

Public Disclosure Authorized

# Plastics x COVID-19 in South Asia

## THE IMPACT OF COVID-19 ON PLASTIC WASTE MANAGEMENT IN SOUTH ASIA

### CHALLENGES AND POLICY RECOMMENDATIONS

September 2021

#BEATPLASTICPOLLUTION

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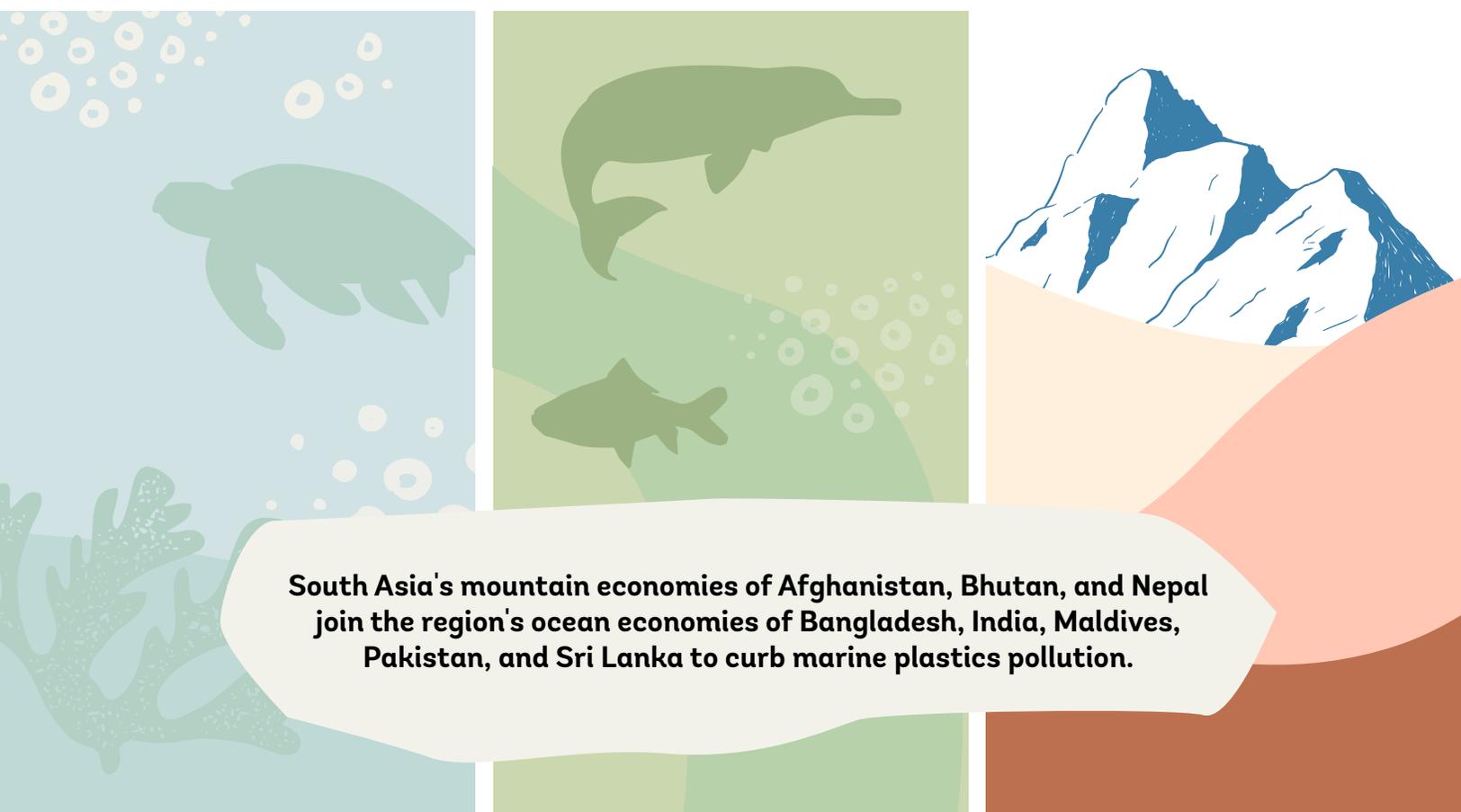
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**South Asia's mountain economies of Afghanistan, Bhutan, and Nepal join the region's ocean economies of Bangladesh, India, Maldives, Pakistan, and Sri Lanka to curb marine plastics pollution.**

This report is part of a larger series of stocktaking and analytical products on plastic pollution in South Asia. This work is undertaken as part of the World Bank's work program on South Asia Marine Plastics Pollution, which aims to promote circular plastic economy solutions, advance related country-level policy and investment dialogues, and raise awareness of the deleterious impacts of marine plastics pollution on people's lives and livelihoods. It supports the Bank's commitment to work with countries of South Asia to pursue and scale-up policies and programs that help them move toward a circular plastic economy and, in partnership with civil society and the private sector, harnesses the power of innovation to bring viable and sustainable solutions for plastic waste reduction and management across the region.

