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Plastic Waste Power Play

The offshoring and recycling displacement involved in trying to recycle EU plastic waste

January 2023





Introduction

Since records began in the late 1980's, over a quarter of a billion tonnes of plastic waste has been traded globally.¹

Since January 2021, the trade of much of this waste stream falls under the remit of the Basel Convention. This Convention is the international instrument that, among other objectives, regulates the requirements outlining what is permissible with regards to the transboundary movement of wastes.¹ It was negotiated against the backdrop of increasing environmental awareness in the US and Europe throughout the 1970-80s, namely as a result of the harm posed by hazardous wastes and increasing costs for their proper disposal,² which in turn led to a rise in waste exports. The creation of the Basel Convention sought to reduce harm to human health and the environment, particularly within recipient Global South countries, stemming from this trade.

As environmental awareness and the waste trade grew, so did the introduction of formal recycling targets.^{iii,3} However, increasing awareness of the need for resource circularity did not translate into reduced production of virgin plastic, efficient consumption and ethical waste treatment practices. Ultimately, high-income, high-consuming countries continued increasing the plastic they consumed and disposed of while simultaneously exporting plastic waste instead of reducing production and investing in adequate domestic recycling capacity.

This practice has resulted in these countries simply offshoring their plastic waste to others for recycling, primarily to Asia, along with the environmental, social and human health harm⁴ as well as illicit waste trafficking that comes with it, thus perpetuating, albeit with a different waste stream, what the Basel Convention initially sought to protect against.

Historically and to date, European Union Member States are the top plastic consuming and plastic waste

exporting countries globally. In 2020, of the top 10 plastic waste exporting countries, six were EU Member States.⁵ At the time of this briefing's publication, the EU is reviewing its control regime for the shipment of waste [*the Waste Shipment Regulation*] and, consequently, has the opportunity to address this exploitative and unethical practice.

In this briefing we outline:

- the vast majority of plastic produced globally is not recycled and high levels of plastic consumption is the primary driver behind the plastic waste trade, not circularityⁱⁱⁱ
- although plastic recycling currently plays a role in delaying the final disposal of a small proportion of plastics,⁶ the current practice of exporting plastic waste not only serves to perpetuate the (ever-increasing) plastic production status quo of high-income countries such as EU Member States, but also displaces receiving countries' domestic recycling capacity^{iv} while overwhelming receiving country waste infrastructure, thus also rendering plastic waste vulnerable to mismanagement and illicit trafficking
- how our recommendations for the EU's revision of the Waste Shipment Regulation, including an extra-EU/EFTA plastic waste export ban, will support global efforts to address these issues and help put an end to one of the most serious environmental justice issues of our time.

Above: Investigations have shown that plastic waste found dumped in Turkey includes packaging from German and global food and drinks brands and UK supermarkets. Turkey is an OECD recipient country, but negative impacts of plastic waste imports have been thoroughly documented.

Snapshot of global plastic waste and recycling

Plastic production feeds high levels of consumption yet is not linked to population growth⁷ – Between 1990 and 2019, total plastic production increased by 254 per cent while the world’s population increased by 47 per cent.⁸ Since 1990, plastic production has increased more than five times population growth, standing at just under 450 million tonnes produced in 2019.

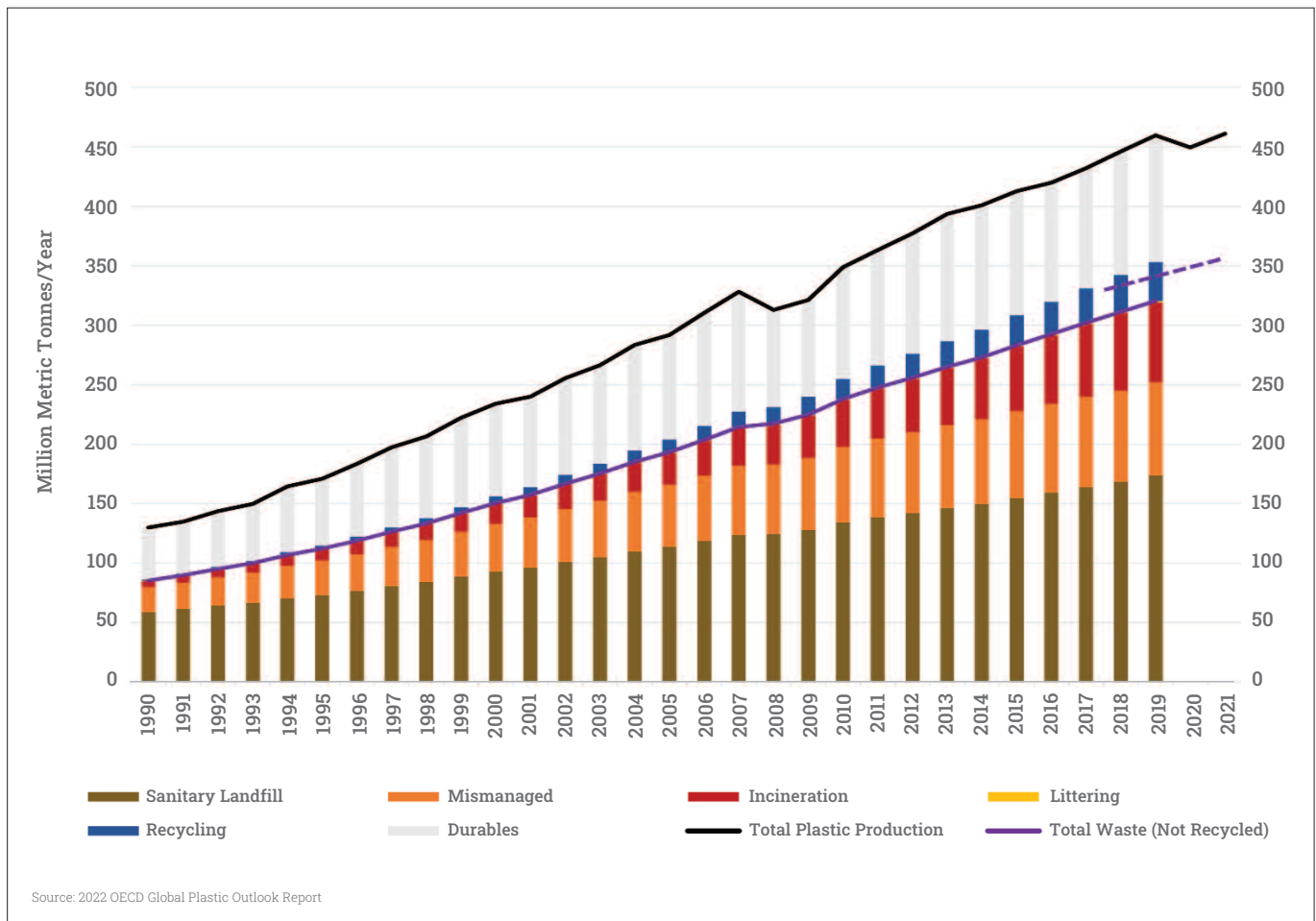
Historically, it is high-income high-exporting countries that have been producing and consuming the most plastic⁹ – The majority of plastic consumed since the 1950s stems from Organisation for Economic Co-operation and Development (OECD)¹⁰ America and OECD Europe, which have collectively consumed 54 per cent of the world’s plastics produced since records began (30 per cent and 24 per cent, respectively). Perhaps unsurprisingly, the US and EU Member States have also formed the top 10 plastic waste exporting countries since records began.¹¹ Plastic consumption patterns are changing, but OECD Europe is still one of the largest plastic consuming regions in the world. In

2021 the largest plastic consuming regions were OECD America (22 per cent), China (21 per cent), OECD Europe (18 per cent) and Other Asia (15 per cent). However, it is vital to note that per capita plastic waste generated, OECD America and OECD Europe are the biggest plastic waste producers. For instance, in 2016 the EU-28 produced 349 per cent more kilogrammes of plastic waste per person per annum than China.¹²

The exporting of plastic waste helps perpetuate the linear status quo – EIA’s *The Truth Behind Trash* report found that the increase of plastic resin production (virgin plastic) over time correlated with the level of plastic waste exported globally.¹³

The majority of plastic has never been recycled^v – Between 1990 and 2019, only four per cent of total plastics produced was recycled, with the vast majority being either landfilled (39 per cent), mismanaged (18 per cent) or incinerated (10 per cent). The treatment method for 28 per cent of total plastic produced

Figure 1: Global Plastic Production and Plastic Waste Destination (Fate). Despite data on total plastic production being available since the 1950s, best available data on the fate of plastic products is only available from 1990. Source: 2022 OECD Global Plastic.



throughout this period is unknown, although a portion will be accounted for as durable plastics or material awaiting treatment. If only looking at plastic produced which is categorised as waste throughout this period, recycling as a treatment accounts for just six per cent. With the vast majority of plastic waste throughout these two decades being landfilled (54 per cent), mismanaged (24 per cent) or incinerated (14 per cent). These numbers have not improved significantly over time; when looking at the total plastic waste generated globally in the year 2019, only 10 per cent was accounted as recycled.^{vi,14}

