



INTERPOL

## Strategic Analysis Report

Emerging criminal trends in the global plastic waste market since January 2018



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This report is available to the public.

It is complementary to two law enforcement restricted reports that have been distributed by INTERPOL General Secretariat to all its 194 Member Countries and published on the INTERPOL restricted website:

- an INTERPOL report on the global criminal trends in the plastic waste market, and
- a joint INTERPOL-LIFE SMART Waste Report on the European trends.

They include further details and sensitive information on criminal data and case studies.

Law enforcement officers may request those restricted reports to their National Central Bureau.

### **Front cover image:**

*Left: This image provided by NCB Rome to INTERPOL was taken during an inspection of an illegal dumping site in Italy, which was carried out in 2017 in the framework of the INTERPOL Operation 30 Days of Action. Waste enforcement has been developing for years in Italy and more generally in Europe, against the long-lasting problem of illegal waste disposal. However efforts have intensified since January 2018, to respond to an apparent growth of the criminality in plastic waste sector.*

*Right: This image, provided by the Enforcement Division of Malaysia's Department of Environment to INTERPOL, shows a 2019 inspection of an import container of mixed and contaminated plastic waste that was falsely declared as clean plastic waste destined for recycling. It illustrates a criminal trends increasingly observed in Malaysia, where illegal plastic waste imports have drastically increased since January 2018.*

## ACKNOWLEDGEMENT

INTERPOL would like to thank the LIFE SMART Waste project for its generous financial support to the INTERPOL Global Pollution Enforcement Programme. This allowed INTERPOL General Secretariat to collect and analyse recent law enforcement data on criminal trends related to plastic waste.



LIFE SMART Waste is an innovation project addressing waste crime. The project is led by the Scottish Environment Protection Agency (SEPA) in partnership with ACR+ (the Association of Cities and Regions for sustainable Resource management), Brussels Environment and Natural Resources Wales. The LIFE SMART Waste project has received funding from the LIFE Programme of the European Union in the period 2014-2020.



INTERPOL would also like to thank the Norwegian Agency for Development Cooperation for its financial support to the INTERPOL Marine Pollution Enforcement Project. This allowed INTERPOL General Secretariat to coordinate global enforcement operations against marine pollution, including plastic pollution, which have been a valuable source of intelligence for this report.



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## EXECUTIVE SUMMARY

On a global scale, policies encouraging the recycling of plastic waste have created a large and continuously expanding business sector, with significant volumes of plastic waste traded transnationally for recycling.

Between 1992 and 2018, China imported a cumulative 45% of the world's plastic waste, making the global plastic waste market heavily dependent on the access to the Chinese recycling sector. However, in January 2018 China implemented new imports restrictions of 24 types of solid waste including plastic waste.

As a result of this policy, a large re-routing of plastic waste exports has been observed since January 2018, especially towards alternative South and South-East Asian destination countries. Shipments of plastic waste within the intra-European market have also increased, especially towards Central and Eastern Europe. It is likely that the increased volume of imported plastic waste to be recycled in those emerging import countries has affected the recycling rates of their domestic waste, generating a waste surplus on their territory.

Nevertheless the volume of plastic waste traded to those emerging destinations do not compensate for the volume that used to be sent to China prior January 2018. The reduced volume of waste legally channelled to international trade has resulted in a surplus of waste accumulating within national territories of export countries.

The implications of this policy change on crime in the plastic waste market need to be better understood to better combat crime within this sector.

### **What criminal trends and threats are emerging in the plastic waste market since January 2018? What law enforcement and policy responses are needed to tackle these threats?**

To answer these questions, INTERPOL General Secretariat collected and analysed official enforcement data 40 INTERPOL member countries worldwide, completed by open source information.

#### **EMERGING CRIMINAL TRENDS IN THE PLASTIC WASTE SECTOR**

Difficulties in treating and monitoring the plastic waste surplus in both export and import countries have opened doors for opportunistic crime in the plastic waste sector, both in terms of illegal trade and of illegal waste treatment.

##### **The re-routing of illegal plastic waste shipments**

According to this INTERPOL analysis, there has been continuous re-routing of illegal waste shipments to emerging import countries, primarily located in South and South-East Asia, and to a lesser extent in Eastern Europe. This displacement is destined to the same destinations as the ones that have emerged on the legal market since January 2018. It is the most prominent emerging trend observed.

