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# Unwrapping the potential of sustainable packaging

February 2022

## Summary

Plastics – and especially plastic packaging – play an essential role in the global economy, as they prevent products from being spoiled, and significantly extend the shelf-life of food. Additionally, the comparatively low weight of plastic packaging contributes to energy and fuel savings, and to reducing greenhouse gas emissions from freight transport.

However, the advantages of plastics have to be set against a number of drawbacks, particularly for the environment. The absence of a circular plastic economy, and the leakage of millions of tonnes of plastic material, not only contribute in large part to marine pollution, but also trigger immense economic costs, and billions of USD in negative externalities.

Fostering the further development of sustainable packaging therefore not only helps to limit the volume of plastic waste, but also offers attractive opportunities to participate in a market that is predicted to show a double-digit percentage growth rate within the next five years.

## Key takeaways

- According to analysis, 95% of plastic packaging material value, equivalent to between USD 80–120 billion per year, leaves the economy (in the form of waste).<sup>1</sup>
- The recycling rate of plastics is only around 14%. Due to additional value losses during sorting and reprocessing, only about 5% of plastic packaging is reused for packaging, while most of the remaining 9% is used for lower-value applications.<sup>2</sup>
- Nearly a third of all plastic packaging is not available for recycling.<sup>3</sup>
- Plastic packaging contributes almost USD 40 billion-worth of greenhouse gas emissions and other environmental damage every year.<sup>4</sup>
- Expenditures arising from these post-use effects, as well as from greenhouse gas emissions caused by plastic production, amount to at least USD 40 billion annually.<sup>5</sup>
- The sustainable-packaging market is expected to grow from an estimated USD 305 billion in 2020 to almost USD 413 billion in 2027.<sup>6</sup>



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## The price tag of “plastubiquity”

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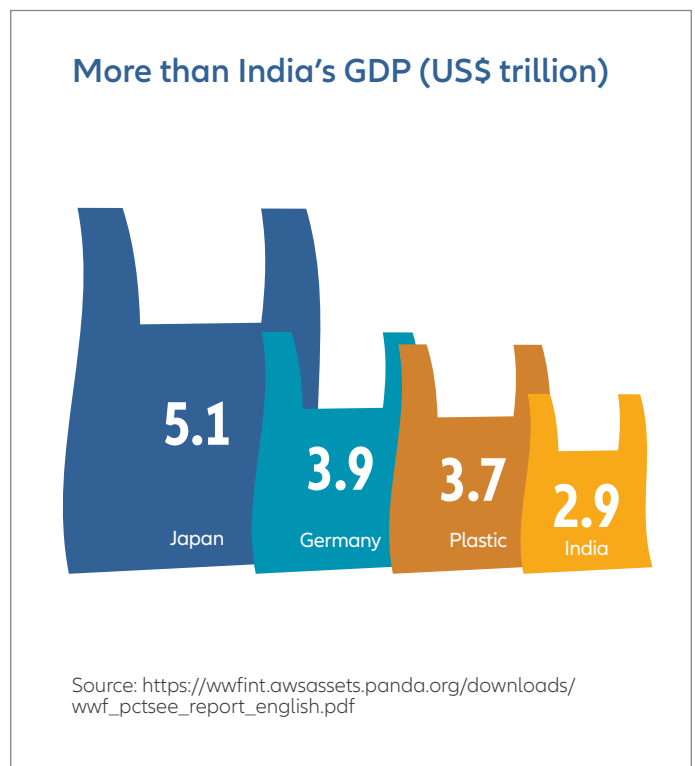
**Around the world, one million plastic drinking bottles are purchased every minute, while 5 trillion single-use plastic bags are used worldwide every year.<sup>7</sup>**

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In the modern economy plastic has become indispensable, ubiquitous and maybe the most versatile material in terms of applications. Its success is primarily based on its exceptional functional characteristics – in numerous potential application areas such as construction, transportation, healthcare and electronics – as well as on its comparatively low production costs.