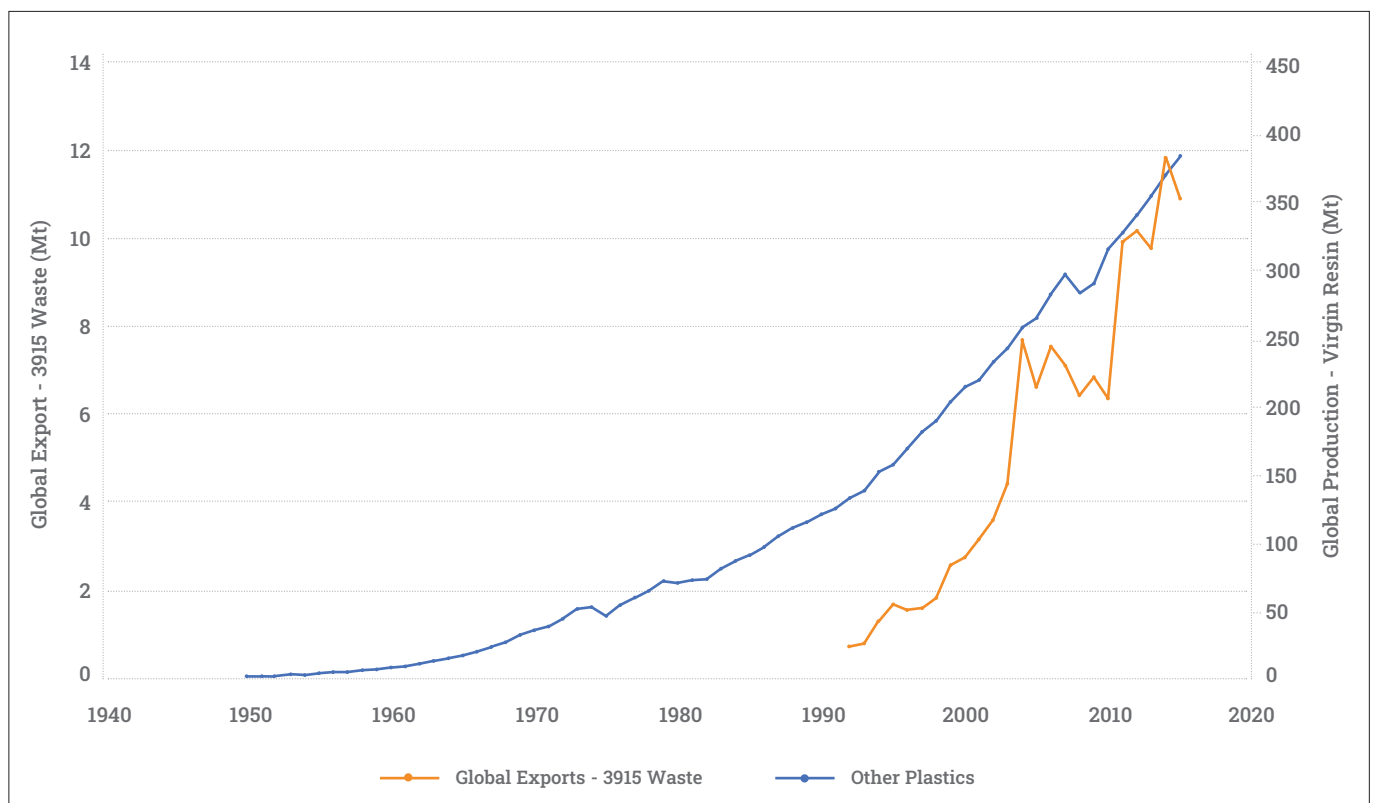
Recycling offers only a small solution Mechanical plastic recycling never has, nor will it have, a meaningful recycling rate. Plastic recycling at large is also inherently a process of 'downcycling'. Depending on the level of contamination and downgrading throughout the recycling process, there are always residuals that are subsequently disposed of.¹⁵ Polymer breakdown means that virgin plastic is still sometimes required in manufacturing using recycled plastic. The toxicity of plastic products can render said recycled plastic dangerous if used as recycled content for food-grade packaging.¹⁶ Other forms of recovery further down the waste hierarchy are also not without environmental issues, including chemical recycling.^{vii,17}

The world is currently in the grip of a plastics emergency – In spite of the above, plastic production is still set to increase over the next decades.¹⁸ This is also

despite plastic pollution now emerging as the next planetary boundary threat,¹⁹ found in and contaminating every environmental compartment and a huge percentage of living organisms; this includes humans, and it was recently found that plastics are in our blood,²⁰ lungs²¹ and placentas.²² The impact of plastic waste on human health is all the more acute for workers and local communities in close proximity to plastic waste (including imported plastic waste), especially if it is not managed in an environmentally safe manner.²³

A crucial step in creating a safe, non-toxic and ethical EU circular economy is responsibility – It is clear that costs and harm should not be externalised during the lifecycle of plastics. This concern to prevent harm includes workers within the waste industry in every country (including waste pickers and those within the informal sector),²⁴ who should be remunerated fairly and provided with safe working conditions. This is coupled with the fact that current and future anticipated levels of plastic production cannot be sustained.^{viii} Furthermore, high-income, high-consuming countries cannot continue to offshore their plastic waste onto others to treat for recycling in order to continue justifying incredibly high levels of linear plastic consumption. Taking responsibility for plastic produced and consumed, as well as its treatment, is essential if we are to achieve the circular economy outlined within the EU Circular Economy Action Plan.²⁵

Figure 2: Correlation between plastic waste exports and virgin plastic resin production from 1950 to 2015. While records began in 1988, reliable data on plastic waste exports only began in 1992.





National breakdown of recycling capacity: Methodology

As outlined within the second section of this report, recycling of plastic waste (and its subsequent legal trade, which also facilitates illicit waste trafficking)²⁶ in and of itself is not the answer to the plastic emergency. With this in mind, major plastic waste exporting countries are also not alone in producing and consuming plastic or in need of recycling infrastructure. So, what of recipient countries and their own plastic waste recycling needs?

The aim of this section is to provide a top-line overview of **the plastic waste recycling capacity** of certain major exporting and importing countries of EU plastic waste, using best available evidence. ‘Recycling capacity’ in this case is based on the volume (tonnage) of plastic waste a country has the capacity to recycle based on operational domestic recycling infrastructure output volume.^{ix}

This is useful for informing the EU Waste Shipment Regulation revision, given the Commission acknowledges the need for recipient countries of EU waste to demonstrate that they have sufficient capacity for waste to be treated in an environmentally sound manner in addition to how imports impact the capacity to collect and recycle domestically generated waste.²⁷

Data was sourced from OECD^x and World Bank datasets, UN Comtrade and ICIS^{xi} for the year 2021.^{xii} Specifically, the aim is to provide empirical data demonstrating the recycling capacity of case study countries using four annual parameters, in terms of tonnage:

- the quantity of plastic waste generated domestically
- the quantity of plastic waste imported
- the quantity of plastic waste exported
- domestic [plastic waste] recycling output volume.

Recycling capacity is measured by domestic recycling output volume versus the quantity of plastic waste generated (either including or excluding net imports).^{xiii}

$$\begin{aligned} & \text{Total plastic waste recycling capacity of [X] country} \\ &= \frac{(\text{domestic plastic waste generated} + \text{plastic waste imported} - \text{plastic waste exported})}{(\text{domestic recycling output volume})} \\ & \text{Domestic plastic waste recycling capacity of [X] country} = \frac{\text{domestic plastic waste generated}}{\text{domestic recycling output volume}} \end{aligned}$$

Disclaimer: EIA acknowledge that this is a top-line analysis. Data availability could not distinguish different types or polymers of plastic waste being generated at the domestic level and thus recycled (or with the potential to be recycled). Given facility input volumes were not available, facility residual rates were not available. Capacity is reflected as a percentage compared to total of domestically generated plastic waste and so is indicative of how much plastic waste is actually recycled and is not to be considered as an input recycling rate. Nor does data available necessarily capture the informal waste recycling industry or the status of environmentally sound management.

Despite this, the data collated still serves to demonstrate the approximate (note, informal sector) plastic waste recycling capacity of case study countries and, if subsequently cross-referenced with current national import restrictions for plastic waste²⁸ and estimations with regards to illicit waste trafficking volumes, provides insight into the overall trade and capacity trends in place.

Above: Plastic waste dumped in Indonesia. Indonesia was the 6th largest plastic waste importer in 2020. Plastic waste that has been dumped, including that which has been illegally exported, causes serious environmental and human health harm.

Major EU plastic waste exporting countries

In 2020, of the top 10 largest plastic waste exporting countries globally, six were EU Member States – Germany (1), the Netherlands (5), France (6), Belgium (7), Italy (8) and Slovenia (10).²⁹ All six, apart from Slovenia, are within the top 11 plastic-consuming EU Member States.³⁰



Figure 3: Snapshot of German Plastic Waste and Recycling in 2021

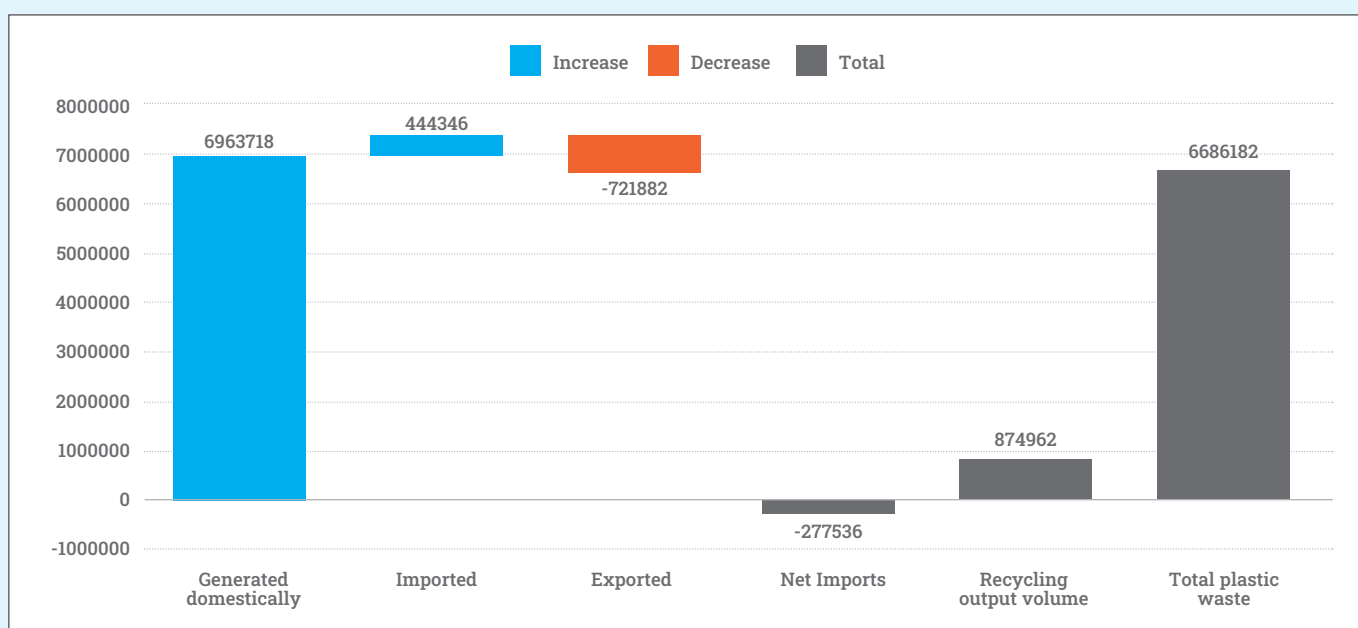


Table 1: Snapshot of German Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	6,963,718
Imported	444,346
Exported	721,882
Net Imports	-277,536
Total plastic waste	6,686,182
Domestic recycling output	874,962

In 2021, Germany generated a total of 6,963,718 tonnes of plastic waste domestically. It imported 444,346 tonnes, while exported 721,882 tonnes and thus net exports were 277,536 tonnes. Therefore, its total plastic waste was 6,686,182 tonnes.