The use of transit countries to disguise the origin of the waste shipment has been commonly observed *modus operandi* for such illegal shipments.

Requests from South and South East Asian countries to repatriate illegal containers of plastic waste have increased since 2018, but remain a long and challenging process. As a consequence, containers have been piling up in South-East Asian ports and sometimes re-exported illegally to neighbours in the region, transferring the burden of dealing with the illegal waste.

As waste import countries around the world introduce new legislations restricting plastic waste imports, INTERPOL estimates it is very probable<sup>1</sup> that plastic waste trade will continue to adapt and re-route shipments

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<sup>1</sup> The identified trends are assessed according to the following words of estimative probability (WEP): from almost certain; probable; likely; possible; unlikely; to almost certainly not.

to new and vulnerable countries. New destinations for illegal plastic waste shipments will likely be found in South-East Asian countries that are currently minor importers and with very limited waste management and waste enforcement capacities. It is possible that other destinations will be found in Africa and Latin America, however more data from those regions is necessary to assess this risk further. In Africa, the existing routes for electronic waste trafficking could be used for plastic waste shipments. Some African countries already receive large quantities of plastic material “soon-to-be waste”, embedded in illegally imported e-waste. In Latin America the recycling sector is reportedly growing, which may attract new plastic waste exports.

### **Increase in illegal treatment of plastic waste**

There has been a noted increase in illegal treatment of plastic waste in both export countries and in emerging import countries.

Three key phenomena were profiled in this context:

1. Export countries have experienced both a significant increase in waste disposal in illegal landfills as well as irregular waste fire in order to cheaply deal with the large volumes of untreated domestic waste that would have previously been exported to China.
2. In emerging Asian import countries, the significant increase in plastic waste imports, coupled with a lack of enforcement capacities, has almost certainly allowed illegal recycling facilities to thrive, profiting by circumventing license costs and environmentally sound treatment costs. It has also almost certainly led to an increase in illicit landfills, especially of the domestic plastic waste, which is often of lesser quality than imported waste due to deficiency in local waste collection and sorting out system.
3. There has been an increase in accidental and deliberate waste fires, almost certain in export countries, and probable in European and South-East Asian import countries as well.

### **Increase in fraudulent documents and misdeclaration of plastic waste**

Fraudulent documents and the misdeclaration of waste have been a common modus operandi in waste crime for a number of years.

However, the following fraudulent activities have likely increased in frequency and complexity during recent years, and are now emerging in countries where it was not previously reported:

- Plastic waste shipments are falsely declared as destined for recovery, or misdeclared as raw material. In terms of Basel codes, plastic waste shipments are falsely declared as non-hazardous (Annex IX), while it is contaminated or mixed with other waste streams (Annex VIII or Annex II).
- Illegal shipped contaminated plastic waste is concealed in the container by being placed behind the “clean” plastic waste that is declared on shipping documents;
- Misdeclaration of waste supporting tax evasion; and
- Misdeclaration of the final destination of plastic waste shipments, using a transit country in a free trade zone.

Several countries have observed indicators and/or collected evidence of the involvement of organized criminal groups (OCGs) in some cases of illegal trade and management of plastic waste. INTERPOL has identified that the infiltration of OCGs into the waste sector usually happens through legitimate businesses as a cover for illegal operations, with regular involvement of financial crimes and various frauds, especially documents forgery. Such infiltration in legitimate businesses also reveals a certain level of sophistication of the criminal enterprise and professional competencies among offenders.

## ANTICIPATING FORTHCOMING RISKS IN THE WASTE SECTOR

This report further recommends a move towards proactive waste enforcement, by scanning risks early and addressing them before they turn into actual threats.

The following risks were identified to present a likely to almost certain impact on the illegal trends directly or indirectly related to the plastic waste sector, in the near future:

- The re-routing of illegal trade to new and more vulnerable countries following upcoming restrictions on plastic waste imports;
- The increase in illegal plastic disposal if the Basel Convention amendment on plastic waste trade is not properly implemented starting from 2021;
- Criminal activities emerging from new regulations on plastic-derived chemicals and on other waste streams, particularly copper scraps;
- New criminal activities related to banned plastic items, photovoltaic panels waste, lead batteries and lithium batteries-related waste.