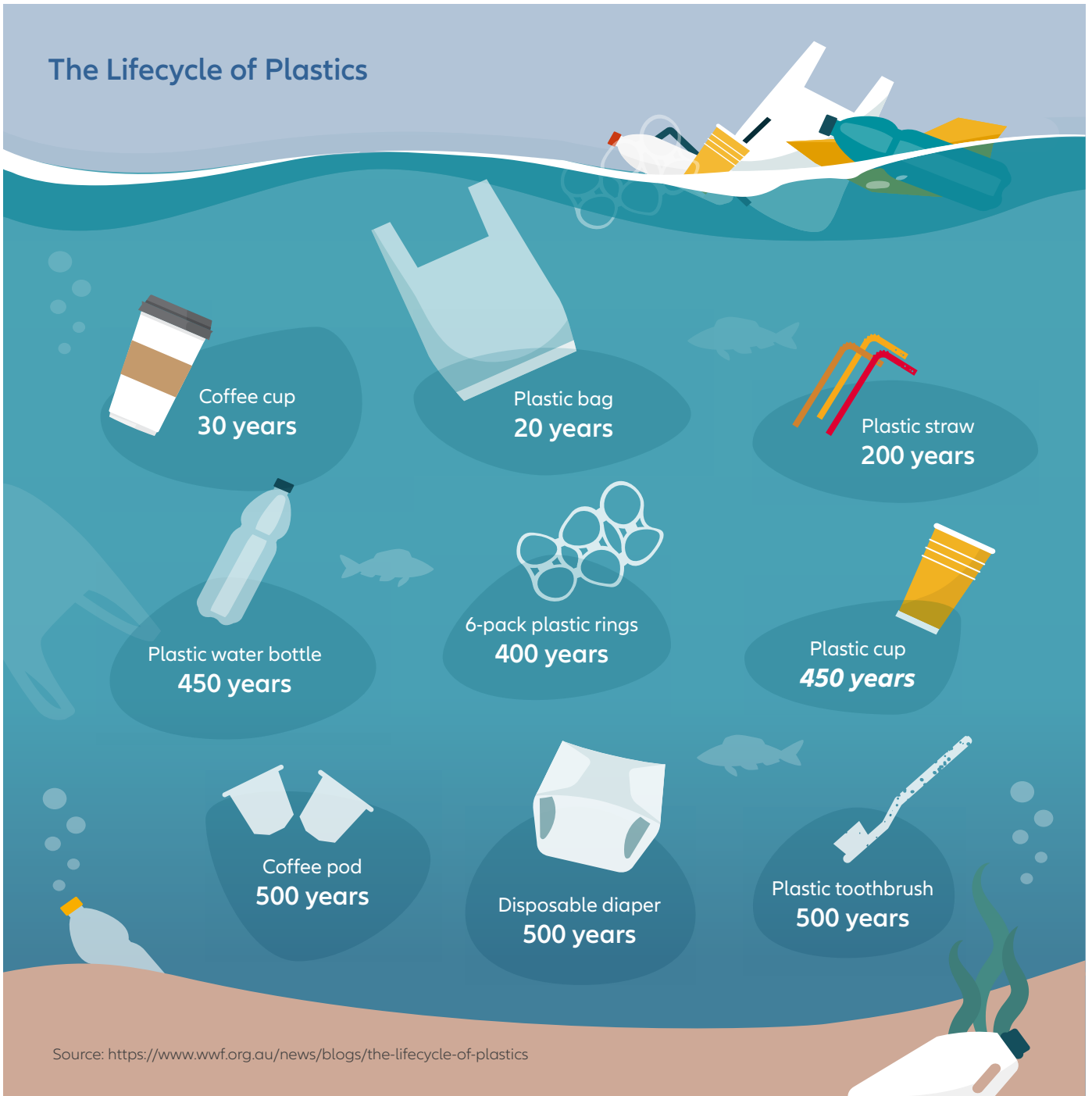
However low the manufacturing “price tag” might be, the lifetime costs of plastics are very high. A WWF report suggests that in 2019 the plastic pollution, emissions and clean-up costs amounted to at least USD 3.7 trillion, which is more than India’s GDP, and many times greater than the market cost.<sup>8</sup>

## The lifetime cost of plastic produced in 2019



Source: [https://wwfint.awsassets.panda.org/downloads/wwf\\_pctsee\\_report\\_english.pdf](https://wwfint.awsassets.panda.org/downloads/wwf_pctsee_report_english.pdf)