Germany has a recycling output volume of 874,962 tonnes, resulting in a total recycling capacity including net imports of 13.1 per cent. Germany is a net exporter of plastic waste. Accounting for plastic waste imports, Germany exports four per cent of plastic waste generated domestically. If the country did not import or export any plastic waste, its domestic recycling capacity would decrease to 12.6 per cent.

Historically, Germany has been the third largest global exporter of plastic waste since 1988 and was the largest plastic waste exporting country in 2020.³¹ The latest available data demonstrates that it is the largest EU producer of plastic waste.³² The top five recipients of plastic waste from Germany in 2021 include the Netherlands (19 per cent), Turkey (15 per cent), Poland (11 per cent), Malaysia (seven per cent) and Austria (six per cent), while the top five countries sending plastic waste to Germany include Poland (15 per cent), the Netherlands (15 per cent), Switzerland (14 per cent), France (nine per cent) and Austria (seven per cent).



Figure 4: Snapshot of Dutch Plastic Waste and Recycling in 2021

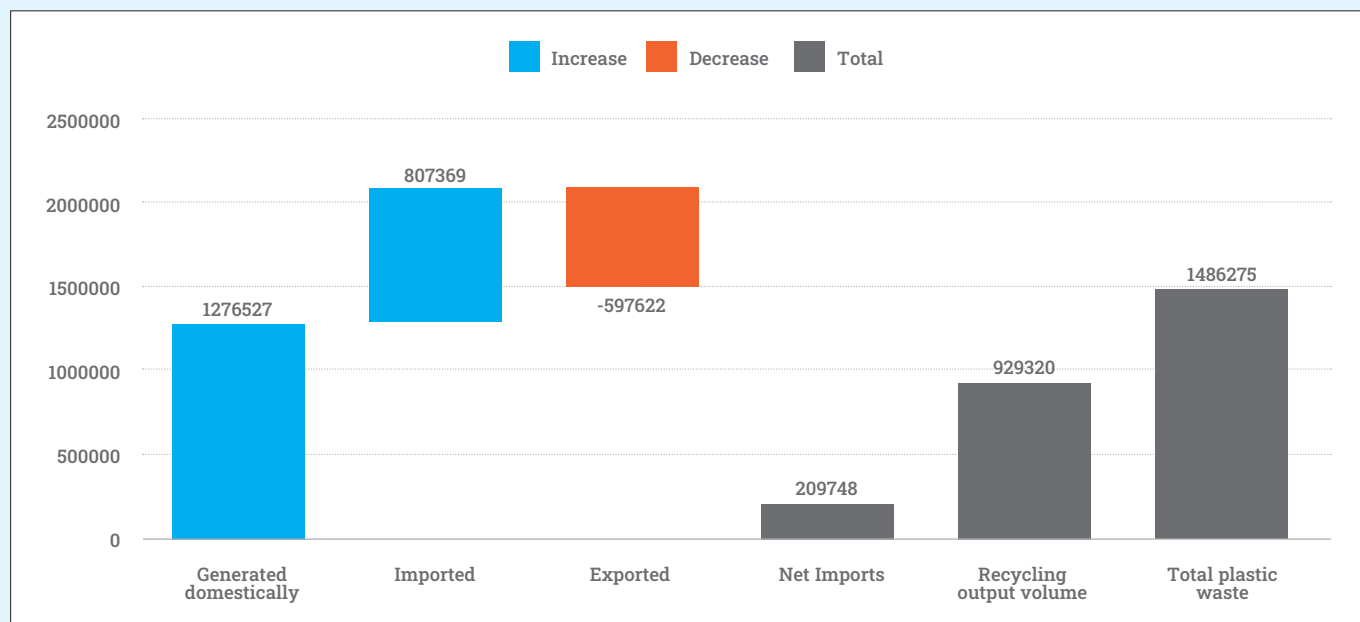


Table 2: Snapshot of Dutch Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	1,276,527
Imported	807,369
Exported	597,622
Net Imports	209,748
Total plastic waste	1,486,275
Domestic recycling output	929,320

In 2021, the Netherlands generated a total of 1,276,527 tonnes of plastic waste domestically. It imported 807,370 tonnes, while exporting 597,622 tonnes and thus net imports were 209,748 tonnes; therefore, total plastic waste was 1,486,275 tonnes.

The Netherlands has a recycling output volume of 929,320 tonnes, resulting in a total recycling capacity including net imports of 62.5 per cent.^{xiv} Accounting for plastic waste imports, the Netherlands is a net importer of plastic waste, despite having exported a total of 597,622 tonnes in 2021. This is because the Netherlands is a plastic waste recycling destination in the EU while at the same time being a transshipment destination for EU plastic waste out of the Union. If the Netherlands did not import or export any plastic waste,

its domestic recycling capacity would increase to 72.8 per cent.

Historically, the Netherlands has been the sixth largest global exporter of plastic waste since 1988 and was the fifth largest plastic waste exporting country in 2020.³³ In 2021, it dramatically increased plastic waste exports to non-OECD countries, from an average of 8.3 million kg/month in 2020 to 19 million kg/month in December 2021.³⁴ The latest available data demonstrates that the Netherlands is the sixth largest EU producer of plastic waste.³⁵ The top five recipients of plastic waste from the Netherlands in 2021 include Germany (18 per cent), Belgium (16 per cent), Indonesia (12 per cent), Vietnam (11 per cent) and Malaysia (eight per cent), while the top five countries sending their plastic waste to the Netherlands include Germany (45 per cent), Belgium (20 per cent), France (11 per cent), Sweden (three per cent) and Poland (three per cent).



Figure 5: Snapshot of French Plastic Waste and Recycling in 2021

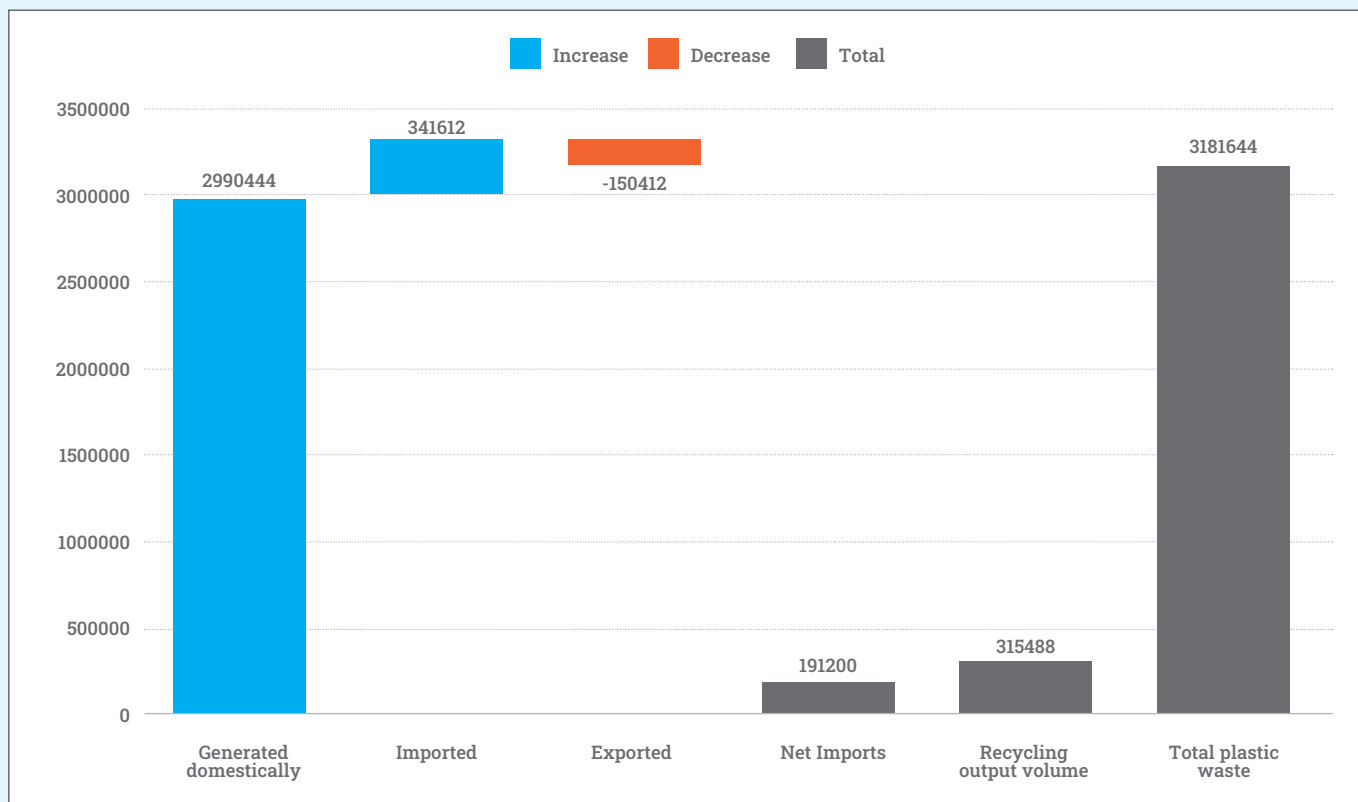


Table 3: Snapshot of French Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	2,312,012
Imported	510,897
Exported	11,128
Net Imports	499,769
Total plastic waste	2,811,780
Domestic recycling output	270,634

In 2021, France generated a total of 2,990,444 tonnes of plastic waste domestically. It imported 341,613 tonnes, while exporting 150,412 tonnes and thus net imports were 191,200 tonnes; therefore, total plastic waste was 3,181,644 tonnes.

France has a recycling output volume of 315,488 tonnes, resulting in a total recycling capacity, including net imports, of 9.9 per cent. Accounting for plastic waste imports, France is a net importer of plastic waste, despite having exported a total of 150,412 tonnes in 2021. If France did not import or export any

of its plastic waste, its domestic recycling capacity would increase to 10.6 per cent.

