

Plastic Pollution Policy Country Profile: Turkey

Rachel Karasik

CONTENTS

Introduction	2
Plastic Pollution in Turkey	2
Policies to Address Plastic Pollution	4
Policy Effectiveness	6
Conclusion	6
References	7
Appendix	8

Author Affiliations

Rachel Karasik, Nicholas Institute for Environmental Policy Solutions

Citation

Karasik, R. 2022. "Plastic Pollution Policy Country Profile: Turkey." NI PB 22-11. Durham, NC: Duke University.

Acknowledgments

This work was funded by UNDP Ocean Innovation Challenge with support from Sida and Norad.

Published by the Nicholas Institute for Environmental Policy Solutions in 2022. All Rights Reserved.

Publication Number: NI PB 22-11

Key Takeaways*

- Turkey is ranked among the top 20 countries with the largest masses of mismanagement plastic waste.
- Of the 3.7 million tons of plastic waste is generated or imported into Turkey, an estimated 6% is recycled. Of the remainder, 61% goes to landfills and the remaining 33—over 1.1 million tons—remains uncollected or is openly dumped.
- Turkey's plastic waste import volume has grown since China banned plastic waste imports in 2018. There has been evidence of Turkey's imported plastic waste leaking into the environment, suggesting it is mismanaged upon importation.
- Turkey's plastic policies include a fee on plastic bags, commitments to make government-owned buildings and other facilities waste and to implement free container deposit schemes, and the establishment of waste management and recycling targets.
- Effectiveness studies on the bag fee demonstrates a 77% decrease of plastic bag use and uptake in the use of reusable bags.
- 230 buildings have been declared waste free.

* These are based on a review of literature published and policies enacted before December 2021



Sida



Norad

INTRODUCTION

This document outlines: 1) the nature of the plastic pollution problem in Turkey, 2) available information about the national, subnational, and to a smaller extent, international policy landscape guiding government approaches to the plastic pollution problem in Turkey, and 3) what, if any, information exists about the effectiveness of these policy approaches. This document is written using a basic literature review process and with support from the [Plastics Policy Inventory](#), as outlined in the Appendix (below), and is not exhaustive. It contains the most up-to-date information at time of publication, but this information may eventually be less relevant as the policy landscape continues to evolve. The authors were not able to get expert review for this case study, to ensure the information gathered aligns closely with what experts and practitioners are observing and experiencing on the ground. If conducting research on the plastic pollution crisis in Turkey, we recommend you use this document as one of many resources available to better understand the problem and its solutions.

PLASTIC POLLUTION IN TURKEY

Turkey has one of the highest volumes of both plastic and overall waste in the world, with a significant waste footprint in the Mediterranean Sea. Turkey was ranked 14 out of the top 20 countries with the largest mass of mismanaged plastic waste in Jambeck et al.'s 2015 paper "Plastic Waste Inputs from Land into the Ocean." Turkey is considered the third largest waste generator in the region, estimated to have generated or imported a total of 3.7 million tons of *total* plastic waste in the year 2016 (Dalberg Advisors 2019), and projected to generate 5.4 MTs of *municipal* plastic waste annually by the year 2060 (Lebreton and Andrady 2019). Of the plastic waste generated, an estimated 6% is recycled. Of the remainder, 61% goes to landfills and the remaining 33—over 1.1 million tons—remains uncollected or is openly dumped. Plastic waste that is openly dumped is likely to end up in aquatic or marine ecosystems (Dalberg Advisors 2019). The Eastern Anatolia Region, bordering the Mediterranean Sea, where 74% of waste is openly dumped, is considered a high plastic leakage hotspot and the reason that Turkey is the second largest source of plastic into the Mediterranean Sea (Dalberg Advisors 2019), and the highest contributor from Europe, with 144 tonnes (158.7 tons) of plastic waste ending up in the Mediterranean Sea from the shores of Turkey per day (Alessi 2018; Bostanoğlu 2021). This plastic pollution affects tourism, shipping, and fishing industries at an annual loss of \$95 million USD (Dalberg Advisors 2019).

On its northern and southern edges, Turkey is flanked by the Black and Mediterranean Seas, respectively. Both seas have become sinks for macro- and microplastics. Microplastics surveys in the eastern Mediterranean estimated that hundreds of millions of microplastics enter every day (Akarsu et al. 2020). Likewise, marine debris surveys in the southeastern part of the Black Sea demonstrated that plastic and Styrofoam was the most abundant litter by both count and weight (Terzi and Seyhan 2017).