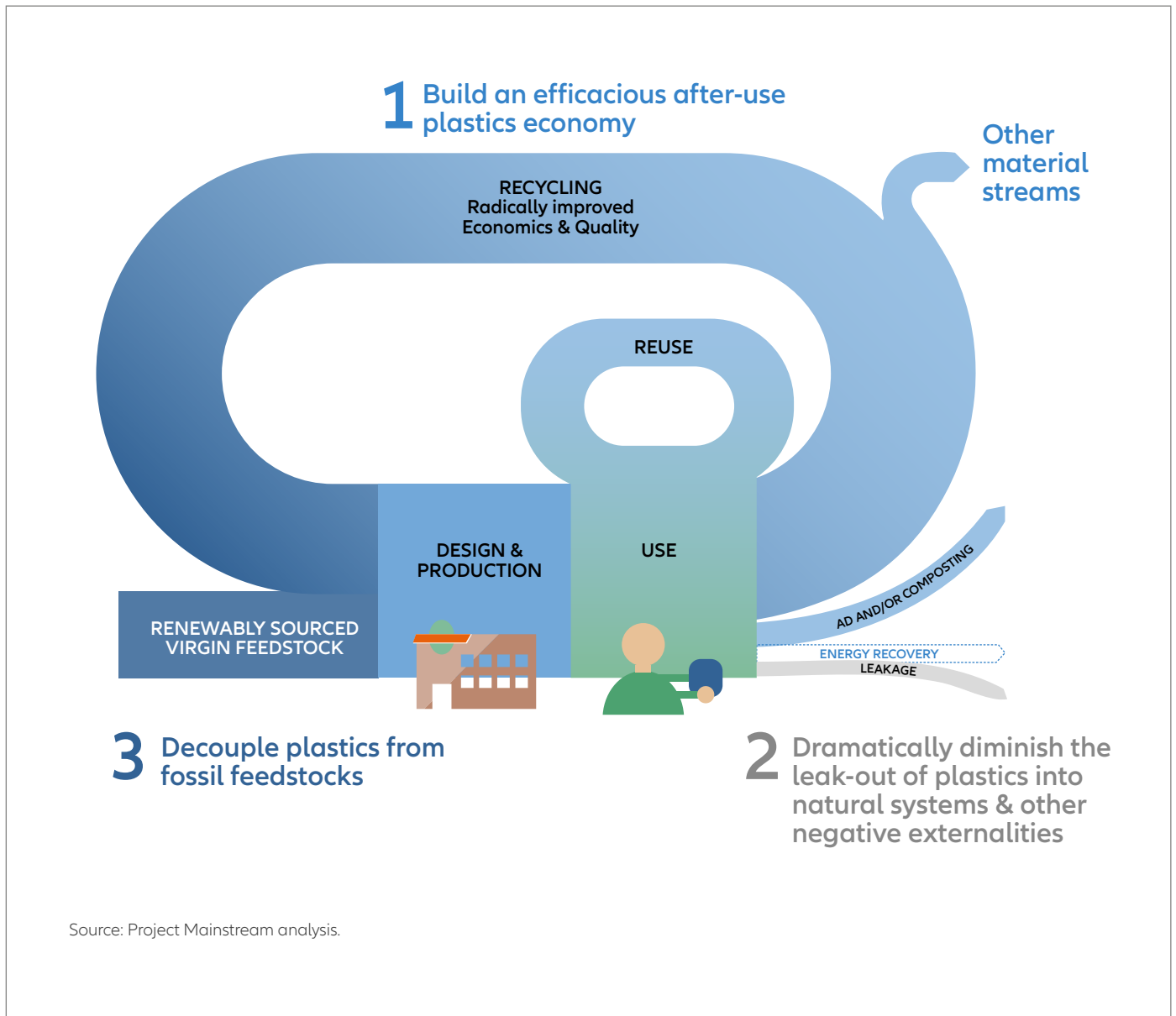
Equally pressing are the challenges posed by the short average lifespan of plastic wrappings/plastic packaging material (only six months), which is in sharp contrast to the decades or even centuries-long decomposition process that single-use plastics impose on the environment.