Historically, France has been the seventh largest global exporter of plastic waste since 1988 and was the sixth largest plastic waste exporting country in 2020.³⁶ The latest available data demonstrates that France is the second largest EU producer of plastic waste.³⁷ The top five recipients of plastic waste from France in 2021 were Spain (28 per cent), Italy (20 per cent), Belgium (14 per cent), Germany (13 per cent) and the Netherlands (11 per cent), while the top five countries sending their plastic waste to France include Belgium (29 per cent), Germany (20 per cent), the Netherlands (15 per cent), Italy (eight per cent) and the UK (six per cent).



Figure 6: Snapshot of Belgian Plastic Waste and Recycling in 2021

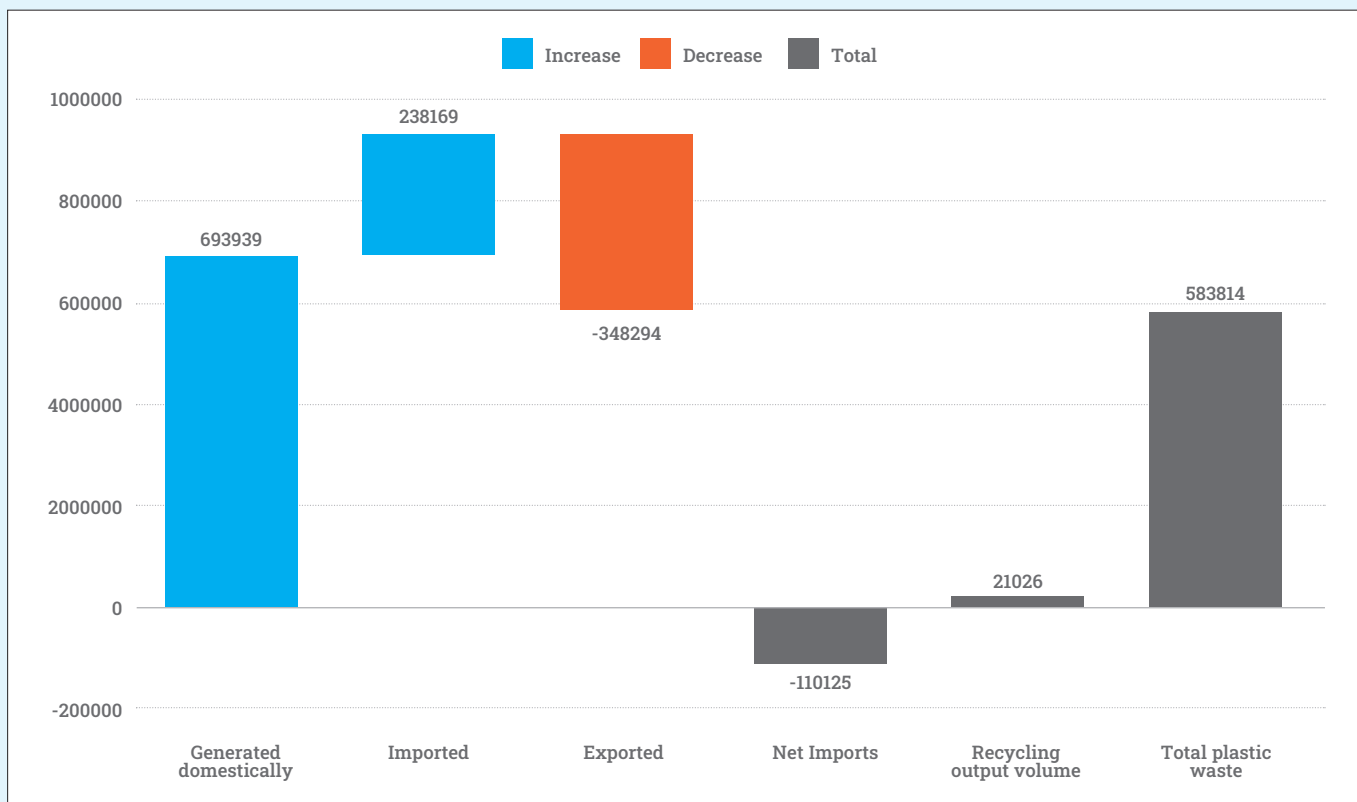


Table 4: Snapshot of Belgian Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	693,939
Imported	238,170
Exported	348,294
Net Imports	110,125
Total plastic waste	583,814
Domestic recycling output	21,026

In 2021, Belgium generated a total of 693,939 tonnes of plastic waste domestically. It imported 238,170 tonnes, while exporting 348,294 tonnes, thus net exports were 110,125 tonnes; therefore, total plastic waste was 583,814 tonnes.

Belgium has a recycling output volume of 21,026 tonnes, resulting in a total recycling capacity, including net imports, of 3.6 per cent. Belgium is a net exporter of plastic waste. Accounting for plastic waste imports, Belgium exports 15.9 per cent of plastic waste generated domestically. If it did not import or export

any plastic waste, its domestic recycling capacity would decrease to 3 per cent.

Historically, Belgium has been the eighth largest global exporter of plastic waste since 1988 and was the seventh largest plastic waste exporting country in 2020.³⁸ The latest available data demonstrates that Belgium is the 11th largest EU producer of plastic waste.³⁹ The top five recipients of plastic waste from Belgium in 2021 include the Netherlands (34 per cent), Turkey (13 per cent), France (12 per cent), Germany (eight per cent) and Malaysia (six per cent), while the top five countries sending their plastic waste to Belgium include France (28 per cent), the Netherlands (28 per cent), Germany (27 per cent), the UK (six per cent) and Indonesia (two per cent).

Major non-EU importing countries of plastic waste

Turkey, Malaysia, Indonesia, Vietnam and Hong Kong are all major non-EU destinations for EU plastic waste. Four out of five of these recipients were analysed – China/Hong Kong, Malaysia, Vietnam and Turkey.

It was found that if Malaysia, Vietnam and Turkey stopped importing plastic waste, their domestic recycling capacity would increase substantially; data on China/Hong Kong meant such an analysis could not be conducted.



Figure 7: Snapshot of Malaysian Plastic Waste and Recycling in 2021

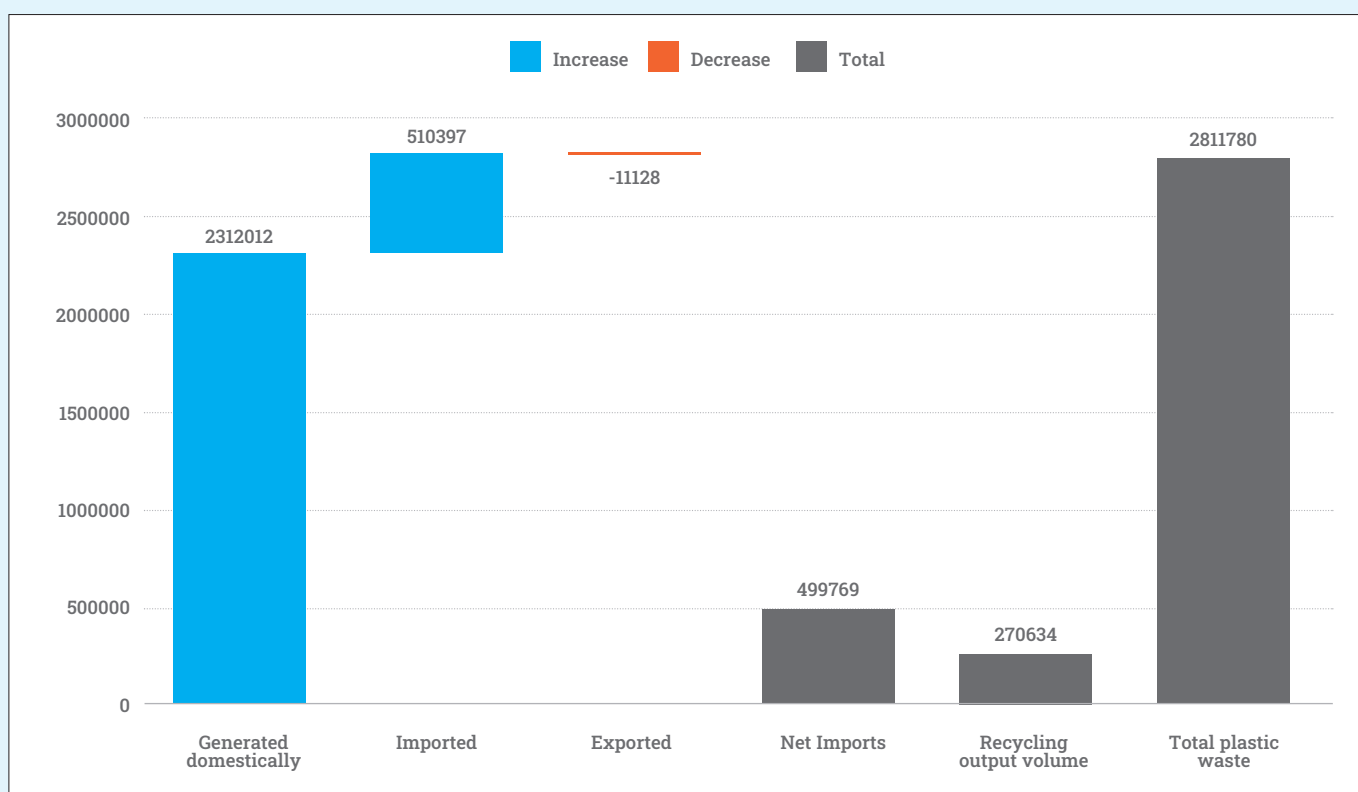


Table 5: Snapshot of Malaysian Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	2,312,012
Imported	510,897
Exported	11,128
Net Imports	499,769
Total plastic waste	2,811,780
Domestic recycling output	270,634

In 2021, Malaysia generated a total of 2,312,012 tonnes of plastic waste domestically. It imported 510,897 tonnes, while exporting 11,128 tonnes and thus net imports were 499,769 tonnes; therefore, total plastic waste was 2,811,780 tonnes, with net imports accounting for 17.8 per cent of that total. Malaysia recycling output volume was 270,634 tonnes, resulting in total recycling capacity, including net imports, of 9.63 per cent.

Malaysia is a net importer of plastic waste, importing the equivalent of 21.6 per cent of plastic waste it generates domestically. What is of particular concern is that Malaysia’s current recycling output volume of 270,634 tonnes accounts for only 54.2 per cent of its

current net imports in terms of tonnage, thus inferring a high level of dumping/disposal of imported plastic waste or a very high recycling residual rate. If Malaysia did not import or export any plastic waste, its domestic recycling capacity would be 11.7 per cent.

