



**GLOBAL  
INITIATIVE**

AGAINST TRANSNATIONAL  
ORGANIZED CRIME

# PLASTIC FOR PROFIT

Tracing illicit plastic  
waste flows, supply  
chains and actors

VIRGINIA COMOLLI

NOVEMBER 2021







# PLASTIC FOR PROFIT

*Tracing illicit plastic waste flows,  
supply chains and actors*

VIRGINIA COMOLLI

November 2021

## ACKNOWLEDGEMENTS

The author wishes to thank Willie Wilson for his advice and support with stakeholder mapping throughout the project, Linh Tran Phuong Dang for helping with research and data collection, and many individuals and organizations that have shared their knowledge, including INTERPOL's Pollution Crime Working Group; the environmental agencies of the United Kingdom, Zambia, Ghana and South Africa; the Environment and Natural Resources Division at the United States Department of Justice; Jan Dell (The Last Beach Cleanup); Nina van Toulon (Indonesia Waste Platform/International Waste Platform); Sedat Gündoğdu (Cukurova University) and Yuyun Ismawati (Nexus 3 Foundation); Mouli Venkatesan and Friedor Jeske (Thant Myanmar); Ali Syed (Pakistan Waste Platform); Prigi Arisandi (Ecoton Indonesia); Ieva Rucevska (GRID-Arendal); Ram Kumar (GSR Environmental Consultancy), and many others that for safety reasons have requested to remain anonymous.

The author would also like to thank Mark Shaw and Louise Taylor at the Global Initiative Against Transnational Organized Crime (GI-TOC), as well as the GI-TOC Publications team.

The report was made possible with funding provided by the government of Norway.

## ABOUT THE AUTHOR

Virginia Comolli is the research manager for the GI-TOC programme 'Anticipating and disrupting environmental crime in the globalized economy', which focuses on South East Asia and central and East Africa. Before joining the GI-TOC, she was head of the Conflict, Security and Development programme at the International Institute for Strategic Studies.

© 2021 Global Initiative Against Transnational Organized Crime.  
All rights reserved.

No part of this publication may be reproduced or transmitted  
in any form or by any means without permission in writing from  
the Global Initiative.

Cover: A wave carrying plastic waste and other rubbish washes up  
on a beach in Koh Samui in the Gulf of Thailand.

© Mladen Antonov/AFP via Getty Images

Cartography: Liezel Bohdanowicz

Please direct inquiries to:

The Global Initiative Against Transnational Organized Crime  
Avenue de France 23  
Geneva, CH-1202  
Switzerland

[www.globalinitiative.net](http://www.globalinitiative.net)



# CONTENTS

|   |           |
|---|-----------|
| <b>Executive summary</b> .....                                | <b>1</b>  |
| Methodology.....  | 2         |
| <b>Introduction: Waste colonialism and exploitation</b> ..... | <b>3</b>  |
| <b>Legal framework</b> .....                                  | <b>6</b>  |
| International conventions.....                                | 7         |
| China's 'National Sword' policy.....                          | 10        |
| Other national-level bans and the trend in U-turns.....       | 12        |
| <b>Human and environmental harm</b> .....                     | <b>14</b> |
| <b>Tracing the flows</b> .....                                | <b>18</b> |
| The in-betweens.....  | 21        |
| <b>Methods and actors along the supply chain</b> .....        | <b>24</b> |
| Brokers.....  | 25        |
| Transport.....  | 28        |
| Customs and border control.....                               | 28        |
| Misdeclaration.....   | 29        |
| Concealment.....  | 29        |
| Recycling and other companies.....                            | 30        |
| The 'professional' criminals.....                             | 32        |
| <b>Conclusions and recommendations</b> .....                  | <b>35</b> |
| Notes.....  | 38        |

# ACRONYMS AND ABBREVIATIONS

|      |  |
|------|--|
| HDPE | high-density polyethylene                              |
| HS   | Harmonized System                                      |
| LDPE | low-density polyethylene                               |
| OECD | Organisation for Economic Co-operation and Development |
| PERN | packaging waste export recovery note                   |
| PET  | polyethylene terephthalate                             |
| PS   | polystyrene  |
| PVC  | polyvinyl chloride                                     |
| TFS  | transfrontier shipment                                 |



Sea turtle in water surrounded by plastic waste.

© SeaTops via Getty Images






# EXECUTIVE SUMMARY

Workers at an industrial waste treatment facility, Yokohama, Kanagawa, Japan.

© Digital Vision via Getty Images





**T**he shipping of different types of waste from Western countries to Asia and Africa has been an ongoing phenomenon since the 1970s. In fact, ever-growing waste production in Europe and North America, coupled with very limited waste-disposal capacity, has now made the export of waste a necessity. This has highlighted a great power imbalance in what has been labelled 'waste colonialism'.

In 2018, tired of being used as a dumping ground for nearly half of the world's waste, China introduced an import ban that sent shock waves across the recycling world and prompted the redirection of waste flows. Now, South East Asia has become by far the largest recipient of waste from Europe and North America as well as from Australia. In addition, the role of African countries as receiving destinations is growing for both the North American and European waste trade, often coinciding with well-established electronic waste (e-waste) flows, which encompasses products such as computers, televisions and mobile phones.

Countries that are not part of the Organisation for Economic Co-operation and Development (OECD) have come under pressure to accept plastic waste that, once processed, becomes raw material to be sold to manufacturing companies. However, many of these receiving countries only possess basic recycling facilities and therefore are unable to process mixed or hazardous waste, which is eventually dumped or burnt.

The health and environmental harm caused by these practices is enormous. Once released into the environment, plastics (and the fumes generated through their burning) pollute soil, water and air, poison food production and are the cause of a myriad of severe health conditions. The populations of developing and emerging economies in Africa and Asia are the most affected, and workers in those countries have to contend with unsanitary and exploitative working conditions in sorting and recycling plants.

Cognisant of these shortcomings, multiple legal tools – including import bans – have been adopted at the international, regional and national levels to stem the flow of hazardous plastic waste to countries that lack the facilities to safely dispose of it. Yet, in order to maximize their profits, legitimate recycling companies and waste brokers have engaged in the misdeclaration of the content of containers and their origin; the concealment of illicit waste among other goods; illegal dumping and incineration; and money laundering and corruption to circumvent import and export bans and regulations.

Tracing the global illicit flows of plastic waste highlights the existence of many players along the supply chain, from North America and Europe to Africa and Asia, often with stops in other parts of the world such as Turkey or eastern Europe. In addition to traditional waste-sector actors, corrupt officials and accommodating shipping companies are involved in this business. Powerful trade representatives and business associations are also known for lobbying governments to allow the import of waste and implement less stringent regulations.

Although legitimate business operators represent the majority of the culprits, there is evidence of organized criminal groups' involvement in illicit waste disposal for the purpose of money laundering and tax evasion. In some cases, illicit trade in plastic waste may also converge with the trafficking of other illicit commodities.

The transnational illicit trade in plastic waste poses serious criminal, environmental and health risks, and holds communities back from achieving environmental justice. Given the increasing degree of illegality in the waste trade, the constant diversification of illicit trade routes and the sophistication of the business operations that make illegal waste trade possible, a multi-pronged approach across jurisdictions and sectors is needed and should capitalize on existing

efforts. A networked or taskforce approach is crucial to effectively tackle this form of criminality and associated risks at the national and international level. Some steps have been taken, successfully, and further action should be prioritized. In particular, the following interventions are recommended on the basis of this report's findings:

- No country, environmental regulator or law enforcement agency can shoulder the challenge alone – engagement with the private sector is essential.
- It is important to support the private sector and build international capacity to work with relevant private-sector groups to share assessments and best practices.
- Industry can guide law enforcement and help identify red flags that point to criminal vulnerabilities.
- Collaborating with non-governmental actors, including investigative journalists, could help enforcement agencies combat the illicit trade in plastic waste.
- Looking to the future, the digitalization of waste collection and management could be a game changer, replacing today's easy-to-manipulate paperwork, and even improve the lives of informal workers.

## Methodology

This report analyzes the illicit trade in plastic waste, mapping the flows, key nodes, the methods employed to move plastic waste internationally (especially to South East Asia and Africa) and the actors involved. In doing so, it aims to identify countries at risk of becoming key recipients of illicit plastic waste in the near future.

In addition to a review of open-source literature, the report has been shaped by interviews with environmental agencies and other government and law enforcement authorities from Europe, the United States, Africa and South East Asia; civil society groups; investigative journalists; industry specialists and other relevant experts.


Through this process, the Global Initiative Against Transnational Organized Crime (GI-TOC) was able to collect information on past and ongoing investigations as well as photographic evidence of illegal dumping and recycling facilities. Although the GI-TOC is not able to publish some of this information out of concern for the safety of the people interviewed and for legal reasons, it was crucial to inform our understanding of the illicit flows, actors and patterns of behaviour.





# INTRODUCTION: WASTE COLONIALISM AND EXPLOITATION

Recycling bins at Sennen Cove, Cornwall, UK. Although many European countries have advanced recycling facilities, they cannot handle all of the waste produced domestically.  
© Ashley Cooper via Getty Images



‘Plastic in the red bin, paper in the blue one, food waste in the green box’ ... the list goes on. The colours might differ from country to country, but many will be familiar with the process of sorting waste and trying to ‘do the right thing’ by correctly recycling the mountain of rubbish that we collectively produce every day while waging a war on plastic straws, carrier bags and other single-use items.

So how does the packaging from, for example, a British supermarket end up dumped by the roadside in southern Turkey or next to a plantation in Malaysia?<sup>1</sup> The sad truth is that only a small proportion of all waste is recycled – less than 20% in the case of plastic<sup>2</sup> – and even what we think is headed to recycling plants often never even makes it there.

Globally, and with the West in the driving seat, we are generating around 2 billion metric tonnes of waste annually, of which only about 13.5% gets recycled.<sup>3</sup> Even before the COVID-19 pandemic and the increase in the use of personal protective equipment and other disposable items, waste production was on the rise, with the World Bank estimating a possible 70% increase by 2050.<sup>4</sup>

In Europe and North America, the regions producing the most waste,<sup>5</sup> disposal capacity is minimal and there is little in the way of incentives to open new domestic recycling plants. As such, for a long time, the solution has been to ship waste abroad. That, provided it is done with adherence to existing legislation, is an entirely legitimate operation. However, like all other highly lucrative businesses, waste management has long attracted the attention of criminals and of legitimate business operators adopting fraudulent practices such as misdeclaring the content of containers, money laundering, financial crime and corruption to maximize their profits. Given that the value of the global recycled-plastics market alone is expected to reach US\$50.4 billion by 2022 (up from US\$35 billion in 2016), the temptation to get a slice of the market is, for some, clearly too hard to resist.<sup>6</sup>

These trends have been developing over decades. By the 1980s, Italian mafias had already consolidated their involvement in the waste sector, seizing what turned out to be a golden opportunity. Although the international dimension was already present (crime groups would import waste from countries like Bulgaria, Germany and Australia and export it to Ghana or Egypt), operations were closely linked to the Italian business sector<sup>7</sup> and had a strong local, and sometimes city-level, connection.<sup>8</sup> Over time, the



illegal waste trade became more international, growing to the levels seen today.

The issues facing recipient regions go beyond fraud, criminal infiltration or corruption. This form of 'waste colonialism' poses a danger not only to the environment but also to the health of millions of people. As a result, the illicit trade in plastic waste is now recognized as a growing challenge for both law enforcement and the environment. Although it might not be the first thing that comes to mind when picturing organized criminal activities, the nature of the illegal trade in waste products squarely fits the criteria of the various definitions of organized crime currently used around the world.



## The impact of the COVID-19 pandemic

The COVID-19 pandemic has prompted a sharp rise in the consumption of single-use plastic, from medical equipment to takeaway food packaging, which has not been matched by increased recycling capacity. At the peak of the pandemic in 2020, the US produced a year's worth of plastic waste in just two months.<sup>9</sup> And in Thailand, generation of plastic waste jumped by 50% following the outbreak, with food-delivery packaging representing a sizeable share.<sup>10</sup>

Meanwhile, as the pandemic took hold, the recycling sector was affected by disruptions, staff shortages and a deprioritization of recycling. This was the case even in countries that have at their disposal highly sophisticated recycling programmes (albeit very few of them), such as those in the EU.<sup>11</sup>

Shockingly, but perhaps not surprisingly, the world registered a 280% increase in illegal plastic-waste disposal in 2020, with countries such as the UK seeing a 300% increase in so-called fly-tipping (illegally dumped household waste in roads, fields, rivers, etc.)<sup>12</sup> In South East Asia, reports indicate the emergence of a new illegal trade in medical-waste equipment in Myanmar involving the illegal collection and processing of blood bags, used syringes and breathing tubes – considered hazardous waste – that was collected, cleaned and then sold to producers of plastic pellets.<sup>13</sup>





# LEGAL FRAMEWORK

Indonesian officials check a loaded container with a combination of garbage, plastic waste and hazardous materials in violation of import rules.

© ANDARU/AFP via Getty Images





**B**efore delving into mapping plastic-waste flows, it is essential to understand how and when they become illegal. The legal frameworks that regulate the import and export of waste is evolving at the international, regional and national levels, and although this report does not set out to provide a legal analysis of the frameworks, highlighting the rules that regulate the trade in plastic waste is necessary to differentiate between legal and illegal practices. Contravening these regulations results in two types of illegal activities related to waste: illegal trade, which violates import or export bans; and illegal treatment, in the forms of illegal disposal, incineration or recycling.<sup>14</sup>

Briefly tracing the history and implementation of waste-control mechanisms serves an additional purpose: it sheds light over the wide disparities in attitude and treatment that exist between, on the one hand, Western countries seeking to dispose of their domestic waste and, on the other, those countries and regions that end up receiving plastic waste through illicit flows. These tensions are reflected in today's policy and trading environments.