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## NOTE FROM THE AUTHORS

As we publish this report, countries across South Asia are experiencing a virulent wave of COVID-19. Our families and friends are facing great tragedy and loss. We offer our deepest sympathies to all those affected by the pandemic and we commit ourselves to building back better and focusing on a recovery that is resilient, inclusive, and environmentally sustainable.

## ACKNOWLEDGMENTS

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## ACRONYMS

<b>AIR</b>	Avoiding, Intercepting, and Redesigning
<b>EPR</b>	Extended Producer Responsibility
<b>ESF</b>	Environment and Social Framework
<b>PPE</b>	Personal Protective Equipment
<b>SACEP</b>	South Asia Co-operative Environment Programme
<b>SAWI</b>	South Asia Water Initiative





## EXECUTIVE SUMMARY

**Plastic pollution threatens sustainable development on national, regional, and global levels.** Every year, the marine environment is choked with an additional 8 million tons of macroplastics and 1.5 million tons of primary microplastics.<sup>1</sup> In the wake of the COVID-19 pandemic, which is wreaking untold human tragedy and loss, the use and improper disposal of single-use plastic is surging. This comes in the form of personal protective equipment (PPE); syringes and other medical supplies, often in the form of hazardous medical waste; and plastic packaging and utensils used in home food delivery and other services. Globally, more than 129 billion disposable masks and 65 billion throw-away gloves are being used every month, most of which ends up in the environment.

**Countries in South Asia have a high share of mismanaged plastic waste.**<sup>2</sup> Overall, only 5 percent of waste in the region is recycled, largely by waste pickers who do not have social or labor protections such as healthcare, work hour limits, or unemployment benefits.<sup>3</sup> In the current environment, the region saw a suspension of enforcement (or enactment) of single-use plastic bans and delayed adoption of circular solutions aimed at waste avoidance.

**Plastic waste builds up on waste piles and, if not burnt openly, soon begins to block drains, pollute waterways, and suffocate marine life.** As this plastic breaks down into micro plastics, it finds its way into the human food chain and water supply, potentially compromising human health.<sup>4,5</sup>

**The economics of plastics has added to the complexity of the issue.** Low oil prices reduce the costs of production of virgin plastic while making recycling less appealing.<sup>6</sup> This is compounded by the plastics industry's advocacy of single-use plastics as the more hygienic option to combat the COVID-19 virus, arguing that germs thrive on reusable materials that are often not washed. In this context, coupled with the dramatic increase in plastic use during the pandemic, waste management across South Asia is severely strained.

To help address the plastic waste crisis in South Asia—now greatly exacerbated by the COVID-19 pandemic—this report lays out policy recommendations and proactive actions to curb single-use plastics, avoid waste generation, and manage plastics waste better. First, countries in South Asia need analytical support to better understand plastic consumption patterns, including the generation and composition of plastic waste. Moreover, operational support is required to improve waste management and curb plastic pollution, with a focus on medical waste streams. Plastic pollution cannot end unless there is a shift in mindset, hence the need for education and awareness-raising campaigns targeting waste avoidance. There is also a need for better policy formulation and stronger advocacy for the replacement of single-use plastics through adopting the **AIR (Avoid, Intercept, Redesign)** strategy. Although most countries in South Asia have already introduced policies to ban single-use plastics, the results have been disappointing due to lack of enforcement and functional and financial support for the introduction of viable and affordable alternatives.

The World Bank is committed to helping the countries of South Asia reduce plastic pollution for healthier rivers and oceans for the billions of people whose lives and livelihoods depend on these precious resources. As the region confronts the COVID-19 crisis, the World Bank has been helping address emergency health needs and protecting jobs and livelihoods, while at the same time keeping a focus on supporting countries to build back from the crisis in a greener and more resilient, and more inclusive manner. The plastics pollution and waste prevention agenda fits squarely within this framework.