Source: <https://www.wwf.org.au/news/blogs/the-lifecycle-of-plastics>

More than four decades after the introduction of the first universal recycling symbol, the plastic recycling rate still has significant room for improvement. Compared to paper (58%) and iron and steel (70–90%), the recycling of plastics in general, and even more so of plastic packaging, is still in its infancy, with only 14% of plastic packaging being collected for recycling.<sup>9</sup>

Consequently, turning the recycling of plastic into a “circular economy” will help to build a more restorative and regenerative system, where plastic is reused as well as recycled. Adhering to the “triad of eliminate, innovate and circulate” would also lead to a reduction in plastic waste by 80%, and to a cut of 20% in greenhouse gas emissions over the next two decades, while at the same time generating 700,000 additional jobs, and USD 200 billion in annual savings.<sup>10</sup>



This would also speed up the decoupling of plastic production from non-regenerative energy sources. 98% of annually produced single-use plastics are actually fabricated from fossil fuels.<sup>11</sup>

Over the coming decades, the demand for oil for plastics production is expected to increase even more, growing at 3.8% until 2030, and then at 3.5% to 2050, and thus at a faster pace than the overall demand for oil, which is projected to step up by only 0.5% per year.<sup>12</sup>

Between pollution, bans and waste prevention

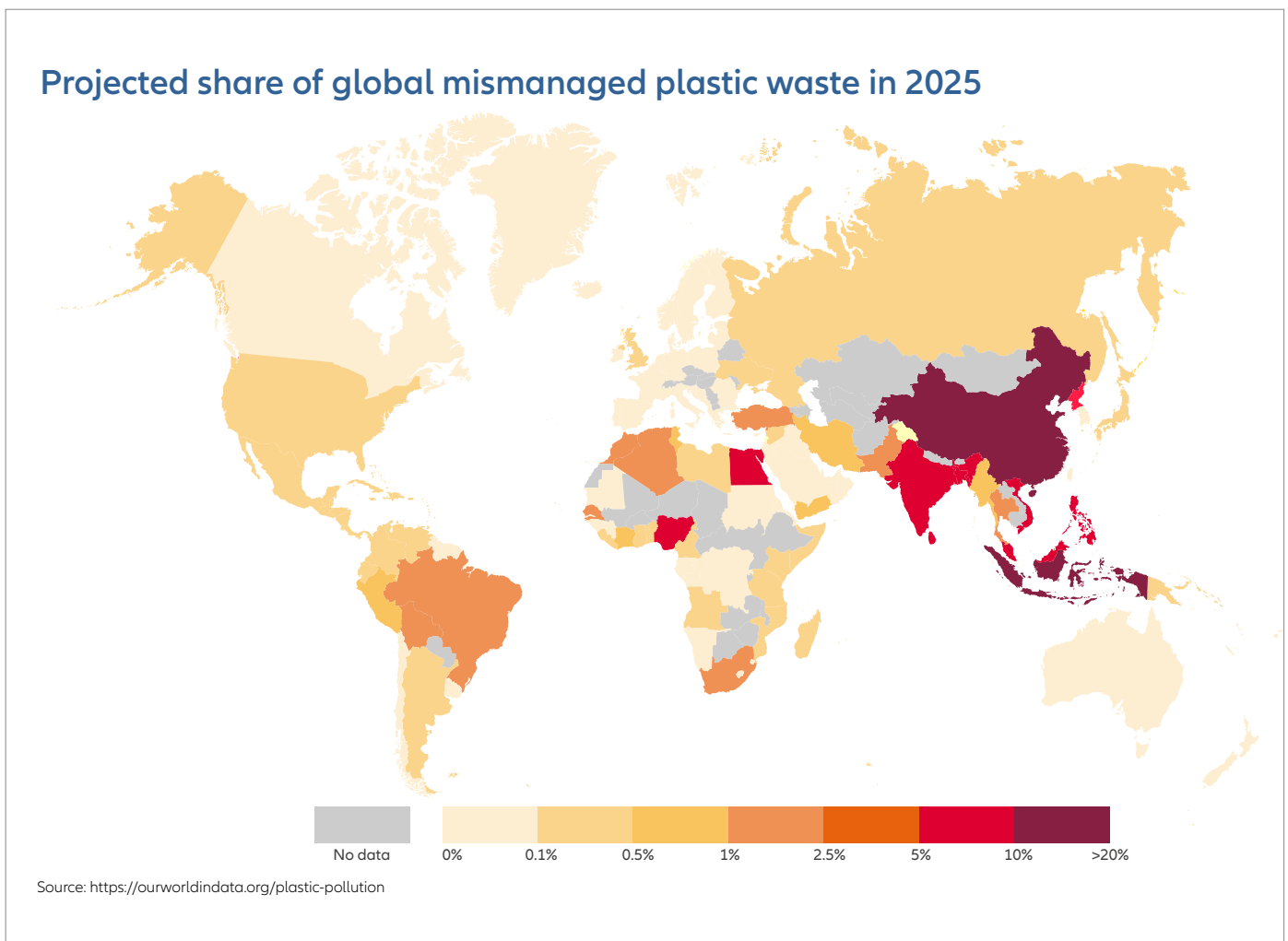
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**By 2050, single-use plastic production could account for 5-10% of global greenhouse gas emissions.<sup>13</sup>**