## International conventions

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (henceforth 'the Basel Convention') was adopted in 1989 in response to international outcry over Africa and other developing regions being used as dumping grounds for foreign waste in the 1980s. Most shipments of plastic waste or scrap destined for disposal or recycling around the world are now controlled by the convention.<sup>15</sup> To date, 187 countries and the European Union (EU) are parties to it; notably, the US is not among them.

The convention is aimed at protecting human health and the environment. Despite the seemingly uncontroversial objective, negotiations around its adoption highlighted the difference in stance between developing countries wanting a total ban on the international movement of hazardous waste (one of the types of waste covered by the convention, defined as containing substances that are harmful to people and/or the environment) and developed ones favouring a control system.<sup>16</sup>

*Export activities  
considered illegal  
in Europe are  
compliant with  
US legislation*

Dissatisfied with the outcome – the Basel Convention controlling rather than banning the movement of waste – the Organisation of African Unity (the precursor to the African Union) led the design and adoption of the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, which came into force in 1998 and prohibits all imports of hazardous waste. To date, only half of African countries are signatories. This limited number of parties is indicative of the challenge of securing political support for these tools.<sup>17</sup>

The history of the Basel Convention also illustrates this point. It was only after a 16-year political deadlock that an amendment to the Basel Convention was finally adopted in 2011 – coming into force in December 2019 – which prohibited the transboundary movement of hazardous waste from OECD countries, the EU and Liechtenstein to developing countries and those undergoing economic transition.<sup>18</sup>

Dealing with the ever-pressing issue of plastic waste led to the adoption of three further amendments to the convention's annexes relating to plastic, which became effective as of January 2021. The amendments do not amount to a ban on the cross-boundary movements of plastic waste; instead, they clarify what constitutes hazardous plastic under the convention, the control procedures for transboundary movements, the provisions around waste minimization and sound waste management.<sup>19</sup>

Taking a more stringent approach, the European Commission adopted a new set of rules in December 2020. EU countries can now only export to non-OECD destinations what is classified as 'clean plastic waste' for recycling and are banned from shipping hazardous or hard-to-recycle plastic waste to non-OECD countries. Those products can only be exported to OECD countries after authorization from both sending and receiving parties.<sup>20</sup>

Importantly, given that the trade of controlled plastic waste is only allowed between parties to the Basel Convention, countries such as the US need to have bilateral or multilateral agreements with party countries that meet certain convention requirements in order to engage in trading activities. For example, under the terms of bilateral agreements with Costa Rica, Malaysia and the Philippines, the US is allowed to receive hazardous waste for recycling or disposal from those countries but is forbidden from sending hazardous waste to those same destinations.<sup>21</sup>

The United States' position is particularly relevant to the discussion regarding the legality of plastic-waste flows. As a non-signatory to the convention, export activities that would be considered illegal in Europe are perfectly compliant with US legislation. Therefore, besides a lack of political interest in these issues at both the state and federal level, the other by-product of this setup is that the onus is on waste-receiving countries in Asia or other non-OECD countries to only accept waste that they are capable of processing. This creates an environment in which many waste brokers and recycling companies employ less than transparent methods to secure business, as will be discussed later in this report.



## Illegal traffic under the Basel Convention

Under the Basel Convention, 'illegal traffic' is defined as a transboundary movement of hazardous wastes

- without notification pursuant to the provisions of the Convention to all States concerned;
- without the consent of a State concerned;
- through consent obtained by falsification, misrepresentation or fraud;
- that does not conform in a material way with the documents; or
- that results in deliberate disposal (e.g. dumping) of hazardous wastes in contravention of the Convention and of general principles of international law

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989, <http://www.basel.int/Implementation/LegalMatters/IllegalTraffic/Overview/tabid/3421/Default.aspx>.

Dump truck unloading waste in a landfill.

© Halfpoint Images/Moment via Getty Images





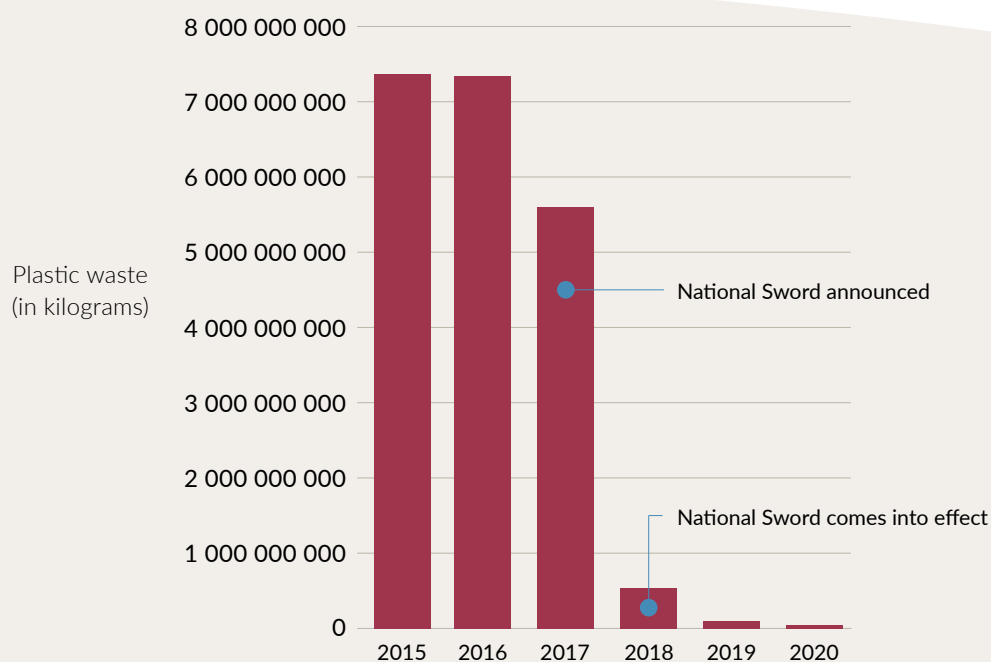
## China's 'National Sword' policy

Of all measures implemented at the national level to regulate plastic-waste flows, none has had greater reverberations than China's 'National Sword' policy, introduced in 2018. The policy is the Chinese government's weapon to stop the country from becoming a landfill for nations that export contaminated and hazardous waste, along with plastic.<sup>22</sup> It does so by banning the importation of 24 types of solid-waste materials and imposing strict limits on the levels of contamination of recyclable materials imported into China.<sup>23</sup>

Included among the banned products are eight categories of plastic waste including waste made from low-density polyethylene (LDPE), high-density polyethylene (HDPE), polyvinyl chloride (PVC), polyethylene terephthalate (PET) and polystyrene (PS). These are among the most commonly used plastics in the world; they are what constitute widely used items such as plastic bags, plastic cutlery, takeaway food containers, shampoo bottles and many others.

The ban was a game changer for the recycling industry. Until 2017, China had been the largest recipient of waste in the world (approximately 45% of global imports) and the number one consumer of recyclable materials on the planet.<sup>24</sup> The EU had been sending 85% of its plastic waste to China, and the US over 50%.<sup>25</sup> In 2018 those exports dropped, respectively, by 40% and 20%.<sup>26</sup>

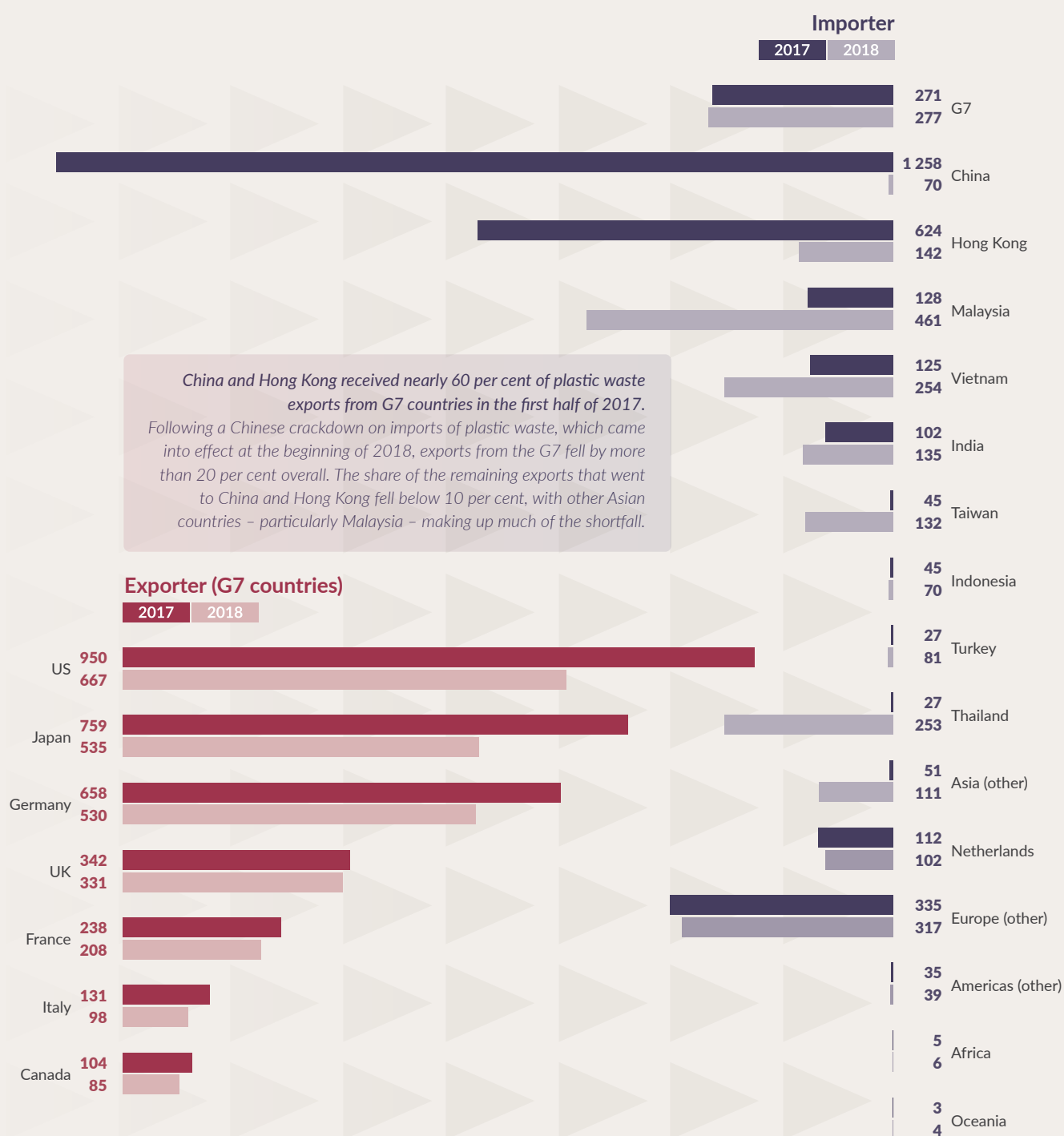
The domino effect of this was immense. As a result of the ban, countries such as Malaysia, Indonesia and the Philippines, along with many others, became the new recycling destinations for most North American and European plastic waste, despite the fact they often lacked adequate disposal facilities and sufficient law enforcement capacity. Coupled with other domestic factors, this combination propelled illegal recycling practices.



**FIGURE 1** China imports of plastic waste (in kilograms).

SOURCE: China Customs, 2021.





**FIGURE 2** How the global river of plastics waste changed course in just 12 months.

Exports of plastic waste, parings and scrap from G7 countries (1 000 tonnes)

SOURCE: Region groupings UN Statistics Division M49 standard. Data accessed 19 September–1 October 2018.  
 US Census Bureau; Japan e-Stat; Eurostat; Statistics Canada © *Financial Times*

## Other national-level bans and the trend in U-turns

To counter the negative effects of increased plastic imports following the introduction of China's ban, many Asian countries (and also Turkey and some African nations) introduced their own import bans to safeguard the environment and their communities, and began repatriating unwanted containers full of waste.

However, the adoption and implementation of these bans has been questionable, and there are cases in which countries performed U-turns by delaying or scrapping bans so as not to lose the business opportunities that come with waste processing. Many have found themselves having to choose between either preserving the environment and their citizens' health or generating revenue and employment.

For example, in July 2021, largely compelled by a Greenpeace investigation that uncovered that most imported plastic waste was not recycled, Turkey introduced a ban on the imports of PET, HDPE and LDPE plastics. However, in less than two weeks, PET was removed from the list of banned imports.<sup>27</sup> The move was symptomatic of the tensions between the country's ministry of environment wanting a total ban and the ministry of trade advocating for openness, and is the by-product of the narrative that, at times of financial crisis, waste management and processing are needed to generate revenue.<sup>28</sup>

In Thailand, plans to ban imports of plastic waste by September 2020 were postponed



An illegal waste site in Turkey. There are many such sites in the country that receive tons of illegally dumped waste.

© NurPhoto via Getty Images



by five years, with critics arguing that this was aimed at securing a steady flow of waste needed to feed Thailand's recycling industry, driven by an ever-growing number of Chinese companies.<sup>29</sup>

Following a 2019 ban on all waste imports, Indonesia also softened its stance. The year after, the government allowed the imports of plastic (and paper) waste with contamination levels of up to 2%.<sup>30</sup> This particular case highlights the role of one particular set of actors: trade associations. The US Institute of Scrap Recycling Industries (ISRI) openly lobbied for the continuation of imports of a number of waste materials.<sup>31</sup> An industry specialist told the GI-TOC that, in addition to its lobbying power and influence over the Indonesian government, ISRI trains the company responsible for pre-shipment inspections of cargo bound for Indonesia, which, one might argue, amounts to a conflict of interest.<sup>32</sup>

Kenyan environmentalists also voiced their fears of industry representatives exerting undue influence on government decision-making. In 2020, the American Chemistry Council, representing major oil companies, lobbied the US government to shape the terms of the planned US–Kenya trade deal (the first between the US and a sub-Saharan African country) in order to 'prohibit the imposition of domestic limits on "production or consumption of chemicals and plastic" and on their cross-border trade'.<sup>33</sup> If these requests are met, Kenya – which has the strictest ban on single-use plastics in the world<sup>34</sup> – could become the main hub for the distribution of US-made plastic in the continent.<sup>35</sup>




# HUMAN AND ENVIRONMENTAL HARM

Burning waste at a dumpsite in Penang, Malaysia. Much of the waste that is exported for recycling to South East Asia is often burned or dumped.