## PLASTIC WASTE MANAGEMENT IN SOUTH ASIA

South Asia is one of the largest sources of plastic waste globally and it is predicted that the region will double its waste generation by 2050.<sup>7</sup> The impacts of COVID-19 could result in an even more severe outcome unless urgent action is taken. India, Pakistan, and Bangladesh rank among the 20 countries worldwide that generate the most mismanaged plastic waste.<sup>8</sup> According to *What a Waste 2.0*,<sup>9</sup> the region generated 334 million tons of waste, 8 percent of which is plastics. With only 51 percent of its waste collected on an organized basis (77 percent in urban areas and 40 percent in rural areas) South Asia is on par with Sub-Saharan Africa for the lowest rates of organized waste collection globally. Moreover, in South Asia a greater proportion of waste (75 percent) is discarded at open dump sites as compared to other regions.

**TABLE 1 • Contribution to plastic pollution by region in 2015<sup>10</sup>**

Region	Mismanaged Plastic Waste (Million Tons)
East Asia and Pacific	29.53
South Asia	17.87
Sub-Saharan Africa	13.76
Latin America and the Caribbean	7.93
Europe and Central Asia	5.62
Middle East and North Africa	5.38
North America	0.59

In South Asia, huge institutional and technical challenges affect the recycling value chain. The main institutional problems revolve around inadequate financial resources or institutional facilities and insufficient expertise, aggravated by enforcement—dysfunctional

at best and frequently absent—of existing environmental regulations. Coupled with this is the paucity of public awareness which might otherwise constrain littering. The main technical challenges are associated with collection and transportation.<sup>11</sup> The low price of certain types of plastic waste generally explains why so much of it remains uncollected. Plastic bags are the most prevalent form of plastic found in waterways, since this material commands the lowest price.<sup>12</sup> Moreover, due to lack of recycling infrastructure, many South Asian countries also export their sorted recyclables. In 2018, Bangladesh was the largest exporter in the region with 20,000 tons of plastic waste exported out of the country. Pakistan exported more than 7,600 tons and India exported almost 3,000 tons. This data is incomplete because the destination and origin of the products transferred is not always recorded in COMTRADE datasets, making it hard to map the global flow of plastic.<sup>13</sup>

**TABLE 2 • Contribution to plastic pollution and main challenges by country<sup>14,15,16</sup>**

Country	Mismanaged Plastic Waste (Tons/Year)	Challenges in Management of Plastic Pollution
India	14,535,000	Statutory institutions and agencies exist to prevent and control environmental pollution, including marine pollution, but there is no specific national marine litter policy, regulation, or legislation.
Pakistan	1,349,000	No laws on marine litter at the national or provincial levels.
Bangladesh	1,080,000	No agency to monitor or manage marine pollution; no targeted policy or legislation.
Afghanistan	427,704	Data not available
Nepal	289,800	Data not available
Sri Lanka	179,550	The Marine Pollution Prevention Act (2008) seeks to prevent, reduce, and control marine pollution; similarly, the Marine Environment Protection Regulation (2012) seeks to prohibit the dumping of marine waste. The main challenge is the lack of enforcement mechanisms in the absence of sufficient budget, infrastructure, education, and awareness.
Maldives	28,468	Insufficient data, lack of education on marine litter.
Bhutan	5,252	Data not available

Land-based sources of plastic debris contributes to 80 percent of plastic marine litter, with densely populated or industrialized areas the major sources due to littering, plastic bag usage, and uncontrolled solid waste disposal. Both legal and illegal dumping often occur in or adjacent to waterways and floodplains, leading to leakage into rivers and canals. Buoyant waste, such as plastics, floats onward to the open seas as marine litter. As a result, South Asia, with India in the lead (See Table 2), is one of the biggest contributors to plastic waste worldwide. The Indus and Ganges are among the world's 10 most polluted river systems in that they carry 90 percent of the plastic waste into the ocean.<sup>17</sup> Many people in South Asia do not have access to municipal waste collection services. Consequently, substantial quantities of plastic waste are

not collected, and instead escape into the wider environment. However, due to lack of research, it is rarely possible to identify the exact sources of plastic pollution in the region (See Table 3). Even in India, where there have been some studies conducted, information on sources and composition of marine litter is extremely limited.<sup>18</sup>

**TABLE 3 • Status of research in countries with coastline in South Asia<sup>19</sup>**

Country	Recycling and Land-Based Generation	Ecological Impacts	Social Impacts	Economic Impacts	Ocean Circulation
Bangladesh	No	No	No	Certain areas	No
India	Yes	Yes	Certain states	Very few	Yes
Maldives	Exists at household level in Male (2008) and resort level tourism sector (2010). Waste audits in few individual islands	No	No comprehensive studies conducted		
Pakistan	No	No	No	No	No
Sri Lanka	Yes, but not yet introduced to fisheries sector	Yes, but no quantitative data available	Yes	No	No