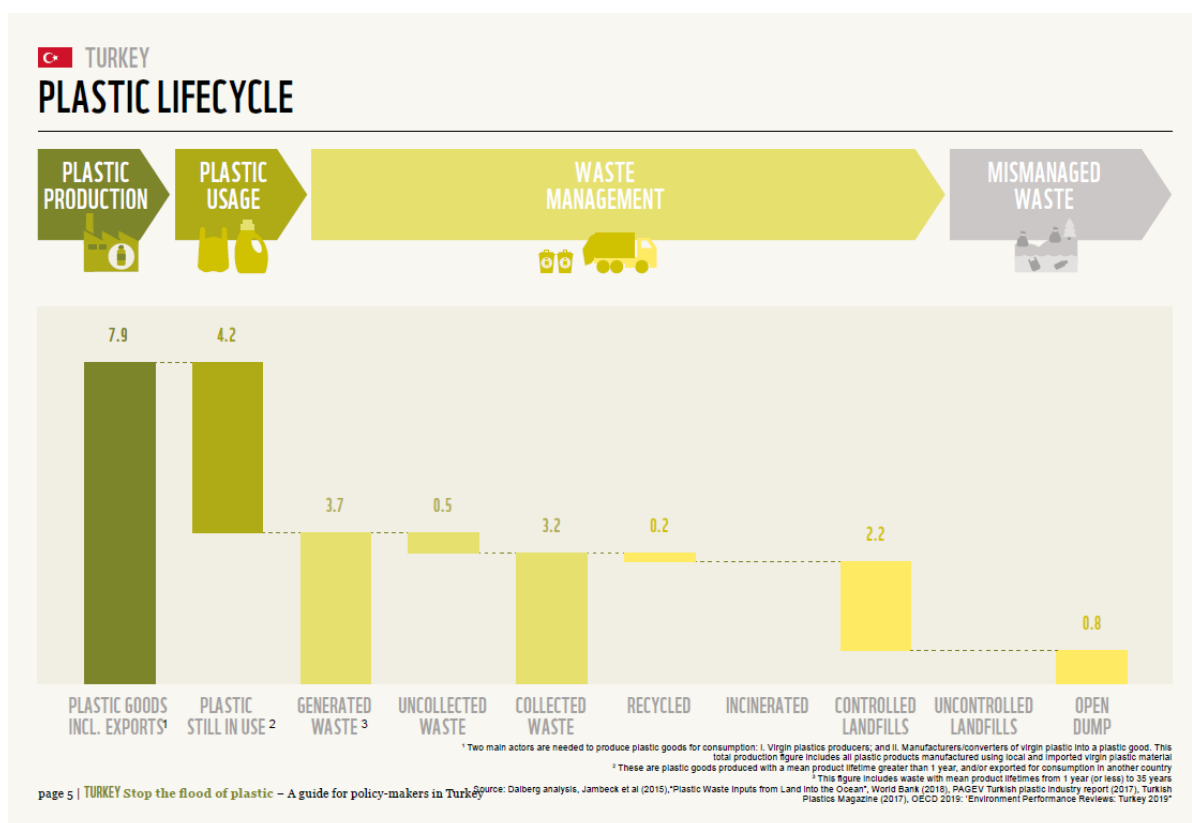
While not all of Turkey's waste has been characterized, Istanbul, Turkey's most populous city with a population of over 11 million, has undergone a waste characterization study. According to the findings, plastics comprised 12% of Istanbul's municipal waste in 2013 (Yildiz et al. 2013). Likewise, before Turkey's bag fee went into effect in 2019, Turkey had one of the highest per capita bag consumption rates, averaging between 312 and 440 plastic bags per person per year (Bostanoğlu 2021). In 2018, studies using in-person surveys found that despite having knowledge of the environmental consequences of plastic bag use and disposal, up to 96.4% of survey participants continued to use plastics in their everyday lives (Ari and Yilmaz 2015).