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No matter how versatile plastic may be, and however vast the cost savings and efficiencies delivered by its application in various areas, the impact of (unmanaged) plastic waste on the environment is devastating.

**Projected share of global mismanaged plastic waste in 2025**

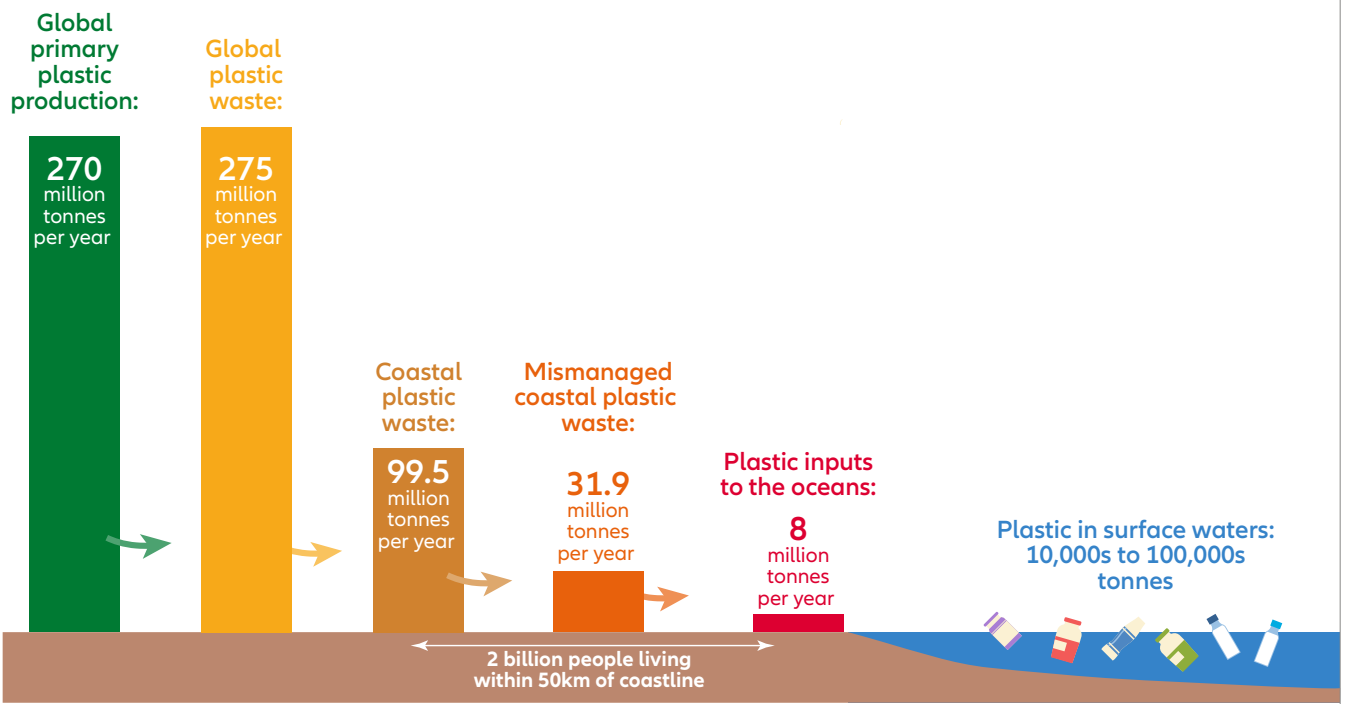


Estimates state that plastic currently makes up 85% of marine litter,<sup>14</sup> and that by 2050 there will be more plastic in the ocean, by weight, than fish.<sup>15</sup>

Other studies indicate that since the outbreak of Covid-19 approximately 8.4m tonnes of protective masks, gloves and other inadequately managed plastic waste from the pandemic entered the ocean, originating from 193 countries.<sup>16</sup>

### The pathway by which plastic enters the world's oceans

Estimates of global plastics entering the oceans from land-based sources in 2010 based on the pathway from primary production through to marine plastic inputs.