© Jordan Lye/Moment via Getty Images





**T**he degree to which the illicit trade in plastic waste severely undermines both the natural environment and human health and safety is alarming. As discussions around 'ecocide' and its possible addition to the crimes prosecuted by the International Criminal Court are becoming more prominent, highlighting the harms of the illegal waste trade could not be more timely.<sup>36</sup>

Plastic waste that is dumped by roadsides, fields, homes and forests, or that ends up in rivers, irrigation canals and seas, pollutes the environment, harms flora and fauna and negatively impacts food production. Even when waste is dumped in contained areas, it can end up elsewhere – for instance, heavy rains might result in waste being washed into rivers. A study published in 2015 found that just four Asian countries (China, Indonesia, the Philippines and Vietnam) account for about half of the plastic waste that flows into the ocean.<sup>37</sup> Another study from 2017 estimated that 90% of plastic found in the ocean washed in from just 10 rivers – eight in Asia and two in Africa.<sup>38</sup> All this waste eventually feeds the five infamous garbage patches that float in our oceans, of which the so-called Great Pacific Garbage Patch is the largest, with an estimated surface area three times that of France.<sup>39</sup>

Aside from dumping, in a number of receiving countries – for example in Indonesia or Malaysia<sup>40</sup> – it has become common practice to burn illicit waste as a method of disposal. Burning happens informally in backyards or next to a field, as well as within recycling plants lacking permits. This practice is harmful both to the environment, as it releases toxic gases into the atmosphere, and to human health, increasing the risk of heart disease and aggravating respiratory ailments such as asthma, among other hazards.<sup>41</sup> In addition to air pollution and respiratory problems, the ashes are also damaging and can be blown into fields and contaminate crops. In places such as Indonesia, villagers are aware of these side effects but the need to make a living obliges them to overlook the risks and engage in this form of waste disposal.<sup>42</sup>

**Ecocide: 'Unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and widespread or long-term damage to the environment being caused by those acts.'**

SOURCE: Joseph Rybacki, The definition of ecocide, *The Law Society Gazette*, 10 August 2021, <https://www.lawgazette.co.uk/practice-points/the-definition-of-ecocide/5109498.article>; Haroon Siddique, Legal experts worldwide draw up 'historic' definition of ecocide, *The Guardian*, 22 June 2021, <https://www.theguardian.com/environment/2021/jun/22/legal-experts-worldwide-draw-up-historic-definition-of-ecocide>.

An investigation by Friends of the Earth, a UK-based environmental campaigning organization, uncovered a further disturbing practice. In a food factory in Indonesia, workers were burning plastic as fuel to cook tofu. In addition to people inhaling the fumes, the tofu also became contaminated and was then sold in the local market.<sup>43</sup>

Likewise, high levels of dioxin and other harmful substances were found in eggs produced by chickens kept in the vicinity of plastic-waste dumping sites at a number of locations in Indonesia.<sup>44</sup> These substances place people at risk of developing cancer, diabetes, cardiovascular diseases and reproductive problems. Research from a group of local organizations found that an adult eating one of those eggs would ingest 70 times the tolerable daily intake for chlorinated dioxins (based on the standards set by the European Food Safety Authority).<sup>45</sup>

Burning is also used as a method of illicit waste disposal in some European countries such as Italy and the UK, as well as in Turkey. In October 2021, Italian authorities arrested the owners of a recycling plant who, in 2017, set ablaze tonnes of mixed hazardous waste as a way of clearing their premises at no cost. The men had illicitly amassed around €2 million and face multiple charges including illicit waste trade, arson, mis-invoicing, tax evasion and money laundering. Owing to the fumes and contamination, inhabitants of surrounding towns and villages were forced to keep their windows shut for weeks and discard the produce from their gardens.<sup>46</sup>

In Turkey, an average of two suspicious incinerations per week take place at recycling plants – usually at night, in their storage areas – and illegal workers and Syrian refugees can sometimes be found working at these facilities in exploitative conditions.<sup>47</sup> It goes without saying that these are hazardous – and sometimes deadly – conditions for workers. The exploitation of vulnerable workers has also been documented in Indonesia, where some companies systematically employ women to sort waste (with no concerns for any resulting health problems) because they are cheaper to employ and considered to be faster than men.<sup>48</sup>

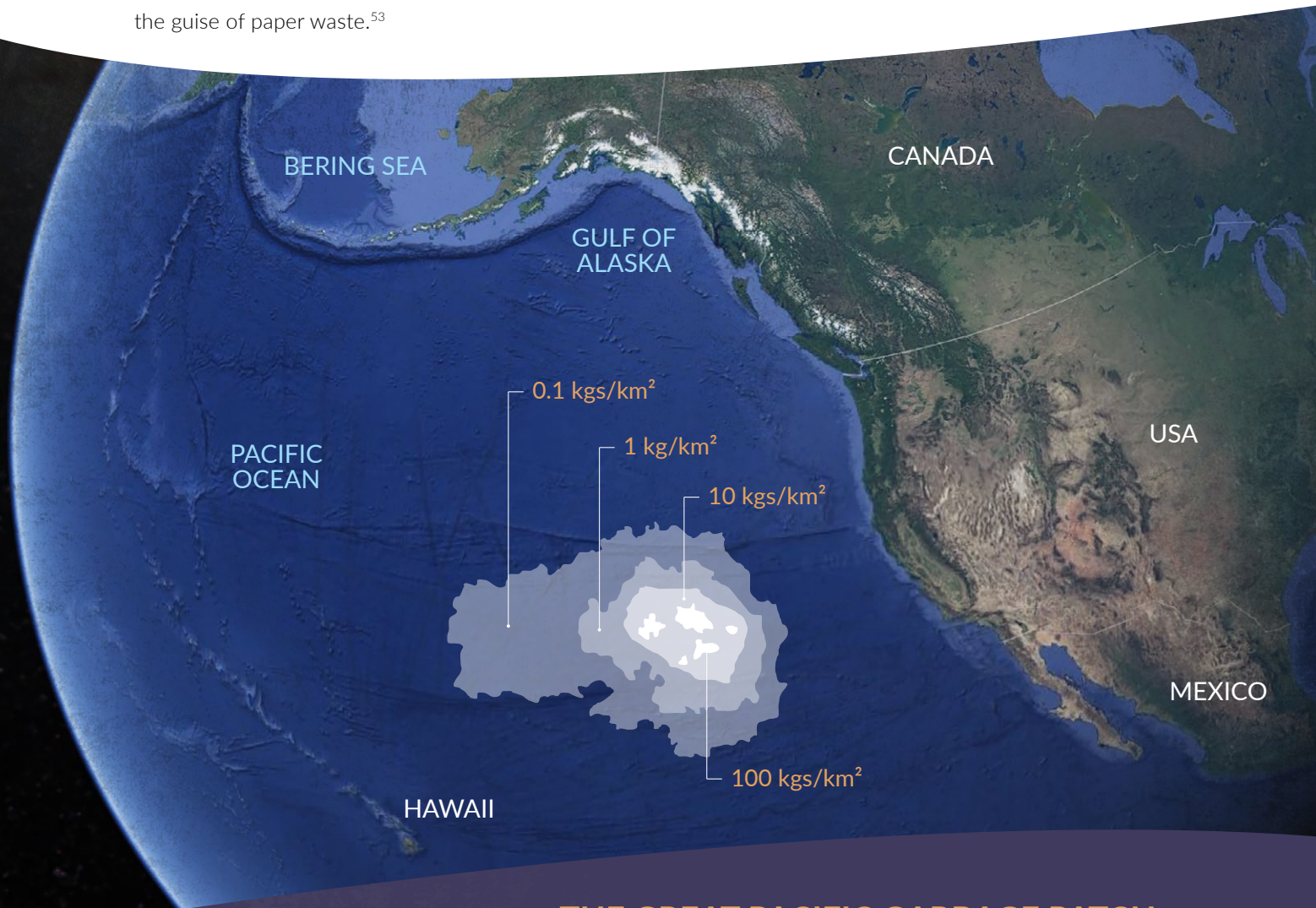
The informality that often characterizes the waste industry in Asia and Africa is reflected in fragile working arrangements that provide workers with no safety net. Ghana's Environmental Protection Agency told the GI-TOC that most recycling facilities in the country (primarily owned by Chinese entrepreneurs) have unsanitary working conditions.<sup>49</sup> A similar picture emerged in Zambia, where Chinese companies appear to underpay their workers.<sup>50</sup> In Indonesia and the Philippines, waste pickers and workers in collection and aggregation facilities generally do not have formal employment contracts with the owners of the facilities and thus lack access to basic benefits, training and protections vital to their safety. Most waste pickers also do not have identification documents, a prerequisite for accessing government health-insurance schemes.

Although the human impacts of the illicit trade in plastic waste seem to be most detrimental in waste-receiving countries, waste workers in source countries have also been subjected to them. For example, in 2021, Biffa Waste Management Service, one of the largest waste companies in the UK, was sued for allegations of trafficking and modern slavery by three claimants who had been trafficked from Poland to the UK. It emerged that the three were among some 400 people trafficked from Poland by an organized crime group who were given employment, through a recruitment agency, in farms, factories and recycling plants. Criminals allegedly opened bank accounts in



the names of the workers and then took their wages. Meanwhile, the victims, who had been lured with the promise of decent employment in the UK, ended up sorting rubbish and performing other low-skilled jobs for as little as £0.50 an hour while living in substandard accommodation.<sup>51</sup>

Biffa is not new to controversy. In 2019, the company was fined £350 000 for breaching waste transportation laws by shipping contaminated household waste to China misdeclared as paper for recycling.<sup>52</sup> Two years later, a London court fined Biffa £1.5 million for, yet again, exporting mixed household waste to non-OECD countries. Specifically, between 2018 and 2019, the company had shipped more than 1 000 tonnes of banned waste to India and Indonesia under the guise of paper waste.<sup>53</sup>



## THE GREAT PACIFIC GARBAGE PATCH

### MEASURES

**1.6 million km²**

**2x** the size of texas

**3x** the size of france

### MASS AND CONTENT

**1.8 trillion pieces = 250** pieces of debris for every person

**80 000 tonnes** of plastic = **500** jumbo jets

**99%** of everything is plastic

**46%** of the total mass is made of discarded fishing gear






# TRACING THE FLOWS

A container ship in port, Turkey. Due to a lack of inspection capacity, many containers carrying illegal waste may pass undetected through ports.

© bfk92/E+ via Getty Images





Illicit plastic waste is transported around the world along multiple routes from North America and Europe to South East Asia, other parts of Asia and Africa.

In addition, Turkey has become a key node for the trade in European plastic waste owing to its permissive environment, an appetite for receiving and processing foreign waste to generate revenue and the presence of criminal groups.

The journey of an illicit plastic waste container is not always a direct trip from A to B. As shown in Figure 3, it is common for shipments to transit through other ports, sometimes across two or three continents, before they make their way to the final destination. But that might not be all there is to the trip. More and more countries, tired of receiving unwanted hazardous plastic waste, are repatriating the cargoes (mainly Indonesia, Malaysia and the Philippines). That in itself is not entirely straightforward as, in some cases, it might be difficult to ascertain the true country of origin. Even when the origin is confirmed, shipments might be diverted elsewhere for illegal disposal.

The underlying drivers of transboundary flows – both licit and illicit – are that, first, the US and the EU simply do not have sufficient capacity to recycle domestically and, second, the prospect of setting up new facilities has limited financial appeal. The US produced almost 40 million tonnes of plastic waste in 2018, of which it was only able to recycle 2.2% domestically. Projections indicate that in 2021, owing to the current upward trend in waste generation, domestic capacity could become nil.<sup>54</sup> With a recycling capacity of 8.5 million tonnes per year as of 2020, the EU has four times the recycling capacity of the US, but still EU countries have to look beyond their borders to recycle the approximately 53 million tonnes of plastic waste collectively produced each year.<sup>55</sup>

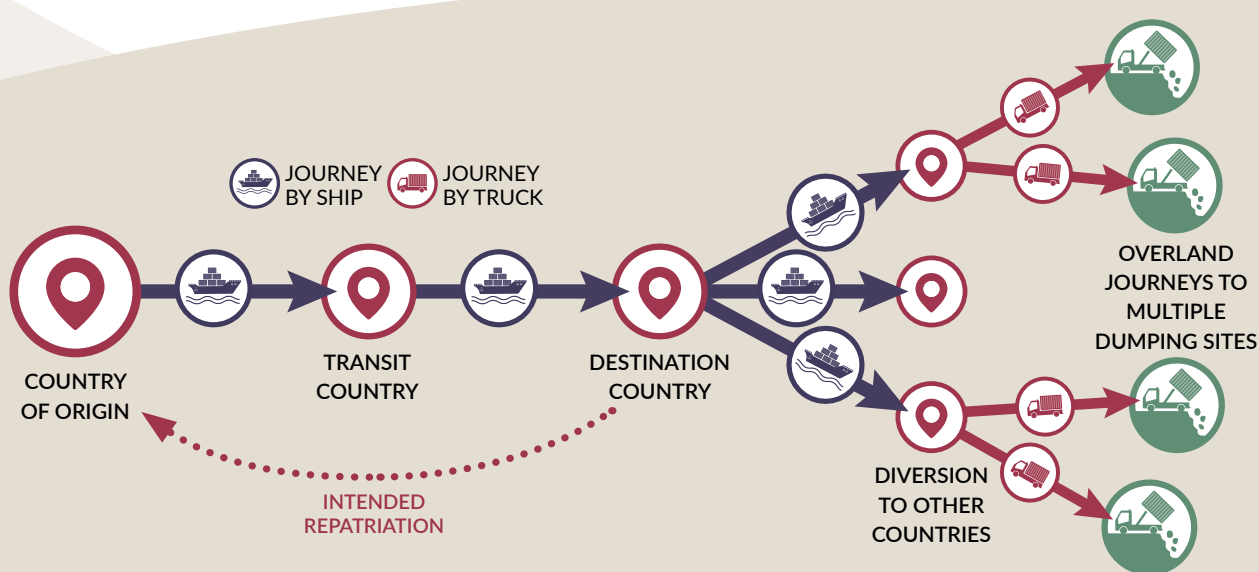
This is compounded by a rather compelling economic argument: why should authorities in, say, the US spend US\$150 per tonne to send waste to landfill when brokers could do it for US\$40? The economics of shipping, of which one key tenet is that each journey has to be profitable and ships should never travel empty, is also an important factor. The return journey of ships that bring Asian-made consumer goods to the US is considerably cheaper than the outbound leg (the same applies to routes from the US to South America, for example Ecuador).<sup>56</sup> This reality naturally facilitates flows out of the US into those regions and incentivizes illicit trade.