With a municipal waste recovery rate at 12% in 2018 (compared to 48% recovery rate in the EU-27, European Environment Agency 2021), Turkey ranks the lowest of any Organization for Economic Co-operation and Development (OECD) member country (OECD 2020) for municipal solid waste recovery. The remainder of solid waste in Turkey is dumped in over 2,000 open dumpsites (Berkun et al. 2011). There are almost twice the number of open dumpsites as sites dedicated to waste management (665 licensed recycling and 527 collection and separation sites) in Turkey (Angi 2019; MoEU 2019).

A significant amount of Turkey’s recycling capacity is reserved for imported waste. According to OECD (2019), Turkey recycles just 1% of its domestic waste. Potential explanations include that locally generated plastic waste is more likely to be contaminated or of lower quality based on insufficient sorting and treatment processes than imported plastic waste (Gündoğdu and Walker 2021). Private recyclers will generate more income and therefore be able to scale the industry if they recycle higher value plastics (Dalberg Advisers 2019), and as a result they tend to seek out and prioritize imported waste over domestic waste for recycling.

Turkey is also both a producer and importer of virgin plastic. According to data from 2016, Turkey produces 7.9 MT/year of plastic. Of this, 2.1 MT is made from domestically sourced virgin plastic and 5.8 MT is made from imported virgin plastics (Dalberg Advisers 2019). That number rose in 2020, where 9.54 million tons of plastic products were made in Turkey. Of this, plastic packaging comprised over 40% of plastic projects, followed by construction (20%).

Figure 1. Turkey Plastic Lifecycle (from Dalberg Advisers 2019)



Since China banned imports of many types of plastic waste in 2017, the rise in plastic waste imports into Turkey has been notable (Greenpeace 2021). Import data, research, and investigative journalism have demonstrated that much of Turkey’s plastic waste imports come from other European countries, the United Kingdom in particular. Plastic waste imports from the U.K. into Turkey grew up to 210,000 tonnes by 2020, from 12,000 tonnes in 2016 (Greenpeace 2021). Likewise, plastic waste imports from EU member states were 20 times higher in 2020 (447,000 tonnes) than in 2016 (22,000 tonnes).

Though plastic waste exported from the U.K. is required by law to be recycled or incinerated, recent investigative reporting has found evidence of widespread open and illegal dumping and burning of plastic waste imported

from the U.K. within Turkey, what is known as waste crime. Investigative journalists working with BBC found British waste openly dumped in southeast Turkey (Crawford 2021) in June 2020. Additionally, in March 2021, Greenpeace investigators found even more evidence of British plastic waste in Southeast Turkey. In August 2020, INTERPOL reported an increase in waste crime as well (INTERPOL 2020). As a result of these exposés, Turkey briefly implemented an import ban for ethylene polymer plastic waste (commonly used in food packaging) in May of 2021. By July of 2021 that ban was repealed (Yuksekkas 2021).

All over the world, the COVID-19 pandemic resulted in a rise in the use of Personal Protective Equipment (PPE) and other plastic medical supplies, the marine plastic pollution from which is only starting to be detected in studies (Peng et al. 2021). Initial estimates of PPE pollution based on surveying data in three cities in Turkey indicated that those three cities produce roughly 10 tons of disposable facemasks in a day (Akarsu et al. 2021; Benson et al. 2021); extrapolated to the entire country, experts estimate 50 million contaminated facemasks are disposed of each day in Turkey. This amasses to an additional 73,000 tons of waste a year. Likewise, plastic production in Turkey increased about 25% in the time of COVID-19.

POLICIES TO ADDRESS PLASTIC POLLUTION

UN Oceans Commitment

In 2018, Turkey made the following commitment to the UN Ocean Conference:

Turkey commits to conclude Marine Litter Action Plans at the end of 2018 which will be prepared for each province that have a coast on Mediterranean Sea, Black Sea or Sea of Marmara. Action reports under these action plans will include information about the clean-up activities, pollution reduction studies and will be published at the end of each year. The results will be evaluated and minimization of marine litter studies will be executed with the relevant sectors such as plastics, cosmetics, textile etc. In order to combat marine litter, strong waste management policies as well as reduction, reuse and recycling activities is strongly encouraged by Turkish Government. We aim to reach a recycling rate of 65% for packaging waste and 35% for all recyclable waste by 2023. Starting from 1 January 2019 pricing of plastic bags will be on the agenda. Turkey will continue its efforts to prevent both land-based and ship-sourced marine litter in line with Marpol 73/78 Convention, Basel Convention, Barcelona Convention and Bucharest Convention.

