises, large corporate actors have a responsibility to do everything they can to reduce their impact. For the beverage industry, the clear path forward is reusable

packaging, and these crises require more than just a 10 percentage point shift. Systemic change is needed — a full market transformation where reuse and reusable packaging become the norm.

Oceana is calling on global beverage and bottling companies to reduce the production and use of single-use throwaway plastic and to take the widespread, collaborative action needed to drive the reuse revolution in the beverage sector. **Oceana urges all beverage and bottling companies to set targets to increase reusable packaging by at least 10 percentage points and to allocate appropriate investment and marketing resources to ensure these targets are achieved.** Reusable packaging stands as the most potent way for these companies to reduce plastic pollution and to genuinely contribute to building the true circular economy our oceans — and planet — desperately need.



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# Endnotes

- <sup>1</sup> In the context of this report, we refer to 'reusable beverage packaging' as packaging (both bottles and cups) that are part of reusable packaging systems owned and operated by beverage, bottling, or reusable packaging system companies. After the packaging is returned and collected, it is washed and refilled by these companies, not the consumer.
- <sup>2</sup> Estimate is based on NARTD beverage market data provided by GlobalData and disposable cup data provided by Mordor Intelligence. Calculations were made assuming the additional reusable packaging exclusively replaces single-use plastic packaging, and the bottles and cups are represented in 500 ml and 250 ml equivalents, respectively.
- <sup>3</sup> Estimate has been made applying modeled plastic emissions data published by Borrelle SB, et al. 2020. Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution. *Science* 369(6510): 1515-1518. <https://doi.org/10.1126/science.aba3656>
- <sup>4</sup> Calculations were made assuming that each of the 851 billion 500 ml single-use plastic bottles eliminated are 23.5 cm in height as per <https://www.royalvendors.com/coca-cola-europe-500-ml-bottles/> and each of the 260 billion 250 ml cups are 15.5 cm in height as per <https://cospoplastico.com/Cups-Desechables-250-ml-PP>, and that the distance to the moon from the earth is 384,400 km.
- <sup>5</sup> In Coca-Cola's 2022 Business and Sustainability report available here: <https://www.coca-colacompany.com/content/dam/company/us/en/reports/coca-cola-business-sustainability-report-2022.pdf> [accessed 22-09-2023], the company reported selling 32.7 billion unit cases in 2022, and that 14% of this volume was sold in reusable packaging. With each unit case equaling 5.678 liters, the quantity of beverages sold in 500 ml bottle equivalents would equal 52 billion bottles.
- <sup>6</sup> The Coca-Cola Company. 2022. The Coca-Cola Company announced industry-leading target for reusable packaging. Available: <https://www.coca-colacompany.com/media-center/coca-cola-announces-industry-leading-target-for-reusable-packaging> [accessed 13-09-2023]
- <sup>7</sup> PepsiCo. 2022. PepsiCo introduced new packaging goal, doubling down on scaling reusable packaging option. Available: <https://www.pepsico.com/our-stories/press-release/pepsico-introduces-new-packaging-goal-doubling-down-on-scaling-reusable-packaging12052022> [accessed 13-09-2023]
- <sup>8</sup> For an account of failed commitments by both Coca-Cola and Pepsi, see Changing Markets Foundation. 2020. Talking Trash: The corporate playbook of false solutions to the plastic crisis. Available: [http://changingmarkets.org/wp-content/uploads/2021/01/TalkingTrash\\_FullVersion.pdf](http://changingmarkets.org/wp-content/uploads/2021/01/TalkingTrash_FullVersion.pdf) [accessed 06-10-2023]