**Most South Asian nations have policies to address plastic pollution.** In 2002, Bangladesh was the world's first country to introduce a ban or government restriction on single-use plastic bags, followed by India in 2002, starting with New Delhi. Bhutan followed in 2005, and renewed with greater enforcement in 2019, Afghanistan in 2011, Nepal in 2011, Sri Lanka in 2011, and Pakistan's municipal level ban in 2013. The Maldives introduced a ban on single-use plastic bags on Bodufolhudoo Island in 2016 and in 2019, the island nation established a national steering committee to advance the phase-out of single-use plastics. A plan to phase out single-use plastics in the Maldives was approved in 2020.<sup>20</sup> Despite positive initial responses, these initiatives have not yet produced the desired results due to lack of enforcement and a failure to regulate plastic through its life cycle.

**On the policy side, India leads the region in the enactment of Extended Producer Responsibility (EPR) laws.** The policy introduced in 2016 made producers responsible for the clean-up and recycling of their plastic goods. EPR encompasses management of the potential impacts of a product at all stages of production, use, collection, re-use, recycling, reprocessing, and disposal.

Waste management policies relevant to the pandemic are presented in Table 4.

**TABLE 4 • South Asian waste management policies relevant to the COVID-19 pandemic**

Country	Sources of Guidelines on Solid Waste Related to COVID-19	Single-use Plastics Ban
India	Bio-Medical Waste Management Rules (2016) Specific Guidelines for COVID-19 Waste (2020)	✓
Nepal	Solid Waste Management Act (2011)	✓
Sri Lanka	National Environmental Regulations (2008)	✓
Pakistan	Waste Management Rules (2005)	✓
Bangladesh	Medical Waste Rules (2008)	✓
Afghanistan	Comprehensive Healthcare Waste Management Plan (2014)	✓
Maldives	National Healthcare Waste Management Policy (2016)	✓
Bhutan	Waste Prevention and Management Regulation (2012)	✓



## COVID-19 AND INCREASED RELIANCE ON SINGLE-USE PLASTIC

The pandemic has impacted plastic waste generation worldwide (Figure 1). The spread of COVID-19 has led to the increased consumption of plastic PPE, including gloves, face masks, shields, and bottles of hand sanitizer. In March 2020, the World Health Organization (WHO) estimated that every month, 89 million medical masks, 76 million examination gloves, and 1.6 million goggles are required globally.<sup>21</sup> Disposable face masks are an increasingly common sight in street litter,<sup>22</sup> and divers are reporting the presence of face masks floating alongside other plastic marine litter.<sup>23</sup> A more recent study carried out by OceansAsia estimated that of the 52 billion masks manufactured globally in 2020, 1.56 billion will enter the oceans over the year, resulting in an additional 4,680 to 6,240 metric tons of marine plastics pollution.<sup>24</sup> Table 5 shows the estimated medical waste generation and face mask use in South Asia.

**FIGURE 1 • Implications of COVID-19 on plastic waste management<sup>25</sup>**



Source: Vanapalli, K.R., Sharma, H.B., Ranjan, V.P., Samal, B., Bhattacharya, J., Dubey, B.K., Goel, S., 2020.

**TABLE 5 • Estimated daily face mask use and generation of medical waste in South Asia with confirmed COVID-19 cases<sup>26</sup>**

Country	Number of Face Masks Used (Per Day)	Medical Waste (Tons Per Day)
India	381,179,657	6,491
Bangladesh	99,155,739	928
Pakistan	61,762,860	1,099
Afghanistan	19,589,901	144
Nepal	19,046,387	77
Sri Lanka	17,136,519	11
Bhutan	278,639	0.4
Maldives	148,090	15

Concern over the possible transmission of COVID-19 via surfaces has resulted in the suspension of enforcement (or enactment) of single-use plastic bans around the world, including in South Asia.<sup>27</sup> Authorities around the world, including in Tamil Nadu, India, have suspended bans on single-use plastic bottles and bags and delayed progress on EPR policies.<sup>28</sup> These measures may be temporary, but are likely to reinforce the consumer's view of such items as the most hygienic option, entrenching a throw-away culture and delaying the adoption of circular economy solutions.