Between 2010-20, Malaysia was the second largest global importer of plastic waste and was the largest plastic waste importing country in 2020.⁴⁰ The top five countries sending their plastic waste to Malaysia include other countries in Asia, the US, Philippines, Pakistan and Kenya. Austria, Belgium, the Netherlands and France were the seventh, 10th, 13th and 16th largest exporters of plastic waste to Malaysia, respectively. In total, the EU exported 136 million kilos to Malaysia in 2021, accounting for 26.6 per cent of all plastic waste imported into Malaysia.⁴¹

“The incidences of health and environmental pollution in Malaysia taught us a lesson on possible effects the unregulated waste industry could have on the community when gone unchecked. Developed countries, especially European countries, should stop putting their responsibility onto other countries for their own plastics problem and put in place policies to enhance waste trade manifesto.” – Kiah Chun Heng, Greenpeace Malaysia

“The plastic waste trade must stop as I saw it bring big disasters to the people of Southeast Asia, due to the insufficiency in enforcement and monitoring systems in this area. Many of us suffered from asthma and other respiratory diseases because of the imported solid wastes. I am very sad that we have to bear the consequences from waste that was created by developed countries. And I know this is very difficult to stop as many waste traders use fake codes to smuggle waste to other countries. Cancer rates are increasing in our community because of the imported plastic waste; it has left a long-term pain for us. Developed countries, please stop exporting your solid waste!

“In 2018, I smelt pungent fumes coming out of many illegal imported plastic recycling plants. So many were surrounding our community. Some residents were awakened at night due to the terrible smell. And children always fall sick. Our reports to the authorities were ignored for months. A lady was admitted into the hospital for two weeks as she was surrounded by toxic fumes released from the factories. She suffered from bad coughing and shortness of breath. There were at least four illegal plastic recycling plants nearby her house. We also saw a lot of plastic waste being dumped in illegal landfills, with trash from developed countries like UK, USA, Germany, Australia, and Japan.” – Lay Peng Pua, Kuala Langat Environmental Action Association

“Fly tipping and illegal dumping is rampant in Malaysia. At some illegal dumpsites, gangsters keep watch and intimidate government officers who are

investigating the dumping. In several of these illegal dumpsites, we found foreign plastic municipal waste. Some dumpsites are hidden deep within oil palm estates, some dumpsites are nestled among housing areas, some dumpsites are old sand mining pools right beside the river. Plastic waste leaches into our rivers, upstream of drinking water treatment plants. The costs of the burning and dumping of all the foreign plastic waste on our water, air, land and peoples' health (and the strain on our public resources for enforcement and regulation) will never be properly accounted for and compensated.” – Pushpan Murugiah, Center to Combat Corruption and Cronyism

“Once the plastic waste enters my country, there is no way plastic pollution can be contained. Mismanaged plastic waste is everywhere. An illegal factory was shut down, leaving plastic pellets out in the open, and unrecyclable municipal waste buried metres-deep under soil and growth. An illegal dumpsite was cleared, leaving charred microplastics strewn all over the ground. An illegal storage area was abandoned, leaving plastics stuffed into shop lots or piled in the open, subject to sun and rain. These wastes will remain here in our environment forever, until they get washed into streams and rivers, and head out to open sea. To solve the problem of plastic pollution and marine litter, there are no short cuts, but the route is straightforward. We must reduce plastic production and stop the trade of plastic waste. These were my research outputs: <https://c4center.org/malaysia-is-not-a-garbage-dump-project/>” – Pui Yi Wong, Center to Combat Corruption and Cronyism



Above: Plastic waste originating from Italy that was found at a dumpsite in Johor, Malaysia. There have been numerous investigations documenting illegal dumping of imported plastic waste in Malaysia.



Figure 8: Snapshot of Vietnamese Plastic Waste and Recycling in 2021

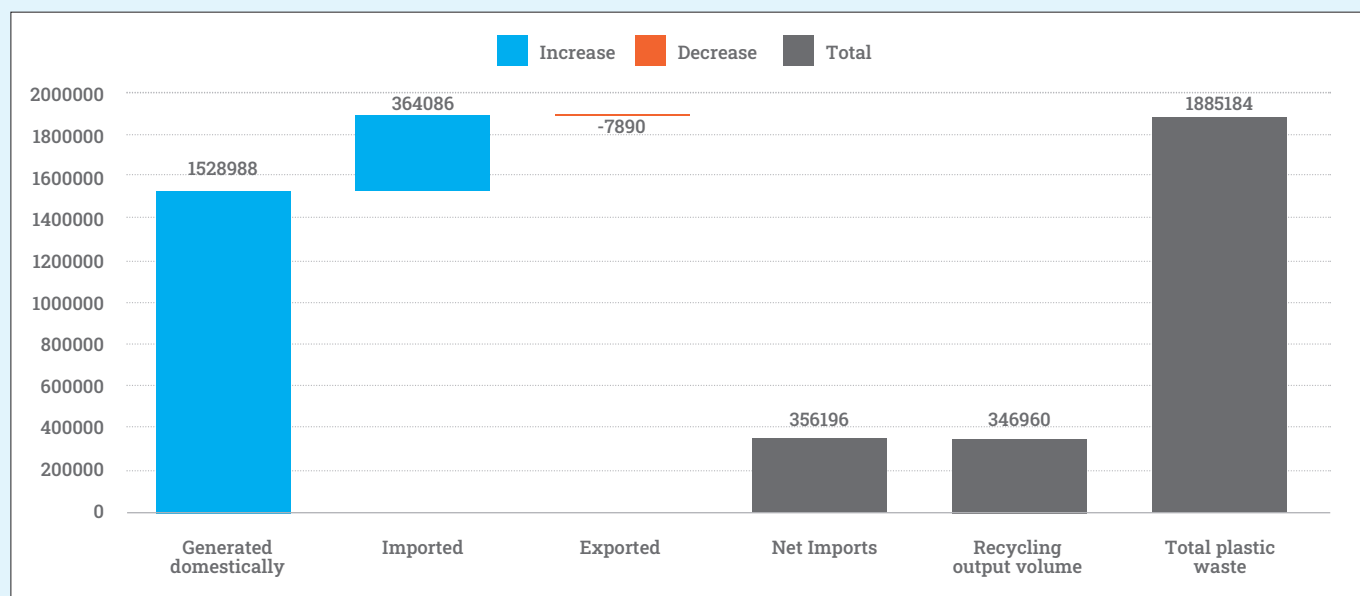


Table 6: Snapshot of Vietnamese Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	1,528,988
Imported	364,086
Exported	7,890
Net Imports	356,196
Total plastic waste	1,885,184
Domestic recycling output	346,960

In 2021, Vietnam generated a total of 1,528,988 tonnes of plastic waste domestically. It imported 364,086 tonnes, while exporting 7,890 tonnes and thus net imports were 356,196 tonnes; therefore, total plastic waste was 1,885,184 tonnes, resulting in a total recycling capacity, including net imports, of 18.4 per cent.

Vietnam is a net importer of plastic waste, importing the equivalent of 23.3 per cent of the plastic waste it generates domestically. Vietnam’s current domestic recycling output volume of 346,960 tonnes accounts for 97.4 per cent of its current net imports in terms of tonnage. If Vietnam did not import or export any plastic waste, it would have a domestic recycling capacity of 22.7 per cent.

Between 2010-20, Vietnam was the fourth largest global importer of plastic waste and was the third largest in 2020.⁴² The top five countries sending their

plastic to Vietnam include the USA, Other Asia, Hong Kong, Italy and Australia. Spain, Portugal and the Netherlands were the 10th, 11th and 17th largest exporters of plastic waste to Vietnam, respectively. In total, the EU exported 122 million kg/yr to Vietnam in 2021, accounting for 33.5 per cent of all plastic waste imported into Vietnam.⁴³

“Waste import reduces the demand for domestic recyclable wastes. As consequence, recyclable wastes have not been thoroughly collected and most of the wastes have been mixed up and sent to the landfill or incinerators. The low environmental standards have led to serious environmental pollution in many villages in Vietnam.” – Xuan Quach, Vietnam Zero Waste Alliance

Figure 9: Snapshot of Turkish Plastic Waste and Recycling in 2021

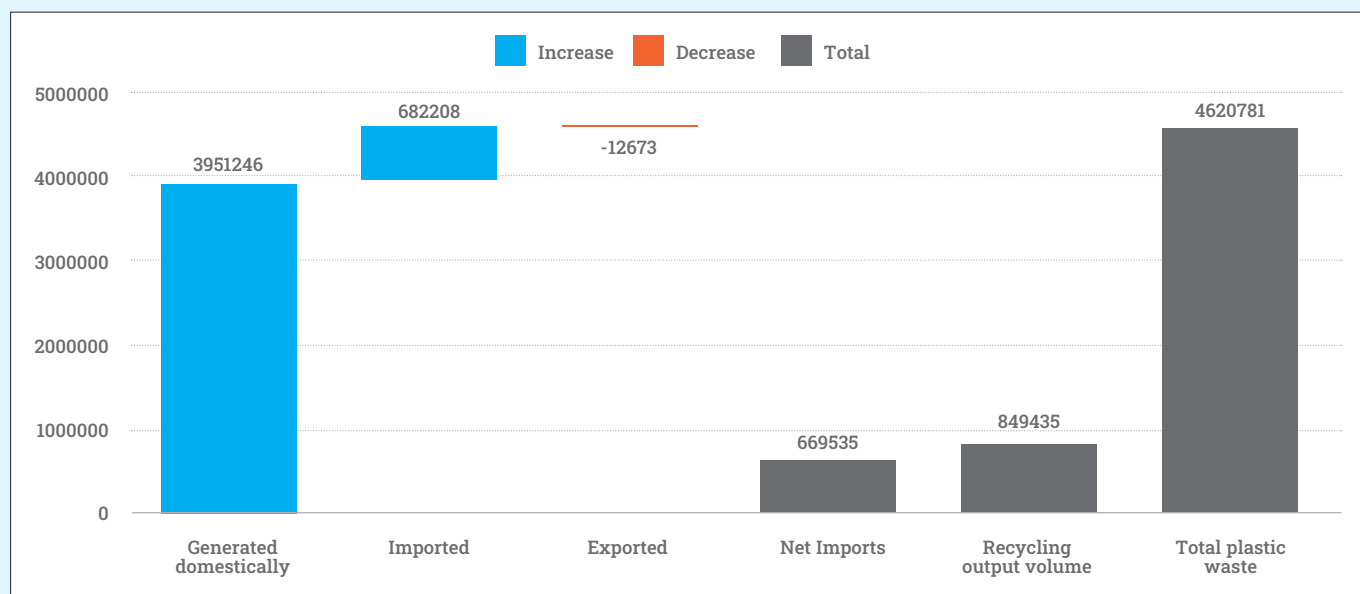


Table 7: Snapshot of Turkish Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	3,951,246
Imported	682,208
Exported	12,673
Net Imports	669,535
Total plastic waste	4,620,781
Domestic recycling output	849,435

In 2021, Turkey generated a total of 3,951,246 tonnes of plastic waste domestically. It imported 682,208 tonnes, while exporting 12,673 tonnes and thus net imports were 669,535 tonnes; therefore, total plastic waste was 4,620,781 tonnes. Recycling output volume was 849,435 tonnes, resulting in a total recycling capacity including net imports of 18.4 per cent.