(UN Oceans 2021)

Regulation 30995 on the Recycling Contribution Share

As of early 2020, this regulation, titled Geri Kazanım Katılım Payına İlişkin Yönetmelik, created a recycling contribution fee (known as GEKAP) on the packaging of products that are sold domestically (Ozbekcpa, n.d.). The scope of packaging in this regulation includes packaging for tires, accumulators, batteries, mineral and vegetable oil, medicine, electrical and electronic goods and beverages, and plastic bags (described in more detail in the section below). This regulation covers many types of packaging, including plastic, cardboard, glass, metal, composite, and wooden packaging (CMS, n.d.).

Environmental Law No. 2872 and Regulation 30829, Zero-Waste Regulation

This policy, published in 2019 set a goal of developing a zero-waste management system and established a “zero waste certificate” for buildings and places that are compliant with the regulation. It also creates a zero-waste information system where information about how buildings are complying with the regulation is uploaded. There are four tiers of the waste management certificate (basic, silver, gold, and platinum), and buildings that are required by law to be compliant with the certificate must, at minimum, achieve a basic level. Certain buildings (e.g., industrial buildings, shopping malls, transportation terminals) are required to get high level certifications. Buildings who do not comply with these certifications are given 90 days to do so and may be sanctioned up to one million Turkish liras (over \$75,000 USD). Certifications last five years (Yildiz 2019).

Environmental Law No. 7153 – The Procedures and Principles Regarding the Charging of Plastic Bags

This regulation, entitled “Plastik Poşetlerin Ücretlendirilmesine İlişkin Usul ve Esaslar” was implemented in 2019 and added a fee of 0.25 Turkish liras for plastic bags purchased at the point of sale, including online purchases that provide plastic bags (Osaka 2021). Paper bags are free, however. The Central Accountancy Directorate of the Ministry of Environment and Urbanisation absorbs a portion of this fee to fund increased recycling (GEKAP above). The portion collected for recycling is expected to increase gradually, from 0.15 lira in 2019 to 0.19 Turkish liras in 2021 (out of the 0.25 lira fee) (Bostanoğlu 2021). Sellers providing free plastic bags will be fined. There are some exemptions to this regulation, including plastic bags used for hygiene purposes, plastic bags with a double thickness that is below 15 microns, and plastic bags that are smaller than 500x350 mm in size. In addition to the fee, the Minister of Environment and Urbanisation Murat Kurum declared a goal to reduce per capita consumption of plastic bags to 90 by the end of 2019 and to 40 by the end of 2025. These targets are consistent with the EU Directive 2015/720, which targets the consumption of plastic bags.

Establishment of Turkish Environment Agency and Legislative Proposal for Amending Some Laws

In late 2020, this law passed, which formally creating the Turkish Environmental Agency. Two initiatives currently underway through the creation of this agency are the Zero Waste Project and Deposit Return Schemes, each of which are described below (Bostanoğlu 2021).

Zero Waste Project – Turkey

The “Zero Waste” and “Zero Waste Blue” projects were launched in 2017, with the goal of making buildings waste-free by 2030 and increasing and expanding recycling capacity. Their intermediate goal is to have all public buildings be waste-free and to have a nationwide recycling program in place. Coordination of these efforts will continue under the Turkish Environmental Agency and is aligned with the Zero Waste Regulation, above.

Deposit Return System Project

While the Government of Turkey has stated that it will impose a mandatory deposit on beverage packaging within the framework of Deposit Refund System Project (TÜDİS) by 2021, this was delayed to January 2022 because of the onset of the COVID-19 pandemic. According to the Minister of Environment and Urbanisation, “more than 20 billion beverage packaging wastes will be collected more cleanly, 90% of the waste will be recycled in 3–4 years and at least 1 million tons of additional waste will be prevented annually” when it is implemented. This system is established in the 2021 Packaging Waste Control Regulation (Bostanoğlu 2021).