Simultaneously, the plastics industry is making the case for single-use plastics as the best option for maintaining hygiene and longer shelf life for fresh produce.<sup>29</sup> At the start of the pandemic, the Plastics Industry Association sent a letter<sup>30</sup> to the US Department of Health and Human Services, urging it to publicly state single-use plastics as a safer choice than reusable options. At the same time, the oil and gas industry plans to spend around US\$400 billion over the next five years on manufacturing plants producing raw materials for virgin plastic.<sup>31</sup> According to the energy consultancy Wood Mackenzie, 176 petrochemical plants are planned for the next five years, nearly 80 percent of them in Asia.<sup>32</sup>

**A rise in home delivery orders relies heavily on single-use plastics.** For instance, in March 2020, when the United States and Europe went into lock down, 2.5 billion customers visited Amazon's e-commerce website, 65 percent more than in March the previous year. Zomato, a food delivery company servicing about 500 cities across India, had an order volume of over 200 million during the first half of the financial year 2020.<sup>33</sup>

According to *Business Insider*,<sup>34</sup> the global plastic packaging market size is projected to grow from US \$909.2 billion in 2019 to \$1,012.6 billion by 2021, at a compound annual growth rate of 5.5 percent, mainly due to pandemic response. The environmental cost of plastics in the consumer goods sector is estimated to be US\$75 billion per year.<sup>35</sup> Two-thirds of this environmental impact is from emissions released during the production of plastic packaging (greenhouse gas, water, air, and land impacts).

## COVID-19 AND MEDICAL WASTE MANAGEMENT IN SOUTH ASIA

The pandemic has exacerbated the challenge of medical waste management, as hospitals and households generate more material, both hazardous and non-hazardous. Two types of waste are generated at medical facilities: general waste that is considered non-hazardous (and therefore commingled with waste in the municipal waste systems), and biomedical waste that must be treated as hazardous in line with international standards and classifications.

A key challenge in South Asia is the lack of solid waste management systems that include sufficient safeguards for handling of medical waste.<sup>36</sup> This means that waste from hospitals or clinical settings not classified as hazardous is handled by the regular solid waste management system. South Asian countries also lack proper hazardous waste treatment facilities that meet international standards for high-temperature burning, emission controls, and the proper disposal of ash residue.<sup>37</sup> Although modern health facilities increasingly tend to have medical waste incinerators, they rarely have the infrastructure for the final disposal of hazardous ash residues that may contain toxic materials. These require specially

**FIGURE 2 •** Temporary incineration unit for the COVID pandemic Maldives



Photo credit: The Maldives Waste Management Corporation

**FIGURE 3 • Old waste Incinerator at Ungoofaaru regional hospital in Raa Atoll, 16 Jan 2020.**



Photo credit: Keith Newman

designed and highly engineered landfills with impervious liners to protect groundwater.

**Temporary incineration units for medical waste do not meet international standards.**

Figure 2 shows a temporary incineration unit set up to burn medical waste during the COVID-19 pandemic. It lacks emission control and does not reach a high enough temperature to meet incineration standards for hazardous waste. A range of hazardous toxins are released from the burning of plastic medical waste such as disposable face masks, gowns, gloves, and other supplies that may not be classified as hazardous. This is tantamount to open burning. Figure 3 shows an example of an incineration unit set up to serve a clinic. It lacks proper emission controls and there is no proper place to dispose of the ash.

**There is continued lack of enforcement of safe segregation of hazardous medical waste from other solid waste.** Medical plastics waste coming from facilities treating COVID-19 patients are frequently mixed with other types of solid waste. It is challenging and potentially dangerous for waste workers to sort hazardous medical plastics from other trash. This makes waste pickers and informal waste collectors particularly vulnerable to infection, especially as they are often unable to afford suitable PPE. For this reason, the Alliance of Indian Waste Pickers asked India's Prime Minister for support, including the provision of safety equipment and an emergency basic income of INR 10,000 per month per household.<sup>38</sup> In India, a guideline was issued mandating that health facilities treating COVID-19 patients – separately collect and dispose of general solid waste, such as food packaging or used water bottles, in securely tied bags.<sup>39</sup> It also mandated the collection of biomedical waste, such as used masks, tissues, and toiletries of COVID-19 patients, in a different bag labeled "COVID-19 Waste". This new guideline supplemented the Bio-Medical Waste Management Rules issued in 2016.

In the Maldives, a special campaign tackled discarded PPE (Figure 4).