Source: <https://ourworldindata.org/plastic-pollution>

In the face of these alarming scenarios, reducing plastic waste and recycling plastic mark important steps towards a stricter protection of our planet from single-use plastic waste – even more so when considering that a quarter of global plastics waste goes into incineration, and that 40% ends up in waste dumps and landfills<sup>17</sup>, literally “evaporating” valuable resources.

Yet not every well-meant approach to recycling plastic waste is beneficial for the environment. This is particularly true for “wishcycling”, defined by the Collins English Dictionary<sup>18</sup> as “the practice of putting something in a recycling bin without being certain that it is actually recyclable”.

In this context, a Pew Research Center survey found that more than half of Americans believe that “most types of items” can be recycled.<sup>19</sup>

### Sustainable packaging can be a solution – and an investment opportunity

Even though it is highly desirable to establish a plastic circular economy, where plastic products are designed to be easily reused or recycled (“design for recyclability”<sup>20</sup>), while in parallel reducing the necessity for and the use of single-use plastic products, plastic recycling alone can’t be a long-term solution for building a sustainable circular system. Nor would it be possible to reduce consumption enough (and thereby reduce packaging) without drastically slowing the global economy.

In this context, moving from plastic to sustainable packaging would mark a great leap forward – and many corporations are already doing their part. This gives investors a way to support the drive for less wasteful consumption, and a cleaner planet. Additionally, it opens interesting angles to participate in the ever-growing market segment of compostable and biodegradable bioplastics and biopolymers made from renewable sources like corn starch, tapioca roots, chips, starch or sugarcane.

## Unwrapping the potential of sustainable packaging

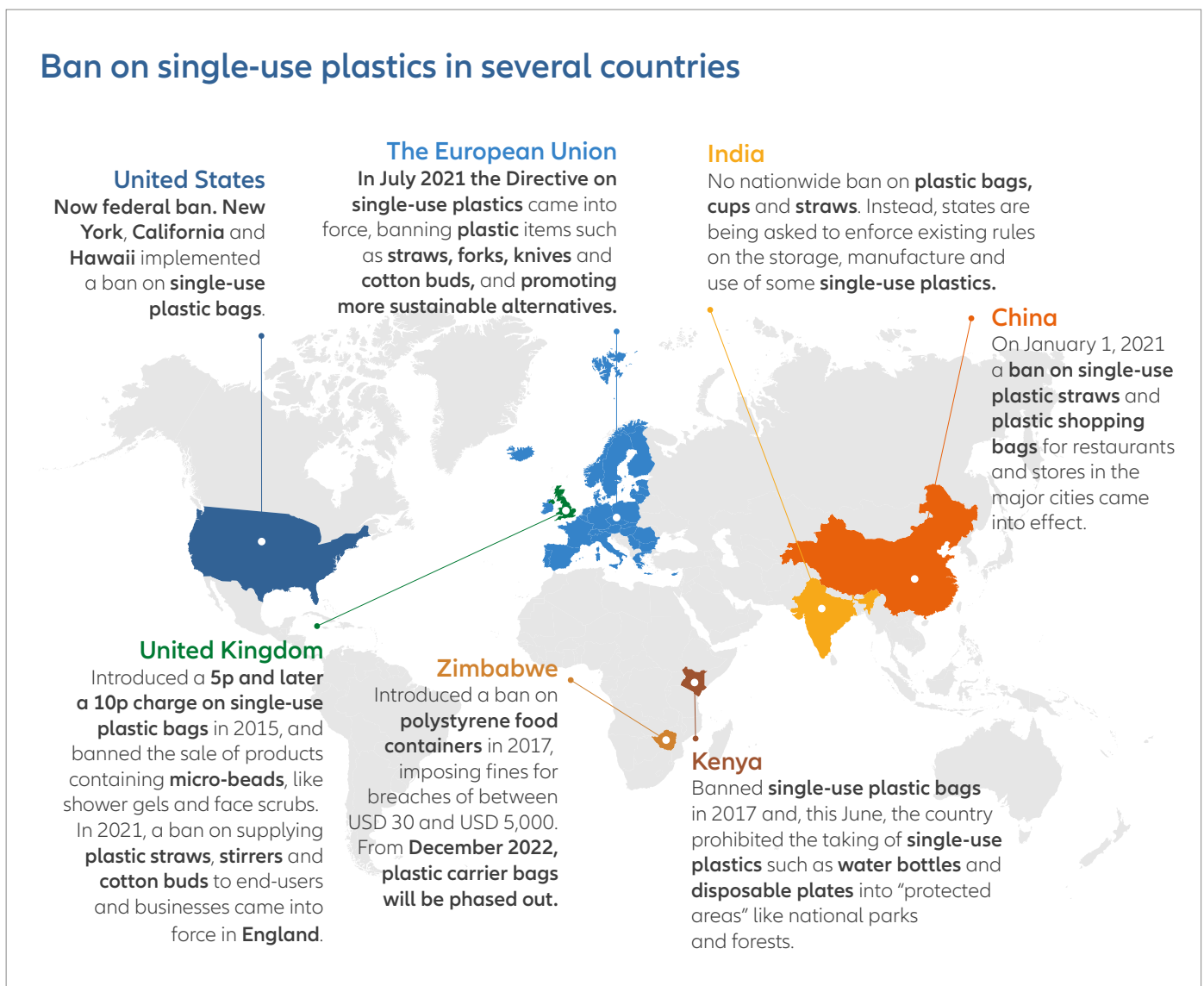
Projections suggest that the global bioplastics and biopolymers market size will nearly triple, from USD 10.7 billion in 2021 to USD 29.7 billion by 2026, at a CAGR of 22.7%.<sup>21</sup>