Another, and perhaps more compelling economic consideration, is that producing virgin plastic is often more affordable than its recycled equivalent. Crucially, the shale gas boom in the US is driving the cheap production of fossil fuels, including gases such as ethylene and propylene, which are the two most important plastic feedstocks. Indeed, production capacity for those gases is projected to grow by 33 to 36% by 2025.<sup>57</sup> This trend is encouraging fracking internationally (albeit not without controversy) and is resulting in growing exports of petrochemical by-products from the US to plastic-production facilities in Europe.<sup>58</sup> Although this scenario is bound to lead to an increase in greenhouse gas emissions (effectively undermining

EU plans to curb emissions and waste generation), in simple economic terms the global plastics-recycling market is going to struggle to be competitive in the face of cheaper and often better-quality raw plastic.

Figure 4 lists the current main routes for illicit plastic waste connecting Europe, North America, Asia and Africa. The question on everyone's mind is: where next? Environmental agencies and industry specialists told the GI-TOC that eastern Europe (specifically Romania and Bulgaria) could be a potential destination. Romania in particular is already registering a substantial influx of plastic waste from EU countries even though it has the second-lowest recycling capacity in Europe. According to Romanian authorities, organized crime groups are involved in the illicit trade of hazardous and unrecyclable plastics.<sup>59</sup> Poland also receives waste from EU countries and the UK that is misdeclared as 'recyclable' (already sorted plastic that is, in fact, mixed with banned waste) and ends up being illegally dumped or burnt.<sup>60</sup>

This trajectory, which suggests the growing importance of European countries and their immediate neighbours in the international flows of illicit plastic waste, should not give the impression that flows to Asia are declining: the continent remains the number one destination. Albeit with varying degrees of success, the implementation of import bans by countries in South East Asia is bound to encourage



**FIGURE 3** Transnational flows of plastic waste.



the re-routing of illicit waste to places where the debate is nascent. In that regard, places such as Laos or Myanmar, where there have already been some detections, should be ones to watch.<sup>61</sup> In Myanmar, a country undergoing significant turbulence following the February 2021 coup, there is a sense that the government is prepared to deregulate the imports of foreign waste (new regulation was being drafted as of July 2021), – a move that is very much encouraged by the recycling industry.

## The in-betweens

As shown in Figure 4, illicit plastic waste might stop at intermediate locations before reaching the intended destination. This is done to conceal the real ports of origin and destination of a particular cargo. Hong Kong has a major free port and represents a popular stop along the route. Its misuse became so common that Mediterranean Shipping, the world's second-largest shipping company, stopped accepting plastic-waste containers from Hong Kong as of June 2019.<sup>62</sup> Indonesia, Malaysia and the Philippines have all condemned Hong Kong for allowing the transit of illegal waste directed to their countries. A quarter of US plastic exports transit through its port.<sup>63</sup>

South Africa also presents an interesting case, and local authorities describe how the country acts as both an importer and exporter of illicit plastics. The country legally processes waste from neighbouring

Looking further into the future, flows towards African countries are likely to increase. As discussed later in the report, the rapid opening of new foreign recycling companies in places such as Zambia will necessitate imports of foreign waste to feed a rapidly expanding industry that generates local employment. In light of existing bans, it is expected that many of these imports will be illegal.

countries that lack disposal facilities, including e-waste from Mozambique, but the Department of Environmental Affairs has also recorded imports of illicit plastic mixed with e-waste. In terms of illicit exports, the Malaysian government has investigated illicit shipments by an established South African recycler with links to Europe and South East Asia. The company has also appeared on the radar of South African authorities owing to a number of shipments from South Africa to Malaysia, Hong Kong and Pakistan in 2021, and even some to EU countries, such as Italy in 2020 and Portugal in 2021, possibly exploiting the general increase in the volume of waste during the COVID-19 pandemic to intensify its export activities.<sup>64</sup>





| ORIGIN                | DESTINATION                                       | TRANSIT          | NOTES   |
|-----------------------|---|------------------|---|
| North America, Europe | Pakistan  |                  | Pakistan is a net importer as local plastic production is limited to meeting national demand. It has become common for shipments to South East Asian countries to be redirected to Pakistan. <sup>78</sup>  |
| Europe                | Myanmar   |                  | Most plastic waste arrives at Yangon port. Myanmar then exports mainly PET flakes and some HDPE/PP resins to neighbouring countries. Recycled HDPE and PP are mainly consumed locally. <sup>79</sup>  |
| Belgium               | Malaysia  | Hong Kong        | Reports indicate the shipping of illegal waste from Belgium to Malaysia that had been disguised as exports from Hong Kong, a widely used transit hub. <sup>80</sup>   |
| France                | Malaysia  |                  | The shipping of illicit plastic waste to Malaysia came to the fore when a French brokerage firm received a heavy fine – the first instance of this kind in France. <sup>81</sup>  |
| Germany               | Turkey  | Belgium          | As of June 2021, over 100 illicit containers that had reached Turkey from Germany via the port of Antwerp were sitting in Turkey waiting to be sent back to Germany. They contained mixed waste contaminated with household waste. <sup>82</sup>  |
| Italy                 | Malaysia  |                  | The Italy–Kuala Lumpur route is believed to be a significant route for illegal shipping of waste. Companies are believed to rely on Hong Kong-based agents who would, on paper, broker shipments to Hong Kong when, in reality, illegal plastic waste would arrive directly in Malaysia. <sup>83</sup>  |
| Italy                 | Tunisia   |                  | Italy's Campania region has been identified as the point of origin of hundreds of containers full of mixed municipal waste that were directed to the Port of Sousse in Tunisia in 2020. <sup>84</sup>   |
| Spain                 | Malaysia  |                  | Malaysia has repatriated illegal waste back to Spain, Japan and Singapore. <sup>85</sup>  |
| Spain                 | South Africa                                      |                  | Disposal sites in KwaZulu-Natal and Cape Town are the most affected by illicit plastic waste. <sup>86</sup>   |
| United Kingdom        | Malaysia  | Turkey           | Turkey (39%) and Malaysia (12%) are the top two destinations for illicit plastic waste from the UK. Both have limited capacity to recycle, and illegal dumping and burning are widespread. <sup>87</sup>  |
| United Kingdom        | Malaysia  | The Netherlands  | UK-origin plastic waste is sent for recycling to the Netherlands, where it is instead mixed with Dutch waste and then shipped to countries that no longer accept British plastic. <sup>88</sup> As of 2021, evidence shows continued shipping from Dutch ports to non-OECD countries. <sup>89</sup>   |
| United Kingdom        | Poland  |                  | Poland is the third-largest recipient of illicit plastic waste from the UK. <sup>90</sup>   |
| United Kingdom        | South Africa                                      |                  | South Africa has witnessed the illegal dumping of containers full of unlawful plastic waste from the UK, Spain and other European countries. <sup>91</sup>  |
| United Kingdom        | Turkey  |                  | The Cilicia region of Turkey, from the Mediterranean to the Syrian border, is the main entry point for plastic waste and a highly polluted area. <sup>92</sup>  |
| Mozambique            | South Africa                                      |                  | Truckloads of plastic mixed with e-waste enter South Africa and are suspected to then be shipped abroad. <sup>93</sup>  |
| South Africa          | Portugal, Italy, Malaysia, Hong Kong and Pakistan |                  | South Africa is both an importer and exporter of illegal plastic waste. Multiple shipments to international destinations have been recorded in 2020 and 2021. <sup>94</sup>   |
| Japan, Singapore      | Malaysia  |                  | Malaysia has repatriated illegal waste back to Spain, Japan and Singapore. <sup>95</sup>  |
| Japan                 | The Philippines                                   |                  | Japan has a history of shipping toxic and hazardous waste to the Philippines, but Tokyo's repatriation of waste containers has won it praise from the Filipino government. <sup>96</sup>  |
| South Korea           | The Philippines                                   |                  | Investigations by Greenpeace identified large amounts of mixed and hazardous waste (declared as plastic synthetic flakes) that had reached the Philippines from South Korea. A Korean company was the consignee of the shipment. <sup>97</sup>  |
| Australia             | Indonesia, Malaysia, Vietnam                      |                  | Post 2017, Australian plastic waste was redirected to Vietnam, Malaysia and Indonesia. Indonesia's East Java province has received millions of kilograms of illegal plastic and contaminated mixed waste. <sup>98</sup>   |
| Unknown               | Indonesia   | Marshall Islands | Masked as the country of origin of illegal plastic waste, the Marshall Islands are believed to be used as transit countries for waste coming from Western countries. Owing to this misdeclaration of origin, in 2018 it appeared that Indonesia was importing double the amount of plastic waste from the Marshall Islands than it was from the US. <sup>99</sup> |
| Unknown               | Indonesia, Malaysia, the Philippines              | Hong Kong        | All three destination countries have speculated that illicit plastic waste arriving from Hong Kong had actually originated elsewhere. <sup>100</sup>  |



# METHODS AND ACTORS ALONG THE SUPPLY CHAIN

A worker holds plastic pellets made from recycling at a facility in India.

© Dhiraj Singh/Bloomberg via Getty Images

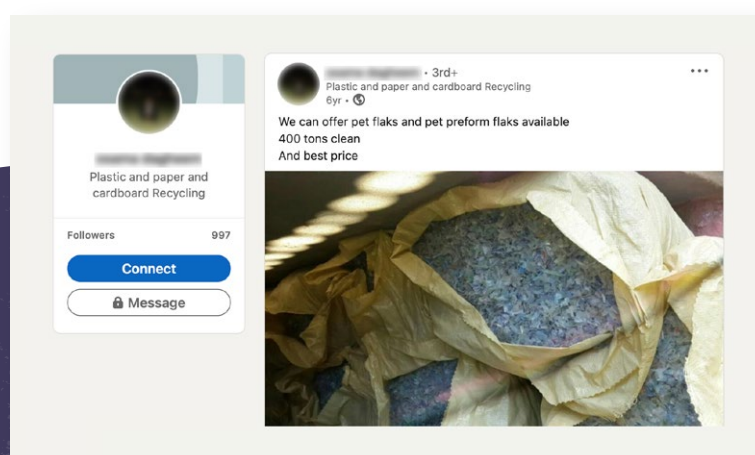


Multiple actors are active along the supply chain of illicit plastic-waste flows. It is important to remember that the majority of these actors are legal commercial entities engaging in what, on the surface, are legitimate activities: waste producers (both local authorities and businesses) need to dispose of their waste, and commercial actors (such as recycling companies and waste brokers) offer a service that meets their customers' needs. The illegality aspect emerges when trading activities contravene waste-related conventions, bans and other relevant legislation or employ fraudulent methods to fake their adherence to those rules.

This section provides an overview of the types of actors that operate along these routes and the methods employed. The list is complemented by case studies of how some players engage in illicit activities.