Regulation 30283 on the Control of Packing Wastes Directive (Repealed)

This regulation, titled Ambalaj Atıkları Kontrolü Yönetmeliği and originally published in 2017 required that packages be “reused, recycled, recovered and, designed and produced in a way that will give the least harm to the environment in the management and disposal stages that include these processes.” The regulation also recommended that reusable packaging be used over single-use packaging. This law included a goal for a 55% recycling target for plastic packaging waste by 2021 (Bostanoğlu 2021). This law was repealed in 2021 when The Packaging Waste Control Regulation was passed (CMS, n.d.; Yilmaz 2021).

The Packaging Waste Control Regulation

This regulation expands on the responsibilities for manufacturers, suppliers, and sellers to reduce waste associated with packaging. This includes extended manufacturer responsibility to be determined by the Ministry of Environment and Urbanisation, a deposit return system for PET beverage packaging (as described above), and sets recycling targets to 55% for plastic through 2031 (CMS 2021; Esin 2021)

Basel Convention, Plastic Waste Amendments

To date, Turkey is the only OECD member that has ratified the Basel Convention but has not yet ratified or implemented its Plastic Waste Amendments (Gündoğdu and Walker 2021), which adds to its list of hazardous waste certain plastic wastes. Such wastes have strict requirements and controls over transboundary movement and can prevent the movement of certain plastic wastes across different countries.

National Waste Management and Action Plan, 2016–2023

Turkey's National Waste Management and Action Plan determined targets and goals for diverting waste from landfills and increase its recycling (Mavioglu et al. 2021). Specific targets of the plan include:

- Disposal of 35% of waste through recycling and 65% of waste through regular storage by 2023.
- Rehabilitation of wild dumping sites.
- Expanding management of excavation and construction wastes.
- Increasing the efficiency of recovery and recycling of special wastes.
- Increasing investments for additional facilities for recycling and disposal of hazardous wastes.

Law 30621 on Amendment on Environmental Law and Certain Laws

In this law, municipalities are required to provide recycling bins, with different sections for different materials such as paper, metal, plastic, and glass (Mavioglu et al. 2021).

POLICY EFFECTIVENESS

Of the public commitment the Government of Turkey made to reduce marine debris and plastic pollution to the UN Oceans conference, it has not yet published Marine Litter Action Plans for the Mediterranean Sea or Black Sea. In 2021, however the government released an Action Plan for the Sea of Marmara that focuses on cleaning and collecting waste that has already entered the environment (Anadolu Agency 2021). Despite the provisions intended to increase recycling (extended responsibility, increased recycling bins in municipalities), articles suggest that recycling is uncommon (Uğurtaş 2020) and low recycling rates suggest that this is ineffectively applied. As a result, there may be some skepticism that a recycling rate of 65% by 2023 will be reached. Likewise, the overwhelming evidence of open dumpsites across turkey suggests that the 2015 Regulation on Waste Management which prohibits open dumping is not effectively implemented or enforced.

Of all the relevant national and subnational oversight and management of plastic waste, there are many government and academic resources with data on the effectiveness of the plastic bag fee. Turkey's Ministry of Environment and Urbanization released data on changes in bag use in early 2020, noting a 77% decrease of plastic bag use, which accounts for a 150,000 tons reduction of plastic (Bostanoğlu 2021). Likewise, per capita consumption decreased significantly as well. In addition to government data, academic studies focusing on changes in consumer behavior (via face-to-face surveys) in Istanbul, likewise, found a significant decrease in self-reported plastic bag consumption), with three-fourths of respondents stating that they have reduced their reliance on single-use bags and increased their use of reusable bags. Highly educated participants had only slightly higher rates of behavior changes than less educated participants did, a promising result suggesting ubiquitous compliance with such policies (Senturk and Dumludag 2021).

There is some preliminary data on the effects of the Zero Waste Project. To date, First Lady Erdogan has declared 230 buildings waste free (Dalberg Advisers 2019). A deposit return scheme that rewards customers who return plastic bottles has been piloted in the Istanbul metro and several schools. Plans for scaling and expansion are currently unknown (Dalberg Advisers 2019).

CONCLUSIONS

While the national government of Turkey and its environmental agencies have begun to take steps to target the consumption of certain single-use plastics through economic instruments such as taxes, fees, and container deposit schemes, they are still not addressing the volume of imported waste that is entering the country. The targets included in the National Waste Management and Action Plan, if accomplished, will provide more of the capacity that needed to manage and recycle plastic waste, though in so far no policies are explicitly targeting aiming to reduce the volume of plastic production.