**FIGURE 4 • National campaign for proper PPE disposal in the Maldives**

The figure consists of several parts illustrating a national campaign for proper PPE disposal in the Maldives:

- Bar Chart:** A bar chart comparing imported disposable masks for the first quarter of 2019 and 2020. The 2019 bar is very low, while the 2020 bar is significantly higher, labeled with a +2669% increase. The chart includes an image of a blue surgical mask and is titled in Maldivian.
- Social Media Post:** A screenshot of a Facebook post from the Maldives Clean Environment Project. It features the same bar chart and text explaining the sharp increase in mask imports in 2020. The post includes hashtags: #Masks #DisposeMasksProperly #WasteManagement #ME #MCEP #SaafuRaajje #FarudhiZinmaAdhaakurama and #Stayhome #Staysafe.
- Three Educational Posters:**
  - Poster 1 (Left):** Shows a blue surgical mask being thrown into a blue bin. Text in Maldivian explains that if single-use masks and gloves are not disposed of properly, they will end up on the streets and eventually in the ocean.
  - Poster 2 (Middle):** Illustrates a person correctly disposing of a mask into a closed bin. Text encourages responsible citizenship and proper disposal to keep the environment safe and clean.
  - Poster 3 (Right):** Compares a blue surgical mask (marked with a red X) and a black cloth mask (marked with a green checkmark). Text advises using cloth masks as they can be re-used, ultimately reducing waste.



## COVID-19 AND RECYCLING MARKETS IN SOUTH ASIA

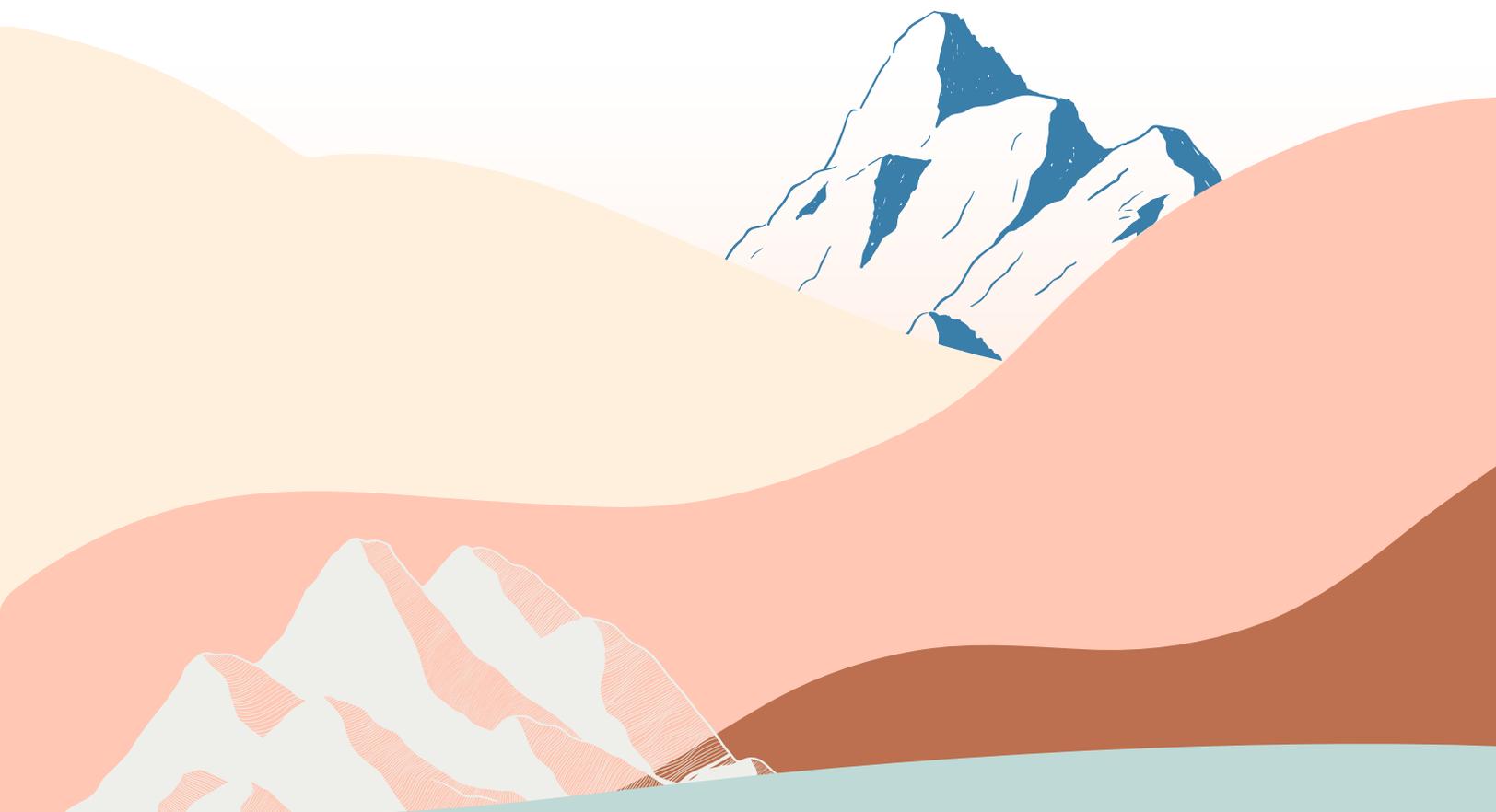
During the pandemic, a tremendous amount of plastic waste has been generated, with vast quantities of dumped material transmitted to the ocean via river systems due to lack of collection services, and controlled methods of disposal, and regulations aimed at waste avoidance. Moreover, when recycling operations were suspended, plastic waste that would otherwise have been recycled was dumped, further adding to marine plastics pollution.