## Brokers

Brokers are the third parties upon which most businesses rely on to take care of their waste needs. Brokers connect their clients, for example raw-material suppliers and vendors, with recyclable waste, like commercial plastic waste. Once the waste is sold to a broker, the seller loses control over what happens to the consignment and how and where it is disposed of.<sup>101</sup>



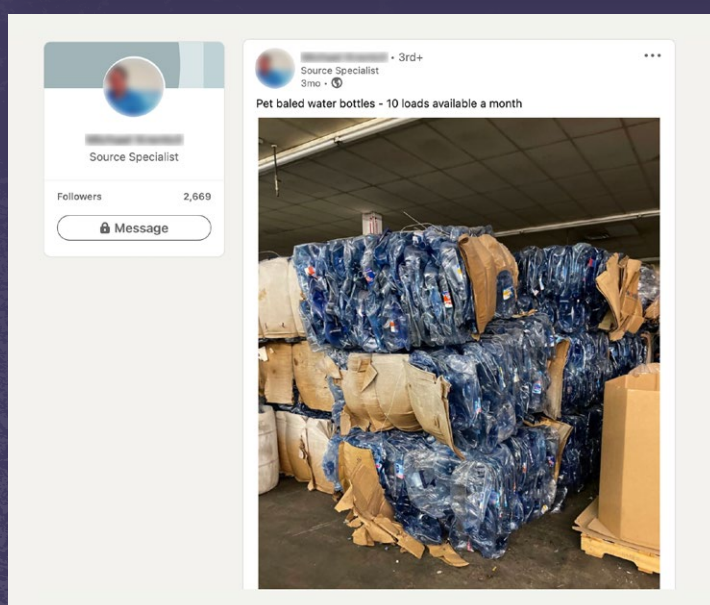
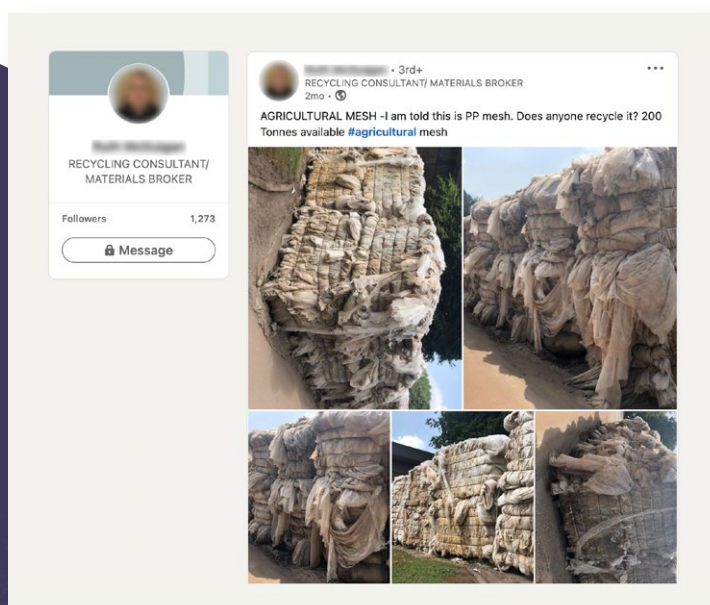
Brokers advertise openly on LinkedIn and other platforms.

Brokers were repeatedly described to the GI-TOC as key offenders. They are responsible for arranging banned waste products to be sent to, and disposed of, in countries that do not have the ability to process such waste, and they play a role in misdeclaring the destination of shipments. Their involvement is particularly crucial when a route features a transit point, usually to conceal the intended origin or destination, and where a trusted broker is needed to ensure that the shipment is re-routed as planned.<sup>102</sup>

In this respect, insiders highlighted broker-to-broker relationships along the different stops made by cargoes.<sup>103</sup> For instance, a 2018 investigation uncovered a network of Vietnamese brokers based in countries such as the US, Japan and South Korea who facilitated the exports of uncleaned black LDPE plastics, white LDPE plastics and HDPE plastic tubes to Vietnam.<sup>104</sup>

Although these practices are widespread, there have been indications of greater law enforcement attention in recent years. For the first time, in 2019, France fined an unnamed French brokerage company €192 000 for shipping 20 containers of illegal plastic waste to Malaysia that Malaysian authorities had returned to France.<sup>105</sup>

A wide range of waste materials are advertised by brokers, frequently without mentioning provenances.





## Silent brokers and film with hazardous properties

The UK's Environment Agency led an investigation into bulk bags of film with hazardous properties that had been misdescribed by brokers as plastic packaging scrap in order to earn financial credits (packaging waste export recovery notes, PERNs) in accordance with UK legislation.<sup>106</sup>

### The parties

A number of parties were involved in the case. Firstly, the loading was done by a storage and haulage company that was working on behalf of the shipper. Unfortunately, the company did not understand their liability under the transfrontier shipment of waste regulations (or TFS, in accordance with the Basel Convention) and therefore did no duty-of-care checks, trusting that the shipper had conducted them.

Secondly, there were two silent brokers involved: one had presumably sourced the material from Ireland and the second one had contacts in Turkey, the intended destination of the material. The silent brokers did not appear on the normal paperwork regarding green-list exports (those involving waste deemed to pose a low risk to the environment).<sup>107</sup> One can only assume that the omission of names was to avoid association with the load and any liability should the load be stopped, as was the case.

Lastly, there was a broker who appeared as the shipper on the export paperwork and who was claiming the financial credits.<sup>108</sup> The money would then be distributed among all parties involved.

### The legal issue

The material was clearly misdescribed as plastic packaging when in fact it was film with hazardous properties. This type of film contains silver bromide, which can emit toxic fumes when exposed to heat.

Four offences were committed in total: the fraudulent claiming of PERNs, the TFS offence, the misdescription of the commodity and the misdescription in the coding, as the waste was coded 15 01 02 (packaging) when it would at best be a 19-code waste (mechanically treated waste).

### The outcome

As a result of the investigation, the accreditation of the broker was cancelled, meaning that they can no longer claim PERNs. The two silent brokers are being reviewed for organized crime group mapping and further work is to be done regarding enforcement action.

Details of the case were supplied by the UK's Environment Agency, July 2021.

## Transport

Shipping and logistic companies are involved in transporting containers along maritime routes, which constitute the largest method of transport for waste. Shipping lines have been accused of facilitating illicit and unsustainable movement of waste, with civil society groups calling upon them to introduce policies and procedures to stop the movement of plastic waste from OECD to non-OECD countries, Mexico and Turkey.<sup>109</sup>

Two of the largest companies, COSCO (China) and Maersk (Denmark), drew attention when they were used to illegally transport 38 containers carrying a mix of plastic and hazardous waste from Indonesia. The containers were among the hundreds that, arriving from the US and other Western nations

and containing hazardous material, had been intercepted by Indonesian authorities and were earmarked for repatriation.

The 38 containers were to be re-exported to the US. Instead, they travelled to India and arrived at the Mundra Port, Gujarat, and the APM-Jawaharlal Nehru terminal in Mumbai before being taken to Container Corporation of India, in Kanpur, in September 2019. It is suspected that the waste was subsequently illegally dumped (India introduced a ban on plastic-waste imports in August 2019). The Indonesian government was presumably complicit in the shipping to India and is suspected to have failed to inform their Indian counterparts.<sup>110</sup>

## Customs and border control

Customs authorities at ports are also part of the picture, as they are in charge of controlling bills of lading and inspecting (a small proportion of) containers. The opportunities for malfeasance are certainly there. The investigation discussed above, for instance, led to Indian port authorities and officials being accused of corruption for allowing the containers into the ports.<sup>111</sup>

In the case of intraregional movements of waste, such as in the case of central and southern Africa, plastic is moved overland across national borders, where the onus is on border officers to inspect and ensure cargoes are compliant with local legislations. In this respect, interviews with the Zambia Environmental Management Agency suggested that agents were unable to verify the quality of plastic coming

into the country as they lacked the necessary training to identify different types of plastic. The agency also disclosed that although borders with Zimbabwe, Namibia and Botswana were well patrolled, borders with Angola, Tanzania, Mozambique and the Democratic Republic of Congo only featured a limited law enforcement presence. Those borders are the ones through which most illicit plastic waste might enter Zambia.<sup>112</sup>

Recycling plastic awaiting export to Germany, Tema, Ghana, 10 May 2021. The consignment was never exported. Supplied by Kwabena Biritwum, Environmental Protection Agency (Ghana); board member, INTERPOL Pollution Crime Working Group.





## Misdeclaration

This lack of enforcement means that misdeclared plastic waste can easily be shipped around the world. Mislabelling is a widespread practice aimed at making cargoes appear to be compliant with the Basel Convention when, instead, they contain contaminated plastic waste, such as dirty nappies. This also involves disguising imports under a different customs code, taking advantage of the fact that customs officers can only inspect a fraction of containers going through ports each day.<sup>113</sup> A similar method consists of declaring plastic scrap as plastic pellets or flakes, as seizures at Vietnamese and Filipino ports suggest.<sup>114</sup>

For instance, in 2013, Manila's International Container Terminal received 103 containers from Canada. The 2 500 metric tonnes of cargo included plastic bottles, plastic bags, newspapers, adult diapers and other household waste, even though it had been declared as recycled plastic scrap. After sitting unclaimed at the port for years, the whole cargo was returned to

Canada in 2018.<sup>115</sup> Over the years, the Philippines has returned a number of containers to Canada, and President Rodrigo Duterte has threatened to 'declare war' on Ottawa as a result of the large influx of Canadian waste coming into the country.<sup>116</sup>

But misdeclaration not only applies to the cargoes. Recycling companies sometimes misdeclare their operating capacity, inflating their ability to recycle plastic waste in order to be allowed to import it. For example, Malaysian companies have been known for engaging in this practice to obtain approved permits from the ministry of housing and local government to import waste, which is then sold to Chinese recyclers.<sup>117</sup> The leasing of waste import licences is yet another illicit practice detected in Vietnam.<sup>118</sup> The country of origin and destination can also be misdeclared to make the traceability of a shipment more difficult.<sup>119</sup>

## Concealment

Another common practice is to hide plastic waste in the midst of other waste products such as paper and e-waste that are not subject to the same level of scrutiny. In Indonesia, there is evidence of paper-recycling companies using their regular operations to import plastic waste into the country under disguise. This is made possible by a legal loophole whereby the market in paper waste and others, such as metal scrap, are self-regulated and are not required to follow recommendations by the ministries of trade or environment.<sup>120</sup>

An industry specialist told the GI-TOC that an Indonesian paper-recycling company that had come under scrutiny for exactly these practices had allegedly bribed the ministry of environment and the inspection companies issuing certifications to businesses in order to continue to operate. Owing to its chequered past, the company only uses part of its name (which is the same as two reputable businesses that also happen to be located in its vicinity) to avoid attracting the attention of customs officials.<sup>121</sup>

## Recycling and other companies

Once the cargo reaches its destination, recycling companies of various degrees of sophistication and informality come into play. Unlike brokers, these companies perform some or all phases of the recycling process, from collection and sorting to the production and sale of recycled plastic on the international market.<sup>122</sup>

The role of Chinese companies across South East Asia and Africa is significant. Their activities normally involve acquiring plastic waste, processing it and selling the resulting plastic pellets to China, where they are then used to manufacture new plastic products.<sup>123</sup> In some cases, these are small family businesses that receive financial incentives to open plants abroad. In others, they are companies that were operating in China prior to the introduction of the 'National Sword' policy and then opened new branches in neighbouring countries once their business at home was dramatically curtailed. Many have found new homes in places such as Indonesia, where they enjoy good relations with the government and the military,<sup>124</sup> and Malaysia, where the plastic manufacturing market is worth around US\$7.23 billion,<sup>125</sup> setting up operations in the vicinity of ports.

There are also many illegal operators, the bulk of which are also Chinese, that tend to be hidden within rural estates and are also recipients of misdeclared plastic waste. There is, however, a drive to bring these companies into the legal sphere by conducting environmental impact assessments on them and encouraging them to implement the resulting recommendations.<sup>126</sup>

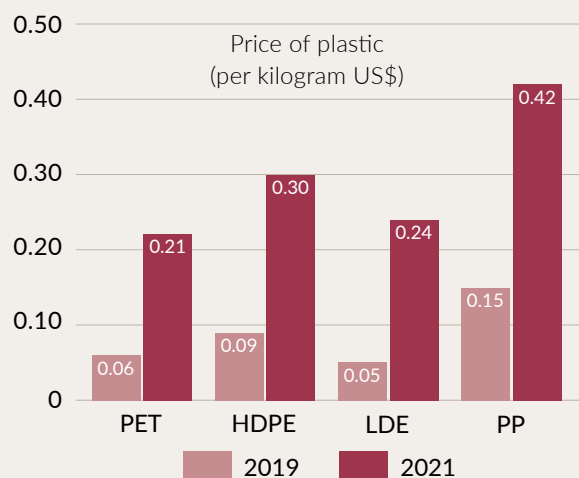
Chinese companies are also proliferating further afield. According to Ghana's Environmental Protection Agency, the number of companies operating around the port city of Tema, near the country's capital, went from five in 2013 to 20 in 2021. Most are Chinese and employ local workers. The observed

pattern is that, upon obtaining Ghanaian permits, companies set up to run recycling operations start importing plastic from abroad even though there is already enough plastic in Ghana. Upon inspection of some of these sites, it was apparent to agents that the plastic waste was clearly foreign and that the sites lacked adequate machinery for that kind of recycling, raising suspicion that the waste would most likely be dumped somewhere in the country.<sup>127</sup>

Zambia is yet to be formally flagged as a recipient of illicit plastic waste, but it appears to be a country to keep an eye on. The national environmental management agency receives two to three applications from Chinese companies wishing to operate in the country each week. As of July 2021, the capital alone – Lusaka – hosted 26 waste-recycling plants, including 18 recycling plastic paper, six processing recycled plastic into granules (used for manufacturing non-consumable products) and two recycling waste paper. Although some are Zambian and Indian businesses, the majority are Chinese owned.<sup>128</sup>

With the exception of some plastic waste that legally enters the country from Mozambique, the bulk of the waste processed in Zambia is domestic. Given the ever-growing number of recycling plants, Zambia might soon run out of plastic waste to sustain those companies and, as a result, illegal imports could increase.<sup>129</sup> In this environment, competition among companies is fierce. Some have had to move elsewhere while others, especially local and non-Chinese ones that cannot rely on the financial support of their home countries, have shut down. In this context, prices of plastic waste doubled – and in some cases quadrupled – between 2019 and 2021, as shown in Figure 5. Sometimes plastic waste is more expensive than the finished product, such as pellets, owing to its limited availability.<sup>130</sup>





**FIGURE 5** Price of plastic waste in Zambia (per kilograms).  
SOURCE: Zambia Environmental Management Agency, July 2021.

Municipal workers collect glass and plastic at a waste landfill in Lusaka, Zambia. The country may be a future hub for the illicit waste trade.