From a regional perspective, the Asia-Pacific bioplastics industry is projected to manifest the highest CAGR of 12.35% in the period from 2021 to 2030.<sup>22</sup>

On a segment basis, in 2020 packaging accounted for the largest share in the bioplastics and biopolymers market in terms of value, followed by textiles and consumer goods.<sup>23</sup>

### The drivers for a surging bioplastics demand

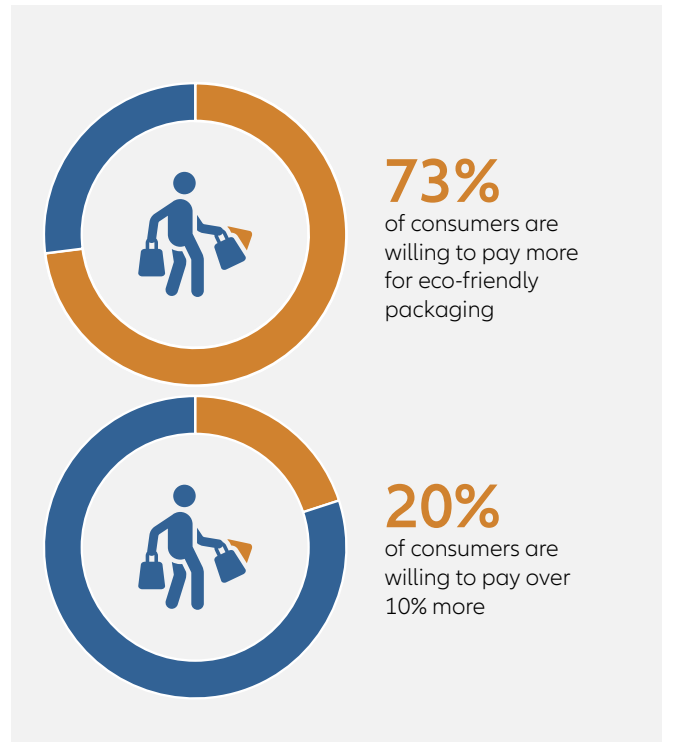
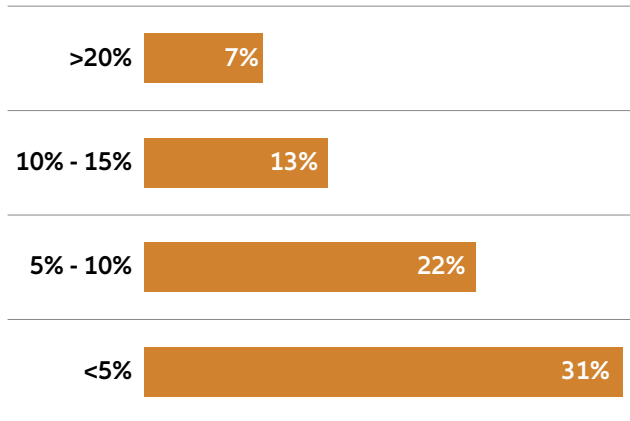
The dynamic of the expansion of the global bioplastics and biopolymers market has industry-internal as well as external drivers, like stricter regulations, and taxes on or bans of single-use plastic.