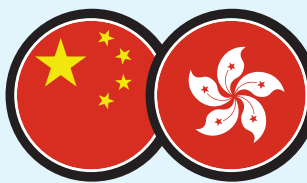
Turkey is a net importer of plastic waste, importing the equivalent of 16.9 per cent of the plastic waste it generates domestically. Net imports make up 78.7 per cent of Turkey's recycling output volume.⁴⁵ If Turkey did not import or export any plastic waste, its domestic recycling capacity would be 21.5 per cent.

Between 2010-20, Turkey was the fifth largest importer globally of plastic waste and was the second largest in 2020.⁴⁴ Unfortunately, a country-level breakdown of the

largest exporters to Turkey was not immediately available. In total, the EU exported 395 million kg to Turkey in 2021, accounting for 58 per cent of all plastic waste imported into Turkey.⁴⁵

"In Türkiye, I have witnessed the devastating impacts that plastic waste is having on the health of those exposed to it during processing. Many of Türkiye's most vulnerable people are suffering, in part, because the EU neglects to manage its own waste. The EU's policies of exporting plastic waste create serious threats to human rights in recipient countries such as Türkiye, including the rights to health, water, food and a healthy environment. It's time for the EU to take full responsibility for managing its own waste." – Krista Shennum, Human Rights Watch

"The Mediterranean coast of Türkiye is the most polluted coast in the entire Mediterranean Sea. Moreover, the most polluted coastal areas in Türkiye are located near Adana and Mersin. These two cities are a hub for imported plastic waste. Most of the plastic waste that ends up on those coasts is transported by Seyhan and Ceyhan Rivers, which are in the top five most polluting rivers in the Mediterranean Basin. Recycling activities, illegal dumping and open burning practices are happening alongside those two rivers. The export of waste to Türkiye feeds this pollution" – Sedat Gündoğdu, Cukurova University Türkiye



CHINA AND HONG KONG



Table 8:
Snapshot of Chinese/ Hong Kongese Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	40,229,460
Imported	104,270
Exported	31,224
Net Imports	73,046
Total plastic waste	40,302,506
Domestic recycling output	5,855,468

Historically, China has been the biggest (and almost sole) global importer of plastic waste.⁴⁶ In 2018, China brought into force its National Sword policy, effectively banning the import of untreated plastic waste to mainland China. Hong Kong, however, has fewer restrictions in place on the import of certain plastic wastes.⁴⁷

Data on plastic waste generated and domestic recycling capacity could not be separated for China and Hong Kong. Given this, it cannot be ascertained whether Hong Kong is a net importer or exporter of plastic waste, nor how much of its net imports account for its recycling capacity.

China and Hong Kong were the fifth largest importer of plastic waste in 2020.⁴⁸ It is important to note that China is still importing plastic waste under the sole generic plastic waste code 3915; this is likely “treated”

plastic waste that has been washed, flaked or pelletised and could be deemed as “secondary raw material” given their current importing restrictions. The top five countries sending plastic waste to Hong Kong were Malaysia, the USA, the Philippines, Other Asia and the United Republic of Tanzania. Germany, the Netherlands, France and Belgium were the sixth, 7th, 11th and 13th largest exporters to Hong Kong, respectively.

“Now that China has implemented a total ban on solid waste imports, we are cheerful to see positive changes are taking place in China: highly polluting low-end recycling companies are being closed down and the recycling industry is moving towards higher technology, higher management, higher product quality and higher environmental standards, which give us back a cleaner environment; Meanwhile, the China government has also highly accelerated the implementation of domestic garbage segregation system. As a city resident, I am excited to see the progress of garbage segregation in the past years. A year ago, there was little garbage classification in my city, but now we can see garbage segregation running very well everywhere. This change is closely related to the fact that we no longer need to deal with the solid waste imported in the past. I hope this positive change should happen in other parts of the world.” – Shania Zheng, Plastic Free China

Above: Domestic waste segregation collection points in Guangzhou city, China. By increasing recycling capacity for domestically generated plastic waste, there will be a resulting increased demand for domestically generated plastic waste, potentially driving an increase in collection and sorting recycling infrastructure.



Changing trends and potential European destinations in the future

Major EU exporting countries not only ship plastic waste outside of the Union for recycling, they also trade plastic waste between themselves as well as other EU Member States for recovery and disposal.

Regardless of the exact outcome of the revision of the EU Waste Shipment Regulation, it is clear that there is desire to put in place further protective restrictions on extra-EU exports while measures facilitating intra-EU shipments will be created, presumably to increase recycling of plastic waste within the EU.

However, the power dynamics occurring globally within the plastic waste trade (namely Global North exporters exploiting Global South importers) occur internally within the Union and Europe as well. As more and more current destination countries for EU plastic waste put importing restrictions in place, richer Member States will find new and cheaper European destinations for their plastic waste, rendered cheaper as a result of vulnerable environmental policies and fewer enforcement resources, which results in recycling capacity displacement, illegality and mismanagement.^{xvi}

On the following page is a snapshot of some of these potentially growing recipient EU Member States, and one EU candidate European country. All are currently net importers and all have been grappling with increased levels of illicit waste trafficking, mismanagement and dumping.^{xvii}

In addition, the biggest plastic waste exporters to these countries currently are EU Member States and the UK. Bosnia and Herzegovina is particularly of concern, given its current recycling output volume is 3,340 tonnes only accounts for 51 per cent of total plastic waste net imports in terms of tonnage, which means a significant amount of plastic waste imported is dumped/disposed of immediately or as residuals rather than recycled. Not being an EU Member State means that, within current EU legislation, plastic waste destined for disposal is not allowed, unlike current EU regulations allowing for intra-EU shipments for recovery and disposal, and thus any shipments from the EU should be recovered.^{xviii}

Above: A fire at an illegal waste dump in Poland. There has been an increase in illegal plastic waste exports within the European Union as well, and so further safeguarding measures should be put in place for intra-EU waste shipments.



Figure 10:
Snapshot of Polish Plastic Waste and Recycling in 2021

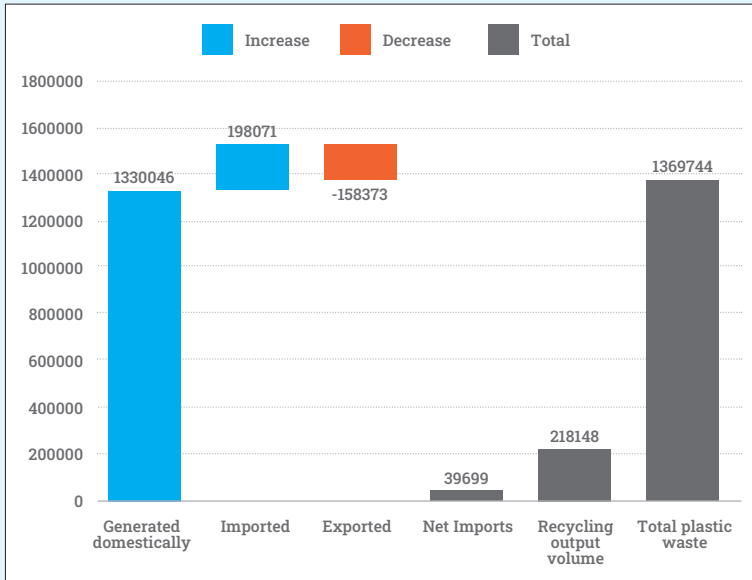


Table 9:
Snapshot of Polish Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	1,330,046
Imported	198,071
Exported	158,373
Net Imports	39,699
Total plastic waste	1,369,744
Domestic recycling output	218,148



Figure 11:
Snapshot of Bulgarian Plastic Waste and Recycling in 2021

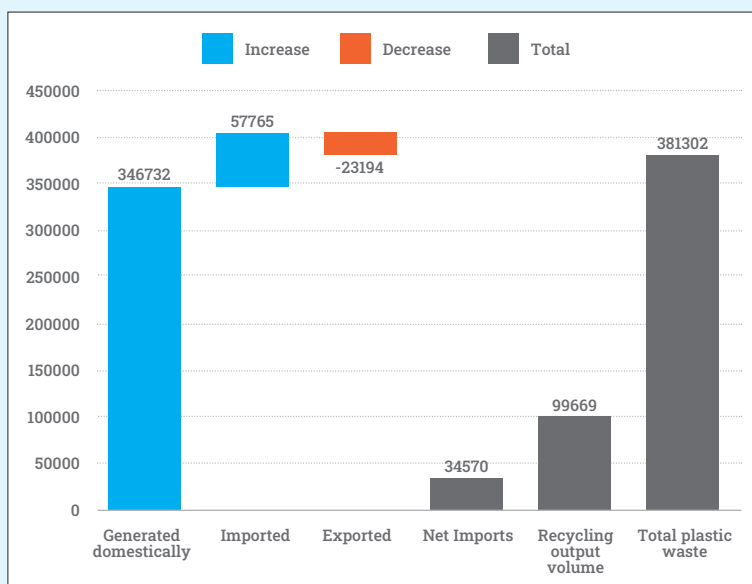


Table 10:
Snapshot of Bulgarian Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	346,732
Imported	57,765
Exported	23,194
Net Imports	34,570
Total plastic waste	381,302
Domestic recycling output	99,669



BOSNIA AND HERZEGOVINA

Figure 12:
Snapshot of Bosnia and Herzegovina Plastic Waste and Recycling in 2021