© Gianluigi Guercia/AFP via Getty Images



Another common practice used by companies illegally trading plastic involves establishing separate entities in different countries, such as Germany and Turkey, and then employing an unsuspecting logistics provider to transport the illicit waste between the two locations.<sup>131</sup> In Turkey, domestic companies had been working in partnership with Chinese ones following the introduction of the ‘National Sword’ policy, but Chinese operators seem to have withdrawn from the Turkish market as Beijing started tightening the enforcement of rules around imports of plastic pellets in 2020.<sup>132</sup>

Although the illicit plastic-waste trade seems to comprise a range of often unconnected small and medium-sized businesses, more investigation is required into whether there may be larger organized networks orchestrating much of the illicit trade. In some extreme cases, the same business owners,

through corruption and political connections, may potentially have control over ports and can use their influence to facilitate illicit waste trafficking through those hubs.<sup>133</sup>

In addition to companies specializing in waste management, it appears that other industries have become involved in the plastic waste business. In an interview with an industry specialist, the GI-TOC learnt of large, politically connected cement companies based in Romania that allegedly import illicit plastic waste through shell companies.<sup>134</sup> Although the GI-TOC was not able to corroborate this information, it is in line with projections made by some national environmental agencies interviewed for this report, who identified eastern Europe as the next tile to fall in the domino effect of the ‘National Sword’ policy.



## The ‘professional’ criminals

Examples of illegal practices employed by licit actors along the supply chain of illicit plastic waste are ample. But criminal groups are also involved in the illicit trade and disposal of waste, albeit to a lesser extent. These groups are most frequently from Turkey and eastern Europe (although allegedly from several other countries) and normally infiltrate the waste-management sector through legitimate companies that become fronts for financial fraud, forgery and manipulation of legal records, and by corrupting officials along the supply chain.<sup>135</sup>

It is mostly tax evasion and the opportunity to launder ill-gotten money across borders that attract crime groups to the waste sector and, although largely seen as non-violent, waste-related criminal activities are not entirely violence-free, including through physical threats and intimidation towards former insiders who have denounced wrongdoing.<sup>136</sup>

The role of organized crime groups is often hard to quantify in many countries, as information and intelligence-exchange structures are often siloed or non-existent. Frequently, the burden of combating illegal-waste sites falls on the environmental regulator who is neither equipped nor structured to take on the task of tackling the presence of organized crime groups within the waste sector.

Conversations with practitioners pointed to some common gaps in capacity and capabilities, including the absence or limited availability of dedicated staff with the necessary skills and resources to tackle this criminality; the limited understanding of the scale, nature and threat of the criminality within respective law enforcement and regulatory and prosecution agencies; and legislative gaps that hinder information exchange between agencies and constrain investigative and prosecution opportunities.

**A factory employee guides fabric made from recycled plastic bottles into a dying and washing machine at a factory in Rayong, Thailand.**

© Andre Malerba/  
Bloomberg via Getty  
Images





## Company or organized crime group?

Most illicit trade in plastic waste is run by licit businesses, making it difficult to grasp the extent of criminal involvement in the sector. However, an investigation by the UK's Environment Agency uncovered that an organized crime group had set up a company to manage a certain waste stream that had very few outlets for disposal.

They rented a waste-management site, contracted a workforce and began preparing material for export. This involved processing high volumes of waste (in excess of 4 500 tonnes) that were misdescribed to the shipping agents through the booking process and then sent to Asia, where it was illegally dumped.

At face value, this organized crime group owned a legitimate waste-management company that had a lucrative contract with a large corporation in the UK, being paid to export the waste to Asia. However, the group was clearly using the company as a front to profit from the illicit plastic-waste trade.<sup>137</sup>

## Criminal convergence

The convergence between illicit plastic waste and the trafficking of other illicit commodities is vastly understudied. In fact, almost all interviewees for this report, across all regions, struggled to point to any criminal convergence other than with white-collar crime. However, a former UK-based broker highlighted an interesting criminal connection between Turkey and the UK, and reinforced the idea that Turkish polycriminal groups are significantly involved in the management of European waste.

The broker pointed to a small London-based waste company – similar to hundreds of others in the UK, according to the broker – used as a front for prostitution, drug trafficking and other illicit activities. Specifically, this company allegedly sends plastic waste to its partner company in Turkey, where cannabis, cocaine, methamphetamine and steroids are reportedly hidden within the waste to avoid being detected by police and customs officials. At that point, the cargo is shipped to consumer markets in the Middle East and beyond.<sup>138</sup>






# CONCLUSIONS AND RECOMMENDATIONS

Northern Adelaide Waste Management Authority supervisor Thao Nguyen posing among recycled plastic bottles at the recycling site in Edinburgh, Adelaide.

© Brenton Edwards/AFP via Getty Images





**T**he illicit trade in plastic waste is here to stay. Despite efforts of environmental campaigners and the warnings of scientists, we globally produce an extraordinary amount of rubbish. For all the calls to lead more sustainable lives and the fact that many consumers are modifying their behaviours, being conscious of how their shopping habits can have a direct impact on the environment, change is slow and the COVID-19 pandemic is not helping. In fact, not only are we using more single-use items as a result of the pandemic, but many local and municipal authorities (whose budgets are tightening) can also be expected to deprioritize the funding of recycling programmes, and investments in recycling facilities could also decline.

Bearing in mind the financial incentives explored in this report and notwithstanding the introductions of bans and waste-controlling legislations, legitimate business operators and organized crime groups alike can be expected to continue their illicit practices to maximize revenues. In the pursuit of that objective, they will continue to seek more advantageous avenues to route their illicit cargoes through (and to) the most permissive ports, borders and destination hubs. This is the traditional cat-and-mouse dynamic well known to police and customs officials around the world: as enforcement tightens its grip, criminals look for new ways and places to carry out their activities. In the case of illicit-waste flows, this is likely to translate into greater proliferation of routes towards places with weaker enforcement capacity.

The transnational nature of illicit flows calls for collaboration across multiple jurisdictions. However, agency-to-agency cooperation can be problematic. In the most egregious cases, some officials might be taking bribes to facilitate the transit of illicit cargoes – a behaviour that does not make for ideal partners. But even when there are no dubious practices involved, the fact that in some countries environmental agencies are leading the fight against waste crime while in others it is agencies such as the police or customs authorities who are taking the lead (with a broader set of priorities and less of an interest in monitoring illicit-waste flows), can limit the chances of productive collaboration and information sharing.

This problem also manifests at the national level. It is plausible to speculate that the scarcity of evidence of convergence between waste crime and non-white collar crimes might not simply indicate the absence of it. National agencies often do not communicate effectively, so although immigration services in a given country might

identify illegal workers at a plastic-recycling facility, they would not think of sharing this information with the country's environmental agency or those responsible for waste crime.

A final observation on capacity relates to skill sets. The case studies in this report show the level of sophistication behind some forms of illicit waste trade. Pollution investigators do not necessarily have the technical knowledge to follow the money back to the exporter and therefore it is very hard to disrupt criminal activities without partnering with other specialized agencies.

Based on the findings of this report, the following interventions are recommended:

### **Create a networked or taskforce approach to effectively tackle this form of criminality and associated risks at the national and international level.**

Some steps have been taken, successfully, and further expansion should be prioritized. Specifically, there are few countries where the regulator and those national and regional agencies tasked with tackling organized crime groups have established working information- and intelligence-sharing arrangements. The UK is notable for having formed a national multi-agency group – the Joint Unit for Waste Crime – to tackle the threat of organized crime within the waste industry. The unit brings the environmental regulator, tax authorities and police agencies together in a combined taskforce model where intelligence exchange is the key currency.<sup>139</sup>

INTERPOL has promoted the establishment of a National Environmental Security Task Force consisting of police, customs, environmental agencies, prosecutors, non-governmental organizations and intergovernmental partners to focus efforts to disrupt environmental crime and organized crime groups in any given country.<sup>140</sup> Additionally, since 2017, INTERPOL's Environmental Security Unit and the Pollution Crime Working Group<sup>141</sup> have led the design, development and implementation of their '30 Days of Action' and '30 Days at Sea' initiatives

targeted at waste and maritime-pollution crimes respectively.<sup>142</sup> These projects provide direct coordination and investigative support to member countries and growth of intelligence exchange and the establishment of regional initiative networking groups.

### **Support the private sector and build international capacity to work with relevant private-sector groups.**

No country, environmental regulator or law enforcement agency can tackle the threat of transnational organized waste crime alone, and the support of the private sector is crucial. Although the negative role of the private sector has been amply examined in this report, most companies work hard to comply with environmental laws and regulations, despite often facing significant challenges from illegal competitors who seek to make a profit by evading environmental requirements. Supporting the private sector is necessary in order to:

- Facilitate international networking to support strategic threat and risk assessments of emerging waste crime and bring about impactful policy change at the global, regional, and national levels.
- Identify best practice, exchange intelligence and expertise with national and international law enforcement agencies that further fair competition.
- Share experience and best practice on compliance-driving priorities and encouraging ethical sectoral behavioural change with supply-chain partners.
- Recognize and support organizations that are taking steps to go beyond compliance.

To provide a very tangible example, industry can guide law enforcement about where illicit disposal takes place, helping to identify red flags. This could involve monitoring whether and where, in waste-producing countries, there is demand for large empty spaces that could be used to store unwanted waste that is returned to origin.



## Improve digitalization of waste collection and management

Digitalization of waste collection and management is already transforming the landscape, and the introduction of digital waste tracking could be a game changer. This transformation is already underway, including in the UK, where the Department for Environment, Food and Rural Affairs, together with technology firms, started developing a comprehensive digital waste-tracking system in 2019.<sup>143</sup> Its implementation will be mandatory and, once rolled out, the system will eventually replace existing paperwork and track, in real time, a cargo's journey from start to finish.

Technology can also better support individuals. Indonesia is pioneering apps aimed at the 3.7 million *pemulungs* (scavengers) who collect unsorted waste. These are informal, often socially stigmatized, underpaid workers who collect more waste than government facilities do. Through these apps, they can be directly linked to customers, making waste collection easier, and exchange waste for cash or points to be redeemed.<sup>144</sup> Although dependent on the users having a smartphone, the introduction of similar apps elsewhere could help improve the standing and financial stability of informal waste pickers.

## Collaborate with non-governmental actors

Evidence shows that civil societies, non-governmental organizations and activists can influence the public debate around environmental protection and, in turn, put pressure on governments to implement bans and stringent regulations around waste management. Therefore, collaborating with these non-governmental actors, including investigative journalists, could eventually help enforcement agencies secure more effective tools to combat the illicit trade in plastic waste.

Besides carrying out an assessment of the illegal activities around the illicit trade in plastic waste, this report underlines great power imbalances between countries that produce the most waste and those that receive it. One could argue that, as a society, we have made significant leaps forward in terms of our awareness surrounding environmental damage and protection. Campaigns, new legislation and international summits have proliferated around these issues. But judging by the experience of, and impact on, communities in waste-importing countries, there is still a lot to be done to achieve environmental justice.

In some cases, laws might not be broken and crimes not committed because a powerful industry group managed to lobby a government to be more lenient towards the imports (or exports) of certain hazardous waste products. The short-term economic argument for this might be sound, but at what cost for the planet and its inhabitants?



A child facing a mountain of garbage, Calcutta, India.

© The Image Bank via Getty Images

## NOTES

- 1 Greenpeace, Trashed: How the UK is still dumping plastic waste on the rest of the world, 2021, <https://www.greenpeace.org.uk/wp-content/uploads/2021/05/Trashed-Greenpeace-plastics-report-final.pdf>.
- 2 Maria Tsakona and Ieva Rucevska, Plastic waste, Background report, GRID-Arendal, 2020, [https://gridarendal-website-live.s3.amazonaws.com/production/documents/s\\_document/554/original/UNEP-CHW-PWPWG.1-INF-4.English.pdf?1594295332](https://gridarendal-website-live.s3.amazonaws.com/production/documents/s_document/554/original/UNEP-CHW-PWPWG.1-INF-4.English.pdf?1594295332).
- 3 Silpa Kaza et al., *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050*. Washington, DC: World Bank, 2018, <https://openknowledge.worldbank.org/handle/10986/30317>.
- 4 Ibid.
- 5 The US is the largest waste-producer in the world, generating 42 million metric tonnes of plastic waste in 2016. Less than 10 per cent of American plastic waste is recycled. See: Laura Parker, U.S. generates more plastic trash than any other nation, report finds, *National Geographic*, 30 October 2020, <https://www.nationalgeographic.com/environment/article/us-plastic-pollution>.
- 6 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 7 Italian courts have confirmed that a number of highways in the north of the country, including in the wealthy regions of Lombardy and Veneto, had been built with a mixture of cement and waste as a way to illegally and cheaply dispose of it. See Federico de Giorgi, The case of “ECO-MAFIA” explained: An Italian legal perspective, Sirius Global, accessed on 12 October 2021, <https://siriusglobal.org/the-environmental-organized-crime-and-the-ecomafia-an-italian-perspective/>.
- 8 Federico de Giorgi, The case of “ECO-MAFIA” explained: An Italian legal perspective, Sirius Global, accessed on 12 October 2021, <https://siriusglobal.org/the-environmental-organized-crime-and-the-ecomafia-an-italian-perspective/>.
- 9 Business Wire, Global plastic recycling market trajectory & analytics report 2020–2027, 11 December 2020, <https://www.businesswire.com/news/home/20201211005206/en/Global-Plastic-Recycling-Market-Trajectory-Analytics-Report-2020-2027---ResearchAndMarkets.com>.
- 10 The Greater Mekong Subregion Economic Cooperation Program, Post-pandemic priorities for sustainable waste management in the GMS, 14 August 2020, <https://greatermekong.org/post-pandemic%C2%A0priorities-sustainable-waste-management-gms>.
- 11 Business Wire, Global plastic recycling market trajectory & analytics report 2020–2027, 11 December 2020, <https://www.businesswire.com/news/home/20201211005206/en/Global-Plastic-Recycling-Market-Trajectory-Analytics-Report-2020-2027---ResearchAndMarkets.com>.
- 12 Ibid.
- 13 Hai Man Pyae, Myanmar’s illegal trade in medical waste poses coronavirus risk, *Myanmar Now*, 2 April 2020, <https://www.myanmar-now.org/en/news/myanmars-illegal-trade-in-medical-waste-poses-coronavirus-risk>.
- 14 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 15 United States Environmental Protection Agency, New international requirements for the export and import of plastic recyclables and waste, accessed on 27 September 2021, <https://www.epa.gov/hwgenerators/new-international-requirements-export-and-import-plastic-recyclables-and-waste#fq3>.