The COVID-19 pandemic has exacerbated challenges faced by plastics recycling markets. Before the pandemic, global plastics recycling industries were struggling to compete with virgin plastics markets due to the declining cost of oil. Since the onset of COVID-19, oil prices have declined further, and recycling businesses have shrunk by 50 percent in parts of Asia.<sup>40</sup>

The availability of recyclable materials is also impacted by recommendations to merge waste streams. The Asian Development Bank, for example, advocated treating all municipal waste as nonrecyclable, and sending it for incineration or disposal at landfills.<sup>41</sup> At the peak of the pandemic, more than 80 percent of the recycling value chain was inoperable in India, Vietnam, and the Philippines.<sup>42</sup> In some municipalities in India, uncontrolled landfilling and burning of plastic waste increased substantially during the pandemic in an attempt to avoid the spread of the virus.<sup>43</sup> The pandemic is severely aggravating existing weaknesses in global recycling supply chains, and this could have a lasting negative impact on the viability of plastics recycling in South Asia.

The informal sector was particularly hard hit by the COVID-19 pandemic. Countrywide lockdowns have been devastating to the role and livelihood of informal waste pickers, who have been unable to supply recyclers with raw material, or, conversely, have failed to find recyclers willing to buy their materials. Formal and informal collectors and recyclers play a key role in the plastic recycling industry in most countries in South Asia, and therefore

a critical role in reducing plastic waste pollution. Informal waste collectors across five Asian countries (India, Philippines, Vietnam, Thailand, and Indonesia) report a 65 percent reduction in plastic volumes collected, while recyclers report an average 50 percent drop in demand for their recycled plastic.<sup>44</sup> Women in the informal waste sector are especially vulnerable to these challenges, as they experience more restricted access to financial resources, markets, and technology than their male counterparts.<sup>45</sup>



## RECOMMENDED POLICY ACTIONS

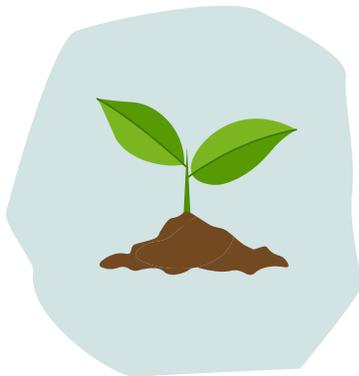
To help countries across South Asia address the challenge of marine plastics pollution—which have been greatly exacerbated as we have seen above by the COVID-19 pandemic—this report offers several recommendations for World Bank teams, governments, the private sector and non-governmental organizations (NGOs) to better manage solid waste and reduce plastic pollution. The recommendations will continue to evolve as the pandemic itself changes its course across the globe.

**Diagnose, analyze, monitor, and communicate the impact of COVID-19 on plastics use:** The COVID-19 pandemic and social distancing have led to an explosion in plastics consumption across South Asia, but the magnitude and pattern of that growth have neither been fully understood, nor measured. Appropriate policy action to manage mounting plastic waste must be underpinned by better understanding of consumption patterns, waste generation, and the composition of waste material. The results of these studies must be communicated effectively to policymakers and the public in order to define the potential risks of inaction.



Toward this end, the World Bank is factoring the impact of COVID-19 into ongoing analysis on plastics and municipal solid waste. In addition to capturing the change in quantity and type of plastics, analytical studies may include the viability of collection and treatment alternatives; gaps in the recycling value chain, with their effects on the implementation of circular economy policies; and upstream, midstream, and downstream solutions available to tackle plastic pollution in each country. Additional aspects could evaluate of the lifecycle of the most common single-use plastic products, and potential substitutes; the effectiveness of existing waste management policies; and the role of waste pickers within the plastics supply

chain, especially their financial vulnerability. The data generated from these diagnostic studies and analyses will clarify and quantify necessary interventions.