REFERENCES

- Akarsu, C., Ö. Madenli, and E.Ü. Deveci. 2021. "Characterization of Littered Face Masks in the Southeastern Part of Turkey." *Environmental Science and Pollution Research*, 1–11.
- Alessi, E. 2018. Out of the Plastic Trap: Saving the Mediterranean from Plastic Pollution. WWF. http://awsassets.panda.org/downloads/a4_plastics_med_web_08june_new.pdf.
- Anadolu Agency Staff. 2021. Turkey Unveils Action Plan to Clean Sea of Marmara: Amid Surge in Marine Mucilage, Environment and Urbanization Minister Announces 22-Point Plan to Rid Marmara of Pollution. <https://www.aa.com.tr/en/environment/turkey-unveils-action-plan-to-clean-sea-of-marmara/2265768>.
- Arı, E., V. Yılmaz. 2017. "Consumer Attitudes on the Use of Plastic and Cloth Bags." *Environment, Development and Sustainability* 19(4), 1219–1234.
- Angi, G. 2019. Plastics Packaging Waste Management and Regulations: Turkey vs Europe. https://sapientia.ualg.pt/bitstream/10400.1/13997/1/Thesis_GULSAH_ANGI.pdf.
- Benson, N.U., D.E Bassey., and T. Palanisami. 2021. COVID Pollution: Impact of COVID-19 Pandemic on Global Plastic Waste Footprint. *Heliyon* 7(2): e06343.
- Berkun, M., E. Aras, and T. Anılan. 2011. "Solid Waste Management Practices in Turkey." *Journal of Material Cycles and Waste Management* 13(4): 305–313.
- Bostanoğlu, N.M. 2021. The Future of Single Use Plastics in Turkey and the EU. Economic Development Foundation.
- CMS. n.d. Plastics and packaging laws in Turkey| CMS Expert Guide. <https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/turkey>.
- CMS. 2021. Turkey Introduces New Packaging Waste Management Regulation. <https://www.cms-lawnow.com/ealerts/2021/09/turkey-introduces-new-packaging-waste-management-regulation>.
- Crawford, A. 2021. "Why Is UK Recycling Being Dumped by Turkish Roadsides?" BBC News. <https://www.bbc.com/news/av/uk-53181948>.
- Dalberg Advisors, WWF Mediterranean Marine Initiative. 2019. "Stop the Flood of Plastic: How Mediterranean Countries Can Save Their Sea."
- European Environment Agency. 2021. Waste Recycling in Europe. Accessed at: <https://www.eea.europa.eu/ims/waste-recycling-in-europe>.
- Gündoğdu, S., and T.R. Walker. 2021. "Why Turkey Should Not Import Plastic Waste Pollution from Developed Countries?" *Marine Pollution Bulletin* 171, 112772.
- Greenpeace. Trashed: How the UK Is Still Dumping Plastic Waste on the Rest of the World. <https://www.greenpeace.org.uk/resources/trashed-plastic-report/>.
- INTERPOL. 2020. Strategic Analysis Report: Emerging Criminal Trends in the Global Plastic Waste Market since January 2018. https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf.
- Jambeck, J.R., R. Geyer, C. Wilcox, T.R. Siegler, M. Perryman, A. Andrady, et al. 2015. "Plastic Waste Inputs from Land into the Ocean." *Science* 347(6223): 768–771.
- Lebreton, L., & Andrady, A. 2019. "Future Scenarios of Global Plastic Waste Generation and Disposal." *Palgrave Communications* 5(1): 1–11.
- Maviogly, O.y., K. Lule, B.M. Erucman, and B. Eravci. 2021. Environmental Law and Practice in Turkey: Overview. ADMD/Mavioglu& Alkan Law Firm.
- Organisation for Economic Co-operation and Development, OECD. 2021. Environment at a Glance Indicators: Circular Economy – Waste and Materials. Accessed at: <https://www.oecd.org/environment/environment-at-a-glance/Circular-economy-waste-and-materials-May-2020.pdf>.
- Osaka Blue Ocean Vision. 2021. Republic of Turkey: Actions and Progress on Marine Plastic Litter. <https://g20mpl.org/partners/turkey>.
- Ozbekpa. n.d. Recovery Participation Share (GEKAP). <https://ozbekcpa.com/en/recovery-participation-share-gekap/>.
- Peng, Y., P. Wu, A.T. Schartup, and Y. Zhang. 2021. "Plastic Waste Release Caused by COVID-19 and Its Fate in the Global Ocean." *Proceedings of the National Academy of Sciences* 118(47).
- Senturk, G., and D. Dumludag. 2021. "An Evaluation of the Effect of Plastic Bag Fee on Consumer Behavior: Case of Turkey." *Waste Management* 120, 748–754.
- Terzi, Y., and K. Seyhan. 2017. "Seasonal and Spatial Variations of Marine Litter on the South-Eastern Black Sea Coast." *Marine Pollution Bulletin* 120(1-2): 154–158.