- 16 Tatiana Terekhova, The Basel Convention: a tool for combating environmental crime and enhancing the management of hazardous and other wastes, in Lorraine Elliott and William H. Schaedla (eds.), *Handbook of Transnational Environmental Crime*. Cheltenham: Edward Elgar, 2016.
- 17 Ibid.
- 18 Basel Action Network and International Pollutants Elimination Network, The entry into force of the Basel Ban Amendment: A guide to implications and next steps, January 2020, [https://ipen.org/sites/default/files/documents/ban-basel-fact-sheet-v2\\_1-en.pdf](https://ipen.org/sites/default/files/documents/ban-basel-fact-sheet-v2_1-en.pdf).
- 19 Basel Convention, Questions and answers related to the Basel Convention Plastic Waste Amendments, accessed on 17 September 2021, <http://www.basel.int/Implementation/Plasticwaste/PlasticWasteAmendments/FAQs/tabid/8427/Default.aspx>.
- 20 European Commission, Plastic waste shipments: new EU rules on importing and exporting plastic waste, 22 December 2020, [https://ec.europa.eu/environment/news/plastic-waste-shipments-new-eu-rules-importing-and-exporting-plastic-waste-2020-12-22\\_en](https://ec.europa.eu/environment/news/plastic-waste-shipments-new-eu-rules-importing-and-exporting-plastic-waste-2020-12-22_en).
- 21 United States Environmental Protection Agency, New international requirements for the export and import of plastic recyclables and waste, accessed on 17 September 2021, <https://www.epa.gov/hwgenerators/new-international-requirements-export-and-import-plastic-recyclables-and-waste#fq3>.
- 22 World Trade Organization, Notification by the Ministry of Environmental Protection of the People's Republic of China to the WTO, 18 July 2017, <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/G/TBTN17/CHN1211.pdf&Open=True>.
- 23 Ibid.
- 24 Randy Miller, Repercussions on recyclables from China's "National Sword 2017" policy, Miller Recycling Corporation, 24 April 2017, <https://millerrecycling.com/chinas-national-sword-2017/>.
- 25 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 26 Ibid.
- 27 Edie, Turkey reverses ban on plastics imports for recycling, 12 July 2021, <https://www.edie.net/news/5/Turkey-reverses-ban-on-plastics-imports-for-recycling/>.
- 28 Interview with researcher Sedat Gündoğdu (Cukurova University), Turkey, 24 June 2021.
- 29 *Bangkok Post*, Plastic waste imports are 'unwanted', 6 August 2021, <https://www.bangkokpost.com/thailand/general/2160703/plastic-waste-imports-are-unwanted>.
- 30 Paul Sanderson, Indonesia introduces 2% contamination limit on recycled paper and plastics, REB Market Intelligence, 10 June 2020, <https://www.rebnews.com/indonesia-introduces-2-contamination-limit-on-recycled-paper-and-plastics/>.
- 31 Corin Williams, Indonesia to allow waste imports with 2% contamination limit, Materials Recycling World, 19 July 2021, <https://www.mrw.co.uk/news/indonesia-to-allow-waste-imports-with-2-contamination-limit-19-07-2021/>.
- 32 Email exchange with an industry specialist, 20 July 2021.
- 33 Cara Anna and Tom Odula, Oil companies accused of wanting to dump plastics in Africa, Courthouse News Service, 1 September 2020, <https://www.courthousenews.com/oil-companies-accused-of-wanting-to-dump-plastics-in-africa/>.
- 34 Greenpeace Africa, 34 plastic bans in Africa, a reality check, Greenpeace, 19 May 2020, <https://www.greenpeace.org/africa/en/blogs/11156/34-plastic-bans-in-africa/>.
- 35 Pauline Mpungu, Despite pioneering ban, Kenya is drowning in single-use plastic, Al Jazeera, 4 December 2020, <https://www.aljazeera.com/economy/2020/12/4/despite-pioneering-ban-kenya-is-drowning-in-single-use-plastic>.
- 36 Yale Climate Connections, Should 'ecocide' become an international crime?, 30 September 2021, <https://yaleclimateconnections.org/2021/09/should-ecocide-become-an-international-crime/>.
- 37 Ajit Niranjana, Whose fault is plastic waste in the ocean?, DW, 31 July 2019, <https://www.dw.com/en/whose-fault-is-plastic-waste-in-the-ocean/a-49745660>.
- 38 Ibid.
- 39 The Ocean Cleanup, The Great Pacific Garbage Patch, accessed on 8 October 2021, <https://theoceancleanup.com/great-pacific-garbage-patch/>; *National Geographic*, Great Pacific Garbage Patch, accessed on 8 October 2021, <https://www.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/12th-grade/>.
- 40 Alice Ross, UK household plastics found in illegal dumps in Malaysia, Unearthed, 21 October 2018, <https://unearthed.greenpeace.org/2018/10/21/uk-household-plastics-found-in-illegal-dumps-in-malaysia/>.
- 41 Rinku Verma et al., Toxic pollutants from plastic waste – A review, *Procedia Environmental Sciences*, 35 (2016), <https://www.sciencedirect.com/science/article/pii/S187802961630158X>.
- 42 Emma Priestland, Plastic's hidden journey to Indonesia, Friends of the Earth, 21 March 2019, <https://friendsoftheearth.uk/sustainable-living/plastics-hidden-journey-indonesia>.
- 43 Ibid.
- 44 Jindrich Petrlik et al., Plastic waste poisons Indonesia's food chain, IPEN, Nexus3, Arnika Association, Ecoton,

- November 2019, <https://ipen.org/documents/plastic-waste-poisons-indonesia-food-chain>.
- 45 Ibid.
- 46 Davide Maniaci, *Incendio Mortara, arrestati i titolari della Eredi Bertè: «Diedero fuoco ai rifiuti per non doverli smaltire»*, *Corriere della Sera*, 7 October 2021, [https://milano.corriere.it/notizie/lombardia/21\\_ottobre\\_07/incendio-mortara-arrestati-titolari-eredi-berte-diedero-fuoco-rifiuti-non-doverli-smaltire-58e42de0-273b-11ec-8e22-571cfe84393b.shtml](https://milano.corriere.it/notizie/lombardia/21_ottobre_07/incendio-mortara-arrestati-titolari-eredi-berte-diedero-fuoco-rifiuti-non-doverli-smaltire-58e42de0-273b-11ec-8e22-571cfe84393b.shtml).
- 47 Interview with researcher Sedat Gündoğdu, Cukurova University, Turkey, 24 June 2021. Gündoğdu has been tracking suspicious fires since 2019. For more information, see: <https://mikroplastik.org/en/plastic-recycling-facility-fires/>.
- 48 Interview with Prigi Arisandi, founder and executive director of Ecoton Indonesia, 30 June 2021.
- 49 Interview with official from Ghana's Environmental Protection Agency, 30 April 2021.
- 50 Interview with official from the Zambia Environmental Management Agency, 5 July 2021.
- 51 Amelia Gentleman, Three victims of trafficking and modern slavery to sue Biffa, *The Guardian*, 14 January 2021, <https://www.theguardian.com/law/2021/jan/14/three-victims-of-trafficking-and-modern-slavery-to-sue-biffa>.
- 52 Waste Force Project, WasteForce Crime Alert #4 September – November 2019, 30 November 2019, <https://www.wasteforceproject.eu/wp-content/uploads/2020/02/WasteForce-Waste-Crime-Alert-4.pdf>.
- 53 Diane Taylor, UK waste firm fined £1.5m for exporting household waste, *The Guardian*, 30 July 2021, <https://www.theguardian.com/environment/2021/jul/30/uk-waste-firm-fined-15m-for-exporting-household-waste>.
- 54 Projections and data compiled by industry specialist Mouli Venkatesan, January 2021.
- 55 EuCertPlast Report: European industry generated sales of three billion euros in 2020, Waste Management World, 19 March 2021, <https://waste-management-world.com/a/eucertplast-report-european-industry-generated-sales-of-three-billion-euros-in>.
- 56 Interview with Jan Dell, founder, The Last Beach Cleanup, 26 May 2021.
- 57 Center for International Environmental Law, Fueling plastics: How fracked gas, cheap oil, and unburnable coal are driving the plastics boom, 2017, <https://www.ciel.org/wp-content/uploads/2017/09/Fueling-Plastics-How-Fracked-Gas-Cheap-Oil-and-Unburnable-Coal-are-Driving-the-Plastics-Boom.pdf>; Amanda Kistler and Carroll Muffett (eds.), Plastic & climate: The hidden costs of a plastic planet, Center for International Environmental Law, 2019, <https://www.ciel.org/wp-content/uploads/2019/05/Plastic-and-Climate-FINAL-2019.pdf>.
- 58 Beth Gardiner, Europe's plastics industry is about to boom. U.S. fracking is driving it, *National Geographic*, 25 March 2021, <https://www.nationalgeographic.com/environment/article/europe-plastics-industry-about-to-boom-us-fracking-driving-it>.
- 59 Cristian Gherasim, After China ban, Romania hit by illegal waste imports, EU Observer, 22 April 2021, <https://euobserver.com/news/151622>.
- 60 Antonia Zimmermann, Poland's waste blame game, *Politico*, 30 July 2021, <https://www.politico.eu/article/poland-waste-management-environment/>.
- 61 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 62 The Green Earth, INTERPOL and the UNEP criticize Hong Kong as a free port for plastic waste trade, the Green Earth urges the Environmental Protection Department to step up its control, 31 December 2020, <https://greenearth.org.hk/en/2020/12/20201231/>.
- 63 *South China Morning Post*, End Hong Kong's shameful role in illegal plastic waste trade, 11 January 2021, [https://www.scmp.com/comment/letters/article/3116902/end-hong-kongs-shameful-role-illegal-plastic-waste-trade?module=perpetual\\_scroll&pgtype=article&campaign=3116902](https://www.scmp.com/comment/letters/article/3116902/end-hong-kongs-shameful-role-illegal-plastic-waste-trade?module=perpetual_scroll&pgtype=article&campaign=3116902).
- 64 Interviews with senior enforcement officers, Department of Environmental Affairs, South Africa, 8 April 2021.
- 65 Greenpeace Philippines and EcoWaste Coalition, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, March 2020, <https://storage.googleapis.com/planet4-philippines-stateless/2020/03/d11386c3-waste-trade-in-the-philippines-report-s.pdf>.
- 66 Aude Vidal, No more plastics in Southeast Asia paradise, *Le Monde diplomatique*, May 2021, <https://mondediplo.com/2021/05/10plastics>.
- 67 Greenpeace Philippines and EcoWaste Coalition, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, March 2020, <https://storage.googleapis.com/planet4-philippines-stateless/2020/03/d11386c3-waste-trade-in-the-philippines-report-s.pdf>.
- 68 Gregorio Rafael P. Bueta, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, Greenpeace Philippines and EcoWaste Coalition, March 2020, <https://www.greenpeace.org/static/planet4-philippines-stateless/2020/03/da311344-waste-trade-in-the-philippines-report-v2.pdf>.
- 69 Abhinandan Mishra, 11 lakh kg of hazardous waste dumped in India, *Sunday Guardian Live*, 14 December 2019, <https://www.sundayguardianlive.com/news/11-lakh-kg-hazardous-waste-dumped-india>.