**Integrate plastic pollution management in recovery plans to build back in a green, resilient, and inclusive manner: Most countries in South Asia have already introduced policies banning some form of single-use plastic. However, due to the lack of enforcement and financial or functional support to introduce alternatives, these bans have not yielded significant results. As governments develop programs to help the private sector build back from the COVID-19 shock, incentivizing lower emissions and reduced plastic waste will be critical.**

As we help countries work towards a **Green, Resilient, and Inclusive Recovery** using the the GRID approach, business models can be promoted to avoid and replace single-use plastics, such as **delivery services to provide non-plastic degradable packaging**. When **Avoiding, Intercepting, and Redesigning plastic (AIR)** is made integral to recovery models, the principle of circularity (rather than simple recycling) will underpin recovery, remodel jobs for the informal sector, and build resilience for future shocks.

Similarly, jobs can be created through **businesses that implement reusable dishware systems**, but further investments are needed to boost the development of circular products designed for hygiene and recycling or reuse.<sup>46</sup> Start-up systems have emerged in the region, but need investment to thrive, with CupKita in Indonesia and Dabbawala in India being two such examples. These investments can increase the availability of products that can be reused or brought back into the production cycle by the manufacturer.

Furthermore, the World Bank can support governments in **identifying and adopting financial incentives, such as tax credits, subsidies or micro grants**, to enable businesses to adapt their operations to be plastic-free. Purchasing reusable dishware to replace disposables and installing dispensers in stores to replace sachets and other single-use packaged items are two plastic-free options. In this way potential contaminated touchpoints are reduced, waste generated by businesses is minimized, and overall demand for single-use plastics is decreased.

The World Bank can also support government counterparts to **develop a fee system on single-use plastic** to minimize its use, where appropriate.

**Manage plastic waste as part of the hazardous medical waste stream during the COVID-19 period:** The COVID-19 pandemic has led to a high percentage of hazardous waste in municipal solid waste and medical waste streams. Plastics are a large part of this waste. Therefore, appropriate training and PPE are needed for both formal and informal waste workers.



For this purpose, the World Bank encourages and supports South Asian countries to incorporate **policy guidance** that addresses **proper segregation of medical and potentially hazardous waste from municipal solid waste**, such that waste management systems control these streams separately and appropriately (**source separation, collection, recycling, upcycling and reuse-based prevention of plastic waste generation**). Protocols for safe operations, along with guidelines for both formal and informal workers can be adopted and administered by municipalities. When classified as essential workers, both formal and informal employees in waste management would benefit.



**Make waste management preparedness principles part of disaster risk management:** Current disaster waste management planning is mainly focused on debris. Handling medical and hazardous plastic waste should be part of disaster risk management planning. This can be done on a regional scale within the cooperation established via South Asia Co-operative Environment Programme (SACEP), rather than being limited to the country level.

For this purpose, the World Bank Group can include a waste management component in its disaster risk management agenda and support government counterparts to incorporate waste management in country-specific risk management programs.

Simultaneously, governments can integrate informal workers and their organizations into disaster risk management plans and national COVID-19 recovery plans. Integrating informal workers before a disaster hits can ensure the continuity of essential waste management services during an emergency and prevent loss of livelihoods while generating pathways towards more formal employment.

**Accelerate efforts to raise awareness of plastic pollution in the context of COVID-19:** The plastics waste problem cannot be solved without a shift in mindset, particularly in terms of dependence on single-use plastics. Information about alternatives to plastics can empower consumers to make more informed choices and can potentially avoid waste generation and boost sustainable businesses, spurring local and district jobs integral to a circular economy, during the COVID-19 recovery period.



To achieve this, governments, in partnership with NGOs and the private sector, can promote plastic alternatives and endorse the hygienic safety of reusable dishware systems through television adverts, engaging social media influencers, and showcasing events with businesses that create products made with alternatives to plastic.

**There is no silver bullet to solve marine plastics pollution.** Interventions are needed at every stage of the plastic lifecycle, from production to stopping plastic leakage through investments in solid waste management, to transitioning to a circular economy approach for plastics. The COVID-19 pandemic has exacerbated the problem of plastics management across Asia, and the World Bank is committed to helping South Asian nations reduce plastic pollution for the billions of people whose livelihoods depend on healthy rivers and seas. Now is the time to push for new policies, investments, and innovations so the countries of South Asia can build back from the pandemic greener and more resilient.

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