- <sup>9</sup> In March 2022, 175 nations agreed to develop a legally binding agreement on plastic pollution by 2024. In the draft treaty text published in September 2023, an option was included to establish reuse targets only for plastics and plastic products. See pg. 12 of the drafted text, available here: <https://wedocs.unep.org/bitstream/handle/20.500.11822/43239/ZERODRAFT.pdf> For the treaty to establish legally binding targets for reusable packaging of any material type (e.g., glass), the drafted text will need to be amended and agreed upon by the UN nations currently negotiating the treaty.
- <sup>10</sup> Oceana's estimates are based on NARTD beverage market data provided by GlobalData and disposable cup data provided by Mordor Intelligence. Estimate of aquatic plastic pollution has been made applying modelled plastic emissions data published by Borrelle SB, et al. 2020. Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution. *Science* 369(6510): 1515-1518. <https://doi.org/10.1126/science.aba3656> Bottles and cups are represented in 500 ml and 250 ml equivalents, respectively.
- <sup>11</sup> Caselles-Morales C, et al. 2021. An inshore-offshore sorting system revealed from global classification of ocean litter. *Nature Sustainability* 4:484-493. <https://doi.org/10.1038/s41893-021-00720-8>
- <sup>12</sup> Gall SC, Thompson RC. 2015. The impact of debris on marine life. *Marine Pollution Bulletin* 92: 170-179 <https://doi.org/10.1016/j.marpolbul.2014.12.041>
- <sup>13</sup> Kühn S, van Franeker JA. 2020. Quantitative overview of marine debris ingested by marine megafauna. *Marine Pollution Bulletin* 151: 110858 <https://doi.org/10.1016/j.marpolbul.2019.110858>
- <sup>14</sup> Lamb JB, et al. 2018. Plastic waste associated with disease on coral reefs. *Science* 359(6374): 460-462 <https://doi.org/10.1126/science.aar3320>
- <sup>15</sup> The Irish Times. 2018. Dead whale had 1,000 plastic pieces in stomach. Available: <https://www.irishtimes.com/news/environment/dead-whale-had-1-000-plastic-pieces-in-stomach-1.3704157> [accessed 31-08-2023]
- <sup>16</sup> Geyer R, et al. 2017. Production, use, and fate of all plastics ever made. *Science Advances* 3(7): e1700782. DOI:10.1126/sciadv.1700782. <https://doi.org/10.1126/sciadv.1700782>
- <sup>17</sup> Sherrington C, et al. 2022. Plastic Pollution Prevention Final Report: The Impact of Beverage Brand Commitments for Recycled Content on the Flow of Plastic Bottles into Aquatic Environments. Prepared by Eunomia for Oceana. Available: <https://oceana.org/reports/eunomia-report-the-impact-of-beverage-brand-commitments-for-recycled-content-on-the-flow-of-plastic-bottles-into-aquatic-environments/>
- <sup>18</sup> Brown E, et al. 2023. The potential for a plastic recycling facility to release microplastic pollution and possible filtration remediation effectiveness. *Journal of Hazardous Materials Advances* 10(100309) <https://doi.org/10.1016/j.hazadv.2023.100309>
- <sup>19</sup> Reusable beverage packaging units in bottle form are widely referred to as either 'refillable bottles', or 'returnable bottles' in the markets where they are more commonly available. The Coca-Cola Company and its bottlers for example, refer to these bottles as both refillable and returnable in company reports. For the purposes of this report, we refer to reusable packaging in bottle form as 'refillable bottles' (with exception to quotes from company reports), and in cup form as 'reusable cups'.

- <sup>20</sup> The percentage of NARTD beverages sold in refillable packaging exceeds 10% in all of these countries, according to market data provided by GlobalData.
- <sup>21</sup> Examples of large-scale reusable cup systems include R.World, see [rworldreuse.com](http://rworldreuse.com); and TURN, see [turnus.in](http://turnus.in).
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- <sup>116</sup> United Nations Environment Programme. 2023. Zero draft text of the international legally binding instrument on plastic pollution, including in the marine environment. Available: <https://wedocs.unep.org/bitstream/handle/20.500.11822/43239/ZERODRAFT.pdf> [accessed 15-09-2023]



The background of the entire page is a dark blue, almost black, image of the ocean's surface. In the lower right quadrant, there are prominent, concentric ripples from a stone dropped into the water, creating a focal point of light and movement. The rest of the image is a smooth, dark expanse of water.

**OCEANA** Protecting the  
World's Oceans

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-quarter of the world's wild fish catch. With more than 275 victories that stop overfishing, habitat destruction, oil and plastic pollution, and the killing of threatened species like turtles, whales, 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 [Oceana.org](https://www.Oceana.org) to learn more.