- The Turkish Ministry of Environment and Urbanization (MoEU). Packaging Bulletin. Packaging and Packaging Waste Statistics 2017, 2019.
- Uğurtaş, S. 2021. “Why Turkey Became Europe’s Garbage Dump: The Growing Wave of Waste Is Creating a Political Problem for the Government.” *Politico*. <https://www.politico.eu/article/why-turkey-became-europes-garbage-dump/>.
- UN Oceans. 2021. Turkey’s Marine Litter Action Plans to Reduce Sea-Based and Land-Based Pollution Loads. UN Ocean Conference. <https://oceanconference.un.org/commitments/?id=19073>.
- Yildiz, A. 2019. Zero Waste Regulation Has Been Published in the Official Gazette. What Obligations Does the Zero Waste Regulation Impose? Muhtaranlar Attorney Partnership. <https://www.lexology.com/library/detail.aspx?g=409ab615-8cb3-4a5a-8208-58931fb5b26d>.
- Yildiz, S., C.Yaman, G. Demir, H.K. Ozcan, A. Coban, H. E. Okten, et al. 2013. “Characterization of Municipal Solid Waste in Istanbul, Turkey.” *Environmental Progress & Sustainable Energy* 32(3):734–739.
- Yilmaz, I. 2021. Turkey Publishes New Packaging Waste Control Regulation. Esin Attorney Partnership. <https://www.esin.av.tr/2021/07/12/turkey-publishes-new-packaging-waste-control-regulation/>.
- Yuksekkas, B. “Turkey Resumes Trade That Made It Europe’s Top Trash Destination. Bloomberg News. <https://www.bloomberg.com/news/articles/2021-07-28/turkey-resumes-trade-that-made-it-europe-s-top-trash-destination#:~:text=Turkey%20is%20reversing%20a%20short,Europe’s%20top%20destination%20for%20trash>.

APPENDIX – METHODS

To start off the search for policy documents, researchers referenced the Nicholas Institute’s Plastics Policy Inventory for any relevant national or subnational policies in Turkey. At the time this case study was initially drafted, there was one national and zero subnational policies from Turkey in the Inventory.

In addition to the Turkey plastic pollution policy search, Google Scholar search strings outlined in the “methods” section of the [20 Years of Government Responses to the Global Plastic Pollution Problem The Plastics Policy Inventory](#) report were adapted, as follows:

“Turkey” AND “Plastic” AND (Policy OR Govern* OR Institution OR Law OR Regulat* OR Legal OR Intervention OR Infrastructure OR Coastal city OR Mega-city OR Municip* OR Subsidy OR subsidize OR Subsidies OR Ban OR bans OR Tax* OR taxes OR Fee*);

Twenty-one total articles were found, and all were screened for inclusion. The inclusion criteria were that the articles described the plastic pollution problem in Turkey, described relevant policies in Turkey, or they described the effectiveness of relevant policies. They were then read through and relevant information that could aid this case study was extracted. When citations referenced additional literature that seemed relevant, those papers were subsequently screened for inclusion as well. This is the primary method in which the background information was collected.

Much of this scholarly literature referenced specific national policies, and in some cases included data on effectiveness as well. The researchers relied on the descriptions of the policy in secondary literature to best understand the policy characteristics, since no researchers in this study can speak Turkish.

Finally, to check if any new policies had been agreed upon or enacted since the publication of the literature referenced above, the same search strings that were used to find the literature were applied in a normal Google search. Here, researchers were looking for recent news articles referencing policies that may have been implemented and not yet included in any literature. The information about the short-lived plastic waste import ban was found through this search.