- 70 Interview with senior official, Environment and Natural Resources Division, United States Department of Justice, 14 May 2021.
- 71 Report on fate of re-exports of seized illegal imports of waste from the USA to Indonesia, BAN and Nexus 3, 28 October 2019, [https://16edd8c0-c66a-4b78-9ac3-e25b63f72d0f.filesusr.com/ugd/13eb5b\\_907439e852d14544824343170a823ad4.pdf](https://16edd8c0-c66a-4b78-9ac3-e25b63f72d0f.filesusr.com/ugd/13eb5b_907439e852d14544824343170a823ad4.pdf).
- 72 Interview with senior official, Environment and Natural Resources Division, United States Department of Justice, 14 May 2021.
- 73 Interview with Jan Dell, founder, The Last Beach Cleanup, 26 May 2021.
- 74 Global Alliance for Incinerator Alternatives, Discarded communities on the frontlines of the global plastic crisis, April 2019, <https://wastetradestories.org/wp-content/uploads/2019/04/Discarded-Report-April-22.pdf>.
- 75 Greenpeace Philippines and EcoWaste Coalition, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, March 2020, <https://storage.googleapis.com/planet4-philippines-stateless/2020/03/d11386c3-waste-trade-in-the-philippines-report-s.pdf>.
- 76 Prak Chan Thul, Cambodia probes Chinese firm over illegal waste imports, Reuters, 19 July 2019, <https://www.reuters.com/article/us-cambodia-waste-idUSKCN1UEOPH>.
- 77 Interview with Ghana's Environmental Protection Agency, 30 April 2021.
- 78 Written interview with Ali Syed, Pakistan Waste Platform, 4 June 2021.
- 79 Interview with Friedor Jeske, Thant Myanmar, Yangon, 15 June 2021.
- 80 The Green Earth, INTERPOL and the UNEP criticize Hong Kong as a free port for plastic waste trade, the Green Earth urges the Environmental Protection Department to step up its control, 31 December 2020, <https://greenearth.org.hk/en/2020/12/20201231/>.
- 81 Henry Samuel, France slaps historic first fine on brokerage firm for shipping 'illegal' plastic waste to Malaysia, *The Telegraph*, 14 November 2019, <https://www.telegraph.co.uk/environment/2019/11/14/france-slaps-historic-first-fine-brokerage-firm-shipping-illegal/>.
- 82 Interview with researcher Sedat Gündoğdu, Cukurova University, Turkey, 24 June 2021.
- 83 James Patterson, Asia's new dumping ground: Italy is shipping its plastic waste to Malaysia, *International Business Times*, 2 November 2020, <https://www.ibtimes.com/asias-new-dumping-ground-italy-shipping-its-plastic-waste-malaysia-2919966>.
- 84 International Pollutants Elimination Network, Italian company caught illegally dumping plastic and other municipal waste in Tunisia, 3 March 2021, <https://ipen.org/news/italian-company-caught-illegally-dumping-plastic-and-other-municipal-waste-tunisia>.
- 85 Greenpeace Philippines and EcoWaste Coalition, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, March 2020, <https://storage.googleapis.com/planet4-philippines-stateless/2020/03/d11386c3-waste-trade-in-the-philippines-report-s.pdf>.
- 86 Rorisang Kgosana, Syndicate unlawfully dumps containers of waste in SA, *The Citizen*, 23 May 2019, <https://www.citizen.co.za/news/2134135/syndicate-unlawfully-dumps-containers-of-waste-in-sa/>.
- 87 Darrel Moore, 'Enormous' increase in UK plastic waste exports to Turkey and Malaysia – Greenpeace, *Circular Online*, 17 February 2021, <https://www.circularonline.co.uk/news/enormous-increase-in-uk-plastic-waste-exports-to-turkey-and-malaysia-greenpeace/>.
- 88 Martijn Reintjes, Fraud with plastic scrap from UK has Dutch connection, *Recycling International*, 19 October 2018, <https://recyclinginternational.com/plastics/fraud-with-plastic-scrap-from-uk-has-dutch-connection/17581/>.
- 89 Environment Agency, UK, 28 July 2021.
- 90 Darrel Moore, 'Enormous' increase in UK plastic waste exports to Turkey and Malaysia – Greenpeace, *Circular Online*, 17 February 2021, <https://www.circularonline.co.uk/news/enormous-increase-in-uk-plastic-waste-exports-to-turkey-and-malaysia-greenpeace/>.
- 91 Rorisang Kgosana, Syndicate unlawfully dumps containers of waste in SA, *The Citizen*, 23 May 2019, <https://www.citizen.co.za/news/2134135/syndicate-unlawfully-dumps-containers-of-waste-in-sa/>.
- 92 Trashed: how the UK is still dumping plastic waste on the rest of the world, Greenpeace, 2021, <https://www.greenpeace.org.uk/wp-content/uploads/2021/05/Trashed-Greenpeace-plastics-report-final.pdf>.
- 93 Interviews with senior enforcement officers, Department of Environmental Affairs, South Africa, 8 April 2021.
- 94 Ibid.
- 95 Greenpeace Philippines and EcoWaste Coalition, Waste trade and the Philippines: How local and global policy instruments can stop the tide of foreign waste dumping in the country, March 2020, <https://storage.googleapis.com/planet4-philippines-stateless/2020/03/d11386c3-waste-trade-in-the-philippines-report-s.pdf>.
- 96 Alexander M Hynd and Alexine Sanchez, Trash talk in the Philippines reveals waste trails in Southeast Asia, *The Interpreter*, 20 May 2019, <https://www.lowyinstitute.org/the-interpreter/trash-talk-philippines-reveals-waste-trails-southeast-asia>.
- 97 Kang Seung-woo, Korea takes flak for illegal waste export to Philippines, *Korea Times*, 11 December 2018, [https://www.koreatimes.co.kr/www/nation/2018/12/371\\_260197.html](https://www.koreatimes.co.kr/www/nation/2018/12/371_260197.html).
- 98 Max Walden and Erwin Renaldi, Indonesian environmentalists accuse Australia of 'smuggling' plastic waste following China ban, *ABC News*, 30 April

- 2019, <https://www.abc.net.au/news/2019-04-30/australia-accused-of-smuggling-plastic-waste-to-indonesia/11054592?nw=0>; James Massola and Karuni Rompies, Indonesia to ship 100 containers of contaminated waste to Australia, *Sydney Morning Herald*, 18 September 2019, <https://www.smh.com.au/world/asia/indonesia-to-ship-100-containers-of-contaminated-waste-to-australia-20190918-p52so8.html>.
- 99 Margaretha Quina and Yuyun Ismawati Drwiega, Averting the global plastic waste tsunami in Indonesia, *Jakarta Post*, 23 May 2019, <https://www.thejakartapost.com/news/2019/05/23/averting-global-plastic-waste-tsunami-indonesia.html>; Nithin Coca, Asian countries spurn and burn waste imports, *Eco-Business*, 27 January 2020, <https://www.eco-business.com/news/asian-countries-spurn-and-burn-waste-imports/>.
- 100 The Green Earth, INTERPOL and the UNEP criticize Hong Kong as a free port for plastic waste trade, the Green Earth urges the Environmental Protection Department to step up its control, 31 December 2020, <https://greenearth.org.hk/en/2020/12/20201231/>.
- 101 Recycled UK Limited, Plastic recycling brokers vs recycling companies, accessed on 20 September 2021, <https://blog.recycleduklimited.com/plastic-recycling-brokers-vs-recycling-companies#:~:text=Plastic%20Recycling%20Brokers%20Vs%20Recycling%20Companies>.
- 102 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 103 Interview with Jan Dell, founder, The Last Beach Cleanup, 26 May 2021.
- 104 Tuổi trẻ Online, *Rác thế giới đổ về Việt Nam: Có gì bên trong container phế liệu?*, 11 September 2018, <https://tuoitre.vn/rac-the-gioi-do-ve-viet-nam-co-gi-ben-trong-container-phe-lieu-20180911095920123.htm>.
- 105 Henry Samuel, France slaps historic first fine on brokerage firm for shipping 'illegal' plastic waste to Malaysia, *The Telegraph*, 14 November 2019, <https://www.telegraph.co.uk/environment/2019/11/14/france-slaps-historic-first-fine-brokerage-firm-shipping-illegal/>.
- 106 In the UK, recyclers earn financial credits through PERNs, a producer-responsibility system. On their part, manufacturers and retailers, for example waste producers, buy PERNs commensurate with the amount of packaging material they put on the market.
- 107 Specifically, their names did not feature on Annex VII, a form for green-list waste shipments confirming that waste would be handled at its destination in an environmentally sound way, or Article 18, a contract that details the controls that apply to all movement of green-list waste from the UK. For more information, see Environment Agency, Annex VII document for green list waste shipments, 8 April 2021, <https://www.gov.uk/government/publications/annex-vii-document-for-green-list-waste-shipments>.
- 108 The aforementioned Annex VII and Article 18 contracts.
- 109 Basel Action Network, A call to action: Activists call on shipping lines to stop exporting plastic waste to developing countries, 2021, <https://www.ban.org/plastic-waste-transparency-project-hub/shipping-lines-campaign>.
- 110 Abhinandan Mishra, 11 lakh kg of hazardous waste dumped in India, *Sunday Guardian Live*, 14 December 2019, <https://www.sundayguardianlive.com/news/11-lakh-kg-hazardous-waste-dumped-india>.
- 111 Ibid.
- 112 Interview with the Zambia Environmental Management Agency, July 2021.
- 113 Aqil Haziq Mahmud, Malaysia moves to reap the benefits of processing global plastic waste, *Channel News Asia*, 30 December 2018, <https://www.channelnewsasia.com/news/asia/malaysia-world-plastic-waste-recycling-china-11048810>.
- 114 Duyen Duyen, *Chiều thức nhập khẩu phế liệu núp bóng hạt nhựa vận chuyển về Việt Nam*, *VnEconomy*, 11 August 2019, <https://vneconomy.vn/chieu-thuc-nhap-khau-phe-lieu-nup-bong-hat-nhua-van-chuyen-ve-viet-nam-20190811134624394.htm>; John M Simon, Illicit trade in waste: it is time to raise the alarm and mobilize, World Customs Organization, <https://mag.wcoomd.org/magazine/wco-news-89/illicit-trade-in-waste-it-is-time-to-raise-the-alarm-and-mobilize/>.
- 115 John M Simon, Illicit trade in waste: it is time to raise the alarm and mobilize, World Customs Organization, <https://mag.wcoomd.org/magazine/wco-news-89/illicit-trade-in-waste-it-is-time-to-raise-the-alarm-and-mobilize/>.
- 116 Kat Eschner, Trash talk: Philippine president to 'declare war' on Canada in waste dispute, *The Guardian*, 24 April 2019, <https://www.theguardian.com/world/2019/apr/24/philippine-president-rodrido-duterte-to-declare-war-on-canada-in-waste-dispute>.
- 117 Aqil Haziq Mahmud, Malaysia moves to reap the benefits of processing global plastic waste, *Channel News Asia*, 30 December 2018, <https://www.channelnewsasia.com/news/asia/malaysia-world-plastic-waste-recycling-china-11048810>.
- 118 Tuổi trẻ Online, *Rác thế giới đổ về Việt Nam: Lợi nhuận cực lớn*, 13 September 2018, <https://tuoitre.vn/rac-the-gioi-do-ve-viet-nam-loi-nhuan-cuc-lon-20180913084803132.htm>.
- 119 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).



- 120 Interview with Yuyun Ismawati, founder, Nexus 3, Indonesia, 23 June 2021.
- 121 Ibid.
- 122 Recycled UK Limited, Plastic recycling brokers vs recycling companies, accessed on 20 September 2021, <https://blog.recycleduklimited.com/plastic-recycling-brokers-vs-recycling-companies#:~:text=Plastic%20Recycling%20Brokers%20Vs%20Recycling%20Companies>.
- 123 Colin Staub, Report: China clamps down on recycled pellet imports, Plastics Recycling Update, 22 September 2020, <https://resource-recycling.com/plastics/2020/09/16/report-china-clamps-down-on-recycled-pellet-imports/>.
- 124 Interview with Prigi Arisandi, founder and executive director, Ecoton Indonesia, 30 June 2021.
- 125 World Bank, Market study for Malaysia: Plastics circularity opportunities and barriers, 17 March 2021, <https://www.worldbank.org/en/country/malaysia/publication/market-study-for-malaysia-plastics-circularity-opportunities-and-barriers>.
- 126 Interview with an environmental impact assessment specialist, Malaysia, 20 October 2020.
- 127 Interview with Ghana's Environmental Protection Agency, 30 April 2021.
- 128 Interview the Zambia Environmental Management Agency, 5 July 2021.
- 129 Ibid.
- 130 Ibid.
- 131 Interview with researcher Sedat Gündoğdu, Cukurova University, Turkey, 24 June 2021.
- 132 Interview with researcher Sedat Gündoğdu, Cukurova University, Turkey, 24 June 2021; Colin Staub, Report: China clamps down on recycled pellet imports, Plastics Recycling Update, 22 September 2020, <https://resource-recycling.com/plastics/2020/09/16/report-china-clamps-down-on-recycled-pellet-imports/>.
- 133 Interview with an NGO director, 27 May 2021; interview with a waste broker, 5 May 2021.
- 134 Interview with industry specialist, 30 June 2021.
- 135 INTERPOL, Emerging criminal trends in the global plastic waste market since January 2018, August 2020, [https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20\\_criminal%20trends-plastic%20waste.pdf](https://www.interpol.int/content/download/15587/file/INTERPOL%20Report%20_criminal%20trends-plastic%20waste.pdf).
- 136 Ibid.
- 137 Details of the case provided by the Environment Agency, UK, July 2021.
- 138 Interview with a former waste broker, UK, 8 July 2021.
- 139 Environment Agency, HM Revenue & Customs and National Crime Agency, Successful first year for waste crime taskforce despite pandemic, 18 January 2021, <https://www.gov.uk/government/news/successful-first-year-for-waste-crime-taskforce-despite-pandemic>.
- 140 INTERPOL, Our response to environmental crime, accessed on 7 October 2021, <https://www.interpol.int/en/Crimes/Environmental-crime/Our-response-to-environmental-crime#pt-1>.
- 141 INTERPOL's Pollution Crime Working Group brings together criminal investigators and other pollution-crime experts from member countries to discuss current environmental enforcement issues, best practices and trends, and threats facing their respective countries.
- 142 INTERPOL, Operation 30 Days at Sea 3.0 reveals 1,600 marine pollution offences worldwide, 29 April 2021, <https://www.interpol.int/en/News-and-Events/News/2021/Operation-30-Days-at-Sea-3.0-reveals-1-600-marine-pollution-offences-worldwide>.
- 143 Department for Environment, Food & Rural Affairs, Waste management: smart tracking of waste (GovTech Catalyst), 28 October 2019, <https://www.gov.uk/government/collections/waste-management-smart-tracking-of-waste-govtech-catalyst>.
- 144 Alya Nurbaiti, The apps helping Indonesia's waste collectors, China Dialogue, 16 September 2021, <https://chinadialogue.net/en/cities/the-apps-helping-indonesias-waste-collectors/#:~:text=Among%20them%20is%20waste%20management,Indonesia%2C%20Bali%20and%20West%20Java>.









# GLOBAL INITIATIVE

AGAINST TRANSNATIONAL  
ORGANIZED CRIME

## ABOUT THE GLOBAL INITIATIVE

The Global Initiative Against Transnational Organized Crime is a global network with over 500 Network Experts around the world.

The Global Initiative provides a platform to promote greater debate and innovative approaches as the building blocks to an inclusive global strategy against organized crime.

**[www.globalinitiative.net](http://www.globalinitiative.net)**