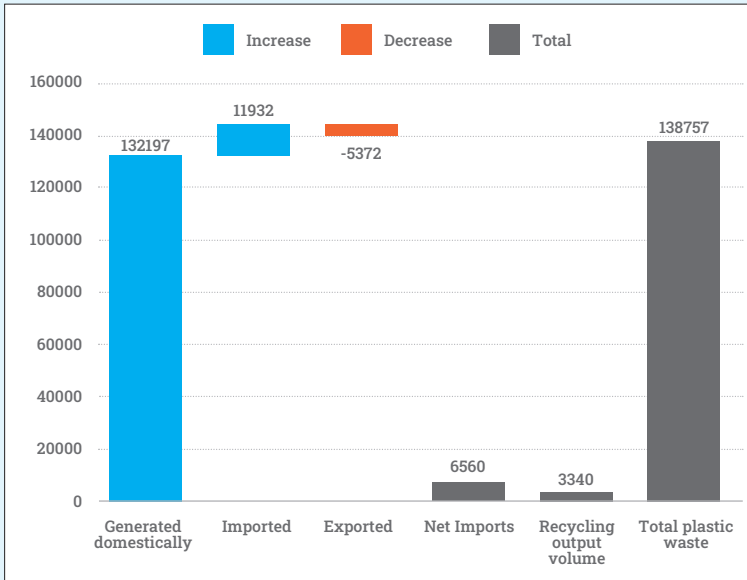


Table 11:
Snapshot of Bosnia and Herzegovina Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	132,197
Imported	11,932
Exported	5,372
Net Imports	6,560
Total plastic waste	138,757
Domestic recycling output	3,340



ROMANIA

Figure 13:
Snapshot of Romanian Plastic Waste and Recycling in 2021

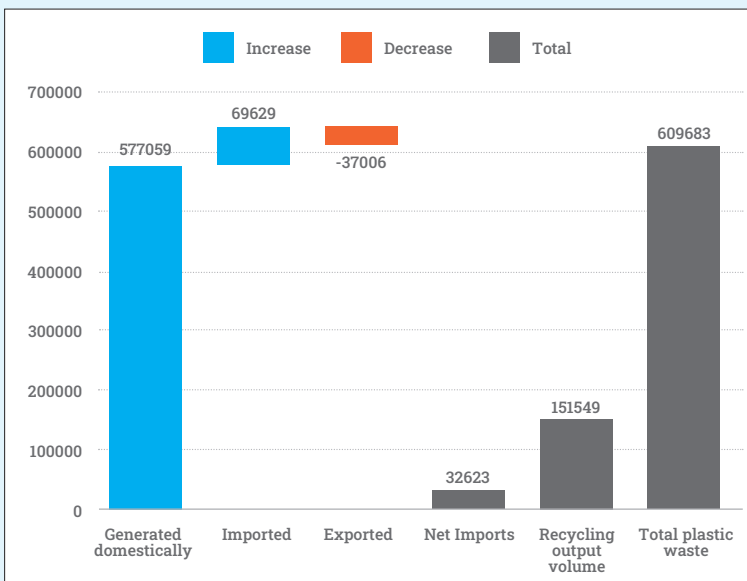


Table 12:
Snapshot of Romanian Plastic Waste and Recycling in 2021

Metric	Tonnes
Generated domestically	577,060
Imported	69,629
Exported	37,006
Net Imports	32,623
Total plastic waste	609,683
Domestic recycling output	151,549

Analysis

What is immediately evident is that total recycling capacity analysed underscores the recent OECD findings, whereby overall recycling capacities (and thus how much plastic waste is actually recycled) are low.⁴⁹

What is immediately evident is that total recycling capacity analysed underscores the recent OECD findings, whereby overall recycling capacities (and thus how much plastic waste is actually recycled) are low.

Additionally, unlike major EU exporting countries (with the potential exception of the Netherlands), major recipients of EU plastic waste (Malaysia, Vietnam and Turkey in this case) have a significant amount of their recycling capacity taken up by plastic waste imports (Figure 14). Without any net imports, they would simply have greater capacity to recycle domestically generated plastic waste (Figure 15).^{xix}

The EU has also outlined it seeks to continue to support the improvement of waste management infrastructure

in third countries, which is of imperative importance.⁵⁰ However, it cannot do so without also stopping the export of its plastic waste and overburdening those systems, which also allows the externalisation of current production patterns.

It is crucial to note that there are multiple issues with the plastic waste trade, not simply a lack of recycling capacity or its subsequent displacement of domestic collection, sorting and recycling demand in recipient countries. Thus, solutions cannot be focused on increasing recycling capacity in current recipient countries in order to justify continued plastic waste exports.

Figure 14: Domestic recycling output volume vs. plastic waste recycling imports, exports and net imports (metric tonnes)

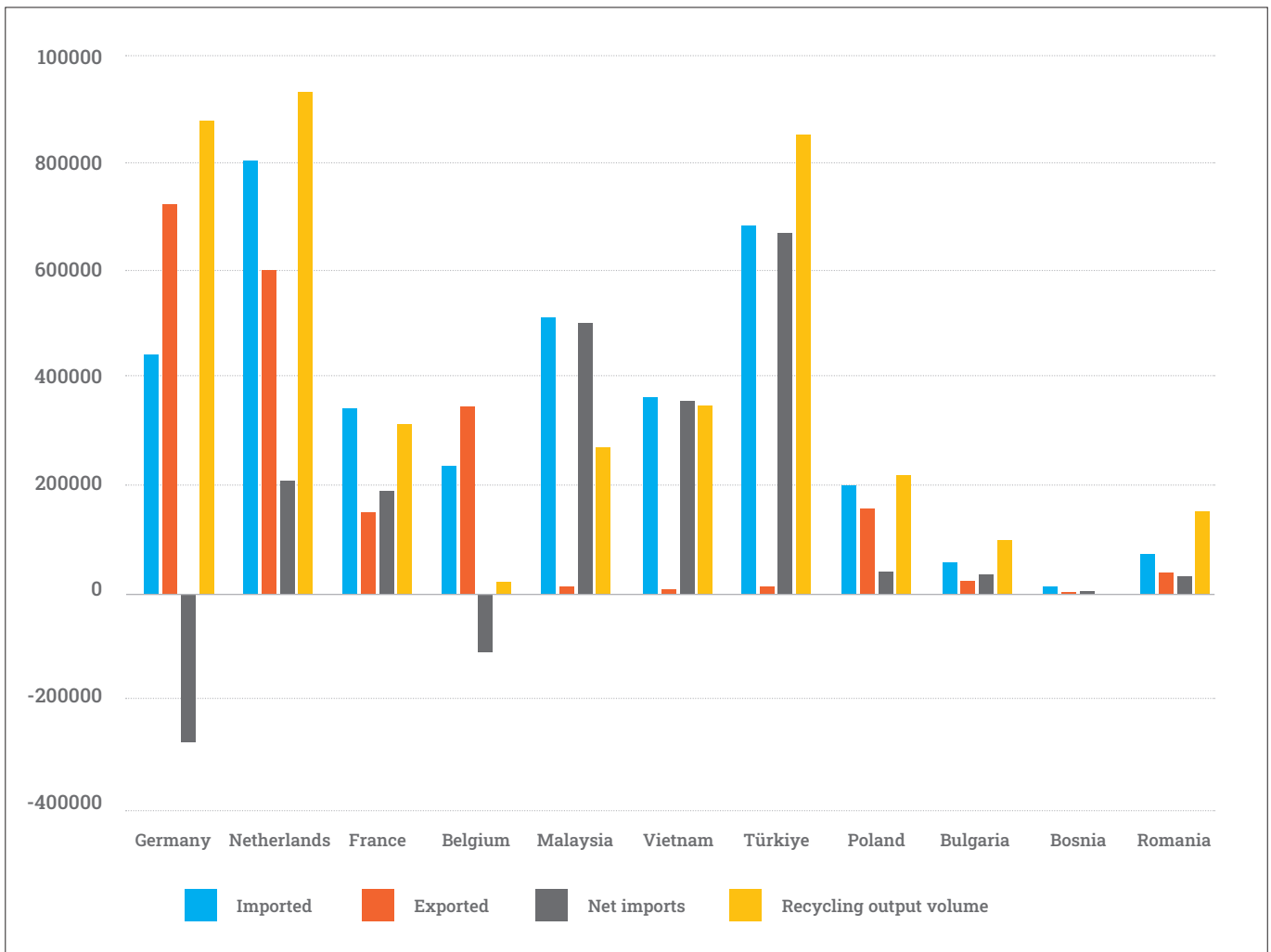
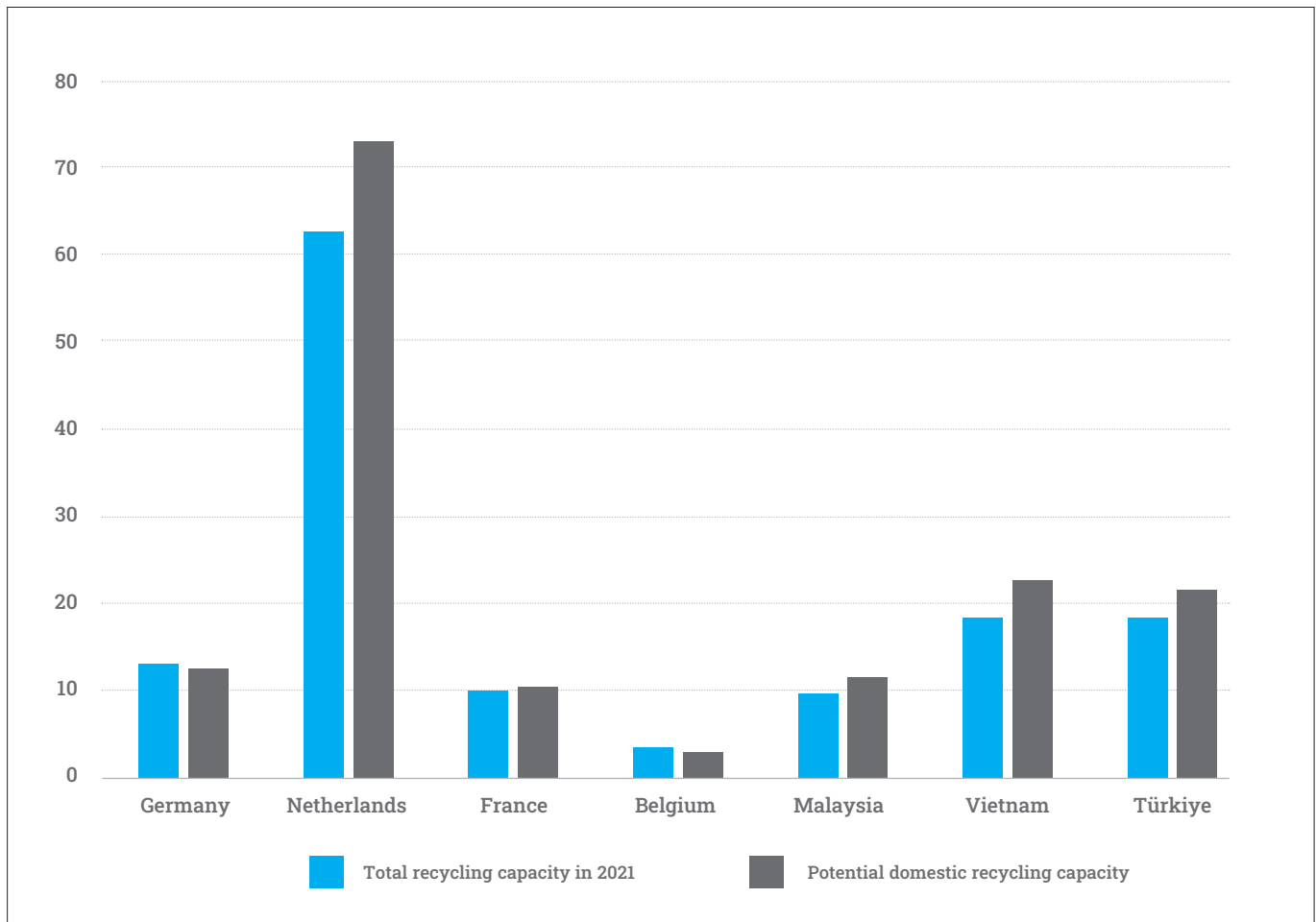