However, shifting consumer preference also plays its part in driving the development, production and distribution of more environmentally-friendly alternatives to conventional plastic.

In a recent consumer survey by the Boston Consulting Group, almost three-quarters of 15,000 respondents (and 83% among younger generations) said they would pay more for products with environmentally-friendly packaging, and over a fifth would pay an additional 10%. 64% of respondents also said that sustainable packaging was an important factor in their purchasing decisions.<sup>24</sup>

## Putting a price on sustainability



Source: <https://triviumpackaging.com/sustainability/2021BuyingGreenReport.pdf>

Driven by consumers as well as by regulations, industries are gradually favouring the production and deployment of bioplastics and biopolymers to address environmental and economic issues, and also to mitigate the continuing price pressure exercised by the rising cost of fossil fuels.

In addition, advances in R&D (i.e., lower production costs and faster production processes) are also accelerating the rise of bioplastics and biopolymers as a viable alternative to conventional polymers like Polyethylene terephthalate (PET), High-density polyethylene (HDPE), Low-density polyethylene (LDPE) or Polypropylene (PP) and Polystyrene (PS).

Finally, a growing population and rapid urbanisation – and therefore the increasing demand for sustainable alternatives to conventional plastic from end-use industries – play their part in fostering the growth of sustainable packaging solutions.

## Allianz Global Investors “unwraps” the potential of sustainable packaging innovators

Allianz Global Investors identifies companies that produce compostable and/or biodegradable bioplastics and biopolymers made from 100% renewable resources like mushrooms, corn starch, potato starch and used cooking oil. Their solutions can be decisive contributions to addressing the pressing challenges arising from the production and use of conventional polymers and single-use plastic packaging, and from the devastating impact that mismanaged and non-recycled plastic waste has on the environment. At the very least, relying on bioplastics and biopolymers could help to save billions of USD in societal and economic costs.

Allianz Global Investors also continues to invest in innovators specialising in the manufacture, development and design of products made from post-consumer recycled plastic, helping to prevent billions of pounds (lbs) of plastic waste that would otherwise likely leak into inland waterways or into the ocean.



# Unwrapping the potential of sustainable packaging

- <sup>1</sup> <https://www.weforum.org/press/2016/01/more-plastic-than-fish-in-the-ocean-by-2050-report-offers-blueprint-for-change/>
- <sup>2</sup> [https://www3.weforum.org/docs/WEF\\_The\\_New\\_Plastics\\_Economy.pdf](https://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf)
- <sup>3</sup> <https://ellenmacarthurfoundation.org/the-new-plastics-economy-rethinking-the-future-of-plastics-and-catalysing>
- <sup>4</sup> [https://www3.weforum.org/docs/WEF\\_The\\_New\\_Plastics\\_Economy.pdf](https://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf)
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- <sup>8</sup> [https://wwfint.awsassets.panda.org/downloads/wwf\\_pctsee\\_report\\_english.pdf](https://wwfint.awsassets.panda.org/downloads/wwf_pctsee_report_english.pdf)
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- <sup>12</sup> [https://www3.weforum.org/docs/WEF\\_The\\_New\\_Plastics\\_Economy.pdf](https://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf)
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- <sup>14</sup> <https://www.unep.org/resources/pollution-solution-global-assessment-marine-litter-and-plastic-pollution>
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