Figure 15: The per cent of total recycling capacity in 2021 (including net imports) vs. the potential domestic recycling capacity of a country without any imports or exports. All major recipient countries analysed would have more capacity to recycle their own plastic waste.



The global rate of recycling development since 1990, in proportion to other end-of-life options, has not been hugely significant. Furthermore, fundamentally, the plastic waste trade creates environmental, social and human health harm, in addition to legal trade channels being heavily exploited by waste criminals, further exacerbating the issue.

The practices inherent in this trade mask the scale of exploitation currently undertaken by high-income, high-consuming countries such as the EU, UK, US and Japan, which continue to be the highest consumers of plastic,^{xx} export their plastic waste legally and illegally for others to bear the brunt while at the same time subsequently claiming higher recycling rates due to taking up the recycling capacity of recipient countries.⁵¹

Moreover, this practice has involved major exporters retaining higher-quality plastic waste in their own territories so they can reap the benefits of operational circular economy while shipping poorer quality plastic waste abroad which, as a consequence of its poor quality, renders it more vulnerable to mismanagement and illegal dumping.⁵²

This is an environmental justice issue and a form of waste colonialism

Global^{xxi} and national regulatory trends are abundantly clear. Since 2018 (after China’s National Sword policy came into force), major recipient countries have started putting in place import restrictions to protect themselves since becoming newly targeted plastic waste destinations.⁵³ Actions include mandated contamination limits,⁵⁴ which serve to increase the quality of waste feedstock, although poor inspection rates mean these may not necessarily be respected at scale.⁵⁵

Without an EU export ban, the illegal trade of plastic waste also continues to be facilitated and new destination countries will be continuously targeted, including current and future EU Member States.⁵⁶ As a consequence, necessary safeguarding policy procedures are required both for the extra- and intra-EU shipments of plastic waste.

The review of the WSR seeks to “... aim at restricting exports of waste that have harmful environmental and health impacts in third countries or can be treated domestically within the EU by focusing on countries of



destination, problematic waste streams, types of waste operations that are source of concern, and enforcement to counteract illegal shipments.⁵⁷

The need for a complete restriction of plastic waste exports from the EU has been well documented. However, a plastic waste export ban should not give rise to false solutions within the EU, such as increasing the incineration of plastics,⁵⁸ including with energy recovery, as co-incineration in cement kilns or industrial boilers or investments in chemical recycling. On the contrary, this shift should be capitalised and act as an incentive to heighten a reduction of plastic produced, consumed and wasted, prioritising the elimination of particularly problematic, hard-to-recycle plastics and non-essential single-use plastics, in addition to the promotion of product eco-design and reuse systems.

A new international legally binding instrument to end plastic pollution (known as the Global Plastics Treaty) will be forthcoming in 2025 and can start to address the primary lifecycle issues that drive the plastic waste trade, namely by tackling high levels of production and consumption of plastics at a global scale while putting in place measures to facilitate reduction, polymer restrictions, redesign, reuse and repair.

However, action on the plastic waste trade goes hand in hand as part of a comprehensive approach and regional and national level action is crucial. Ultimately, it is for the EU to take responsibility for the treatment of its plastic waste, especially given the historic and current scale of the issue.

Above: Waste leaked into a river in the rural Thai Binh province, Vietnam. Many countries around the world suffer from high rates of plastic waste mismanagement and pollution. Increasing recycling capacity, and thus demand for domestic plastic waste feedstock, will help in redirecting plastic waste from polluting the environment.

Recommendations

Since the export of plastic waste clearly goes against the WSR's aim due to its multiple negative impacts, even more so if also accounting for recycling capacity displacement as outlined within this report, adequate policy measures should be put in place. Therefore, in the upcoming revision of the WSR, it is necessary for the EU to:⁵⁹

1. Ban plastic waste exports outside of the EU and European Free Trade Association (EFTA)
2. Enact necessary safeguards within the EU, this includes:
 - a) fully implementing the Basel Convention within the EU, namely the plastic waste amendments and Prior Informed Consent requirements of any non-B3011 plastic wastes
 - b) establishing a clear distinction between mechanical recycling and any other kind of recovery for treatment operations
 - c) setting a European-wide threshold for waste contamination of 0.5 per cent
 - d) ensuring publicly accessible waste trade data.

Notes

- i. Namely, hazardous wastes or wastes requiring special consideration
- ii. to try to retain some value and circularity for the materials in the economy
- iii. The plastic economy has always been principally linear and thus dependent on new, not a fixed amount of reused or recycled, resin
- iv. and thus, domestic plastic waste feedstock demand for recycling
- v. Plastic overproduction, limitations with collection, as well as current technical, infrastructure and market limitations for poorly designed plastic products placed on the market and their recycling make it unlikely that a high global recycling rate can be attained.
- vi. This is a result of incredibly high levels of plastic consumption, the creation of plastic products that are inherently unrecyclable, and subsequent insufficient mechanical recycling infrastructure and capacity.
- vii. For instance, incineration with energy recovery and the combustion of Refuse-Derived Fuel create toxic and greenhouse gas emissions and hazardous ash waste replete with microplastics. Recently more attention has been afforded to chemical or so-called 'advanced' "recycling" as a potential answer to poorly designed and hard-to-recycle plastic products, however research suggests that it is not without its own high energy consumption or environmental impacts and is unlikely to become economically or environmentally sound.
- viii. In addition to the contamination and pollution their use brings (including microplastics, toxicity or mismanagement)
- ix. i.e., the volume of plastic recyclate output after recycling a country has operational capacity to produce
- x. Global data on domestic incineration, landfilling and mismanagement levels of plastic waste were not immediately available and so were not included in this analysis. However, a global breakdown has been provided in Section 2 of this report to provide a top-line overview of current rates.
- xi. ICIS reporting industry provided data on total recycling facility output volumes at the national level. Data was cross-checked with other relevant sources where possible.
- xii. Please note that current energy price shifts in 2022 mean that 2021 operational recycling capacities may not reflect current 2022 conditions
- xiii. In certain instances, this was corrected to reflect inaccuracies or updated. It was also decided not to report self-declared total installed capacity of facilities, given these are theoretical measures and subsequently not an actual depiction of current operational recycling capacities. Input volume data was not available, and in any case, would not account for plastic waste disposed of as residuals or mismanaged (which is therefore technically not recycled).
- xiv. It is important to note that we believe some facility double counting has taken place, given certain Dutch companies operate across national borders.
- xv. Assuming a 100 per cent recycling rate, which is not the case, but unfortunately residual rate data was not available.
- xvi. Furthermore, the current Waste Shipment Regulation's exception to the new Basel Plastic Waste listings is a derogation, not allowed by the Basel Convention's rules against unilateral reservations (Article 26,1) and (Article 11, 1). The latter requiring that all special agreements between countries on waste trade "stipulate provisions which are not less environmentally sound than those provided for by the Convention." Clearly calling for no controls on the new Y48 (mixed plastic waste) Plastic listing in Basel, rather than prior informed consent (PIC) controls now expected from Basel is less environmentally sound.
- xvii. For Poland this includes examples here and here, for Bulgaria this includes examples from here and here, for Bosnia and Herzegovina this includes examples here, and for Romania this includes examples here.
- xviii. Under current EU law, intra-EU waste shipments for disposal are allowed, the Commission proposal seeks to change this
- xix. With the assumption that plastic placed on the market in these countries is in turn recyclable.
- xx. For example, if looking at 2021 domestic plastic generation in terms of tonnage vs. 2021 population, major exporting countries (Germany, Netherlands, France, Belgium) produced an average 66 kg/pp of plastic waste, major importing countries (Malaysia, Vietnam, and Türkiye) produced an average of 36 kg/pp of plastic waste and potentially targeted European countries in the future (Poland, Bulgaria, Bosnia and Herzegovina and Romania) produced an average of 36 kg/pp of plastic waste.
- xxi. The aforementioned step by the Basel Convention to begin controlling the export of plastic waste beginning in 2021 was supported by all developing countries.

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waste that have harmful environmental and health impacts in third countries or can be treated domestically within the EU by focusing on countries of destination, problematic waste streams, types of waste operations that are source of concern, and enforcement to counteract illegal shipments. The Commission will also support measures at multilateral, regional and bilateral levels to combat environmental crime notably in the areas of illegal exports and illicit trafficking, strengthen controls of shipments of waste, and improve the sustainable management of waste in these countries." From European Union (July 2020) Circular Economy Action Plan. [Available here](#).

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