Collaboration between regulators, inspection bodies, enforcement officers, and the private waste sector is essential to address those risks and achieve appropriate governance of the waste sector.

## MAIN RECOMMENDATIONS TO FIGHT CRIMINALITY IN THE PLASTIC WASTE SECTOR

Four main challenges and their potential solutions were identified through consultations with member countries:

1. There are challenges in gathering the right information needed for waste crime investigations, coupled with the shortage of resources allocated to waste enforcement in most countries. These challenges require the development of targeted and time-efficient inspection strategies, particularly **intelligence-led risk indicators** and **financial investigations**, tackling not only waste sites but also criminal networks and illicit assets.
2. Due to limitations of investigative powers, waste crime investigations can be fragmented among various authorities. **Inter-agency cooperation** can provide an appropriate response to the challenges faced in the enforcement of waste crime by combining competencies, mandates and statutory powers from different authorities to achieve an investigative approach to waste crime comprising of environmental, financial and organized crime investigations, where appropriate. Prosecutors should also be involved at an early stage of the investigation.
3. The lack of **waste traceability** at the international level hinders efforts to identify the source, the consignee and other investigative leads. Several solutions can mitigate this challenge:
  - Strengthening and standardizing the licensing system of waste facilities nationwide;
  - Making national databases of licensed facilities accessible to other countries, such as through the Basel Convention Secretariat;
  - Clarifying the requirements from export countries to proceed with repatriation;
  - Enhancing the use of existent secured communication channels, such as INTERPOL I24/7 and WCO CenComm, to share critical intelligence; and
  - Monitoring criminal trends and stimulating intelligence-based investigations through global enforcement operations targeting waste crime.

With a rapidly changing market and regulatory environment, it is also essential that countries **communicate any update to their import regulations** to the Basel Convention Secretariat and/or all other countries in a timely, official and clear manner.

Last, a broader range of plastic wastes will be brought within the scope of the Basel Convention starting in January 2021. It will be a key step forward a better monitoring and control of the plastic waste stream, under a common international legal framework.

## INTRODUCTION

A number of policy initiatives, scientific assessments on the impacts of plastic pollution, and detections of more and more complex pollution crimes have contributed in recent years to raise awareness among the law enforcement community on the need to better understand and control the plastic waste market.

To support of more effective pollution enforcement, this assessment report aims to provide enforcers with a better understanding of the criminal trends at stake in the plastic waste market.

The justification for this focus on the plastic waste market is its recent major transformation. Since January 2018, China severely restricted plastic waste imports, while it used to import almost half of the world's plastic waste for decades. Waste exporters had to look for alternative avenues. This raises the question of how enormous quantities of plastic waste have been dealt with since then, and whether the challenge of the immediate reconversion of the plastic waste market may have opened the door to illegal business opportunities.

Indeed, illegal activities involving plastic waste have been increasingly reported in many countries across various regions by government agencies, NGOs and the media. This report responds to a growing demand by stakeholders engaged in INTERPOL operations to develop a strategic assessment on the new criminal trends in the plastic waste sector, in order to clarify the type, extent and geographical distribution of criminal threats to inform enforcement action.

## OBJECTIVES

This report aims to answer the two following questions:

- What criminal trends and threats are emerging in the plastic waste market since January 2018?***
- What law enforcement and policy responses are needed to tackle these threats?***

This Strategic Analysis Report intends to provide updated knowledge of the criminal activities emerging in the plastic waste market as well as to suggest tailored enforcement responses.

In particular, it aims at identifying:

- Emerging trafficking routes characterizing the illegal trade in plastic waste;
- The nature and scale of the increase in illegal plastic waste management;
- The evolution of the modus operandi and motives of criminals in the plastic waste sector;
- The extent of the involvement of organized crime in the plastic waste sector and convergence with other crimes;
- Risk indicators and case studies; and
- Recommendations for strengthening law enforcement responses.

Doing so, this analysis primarily support the law enforcement community with the strategic objective of improving detection and enforcement of plastic waste related crimes in order to enhance environmental quality and disrupt criminal networks in the waste sector.

In addition, this public version of the report aims to inform policymaking and raise awareness on the criminality in the waste sector and its significant contribution to the plastic pollution global issue.



## DATA COLLECTION METHODS

The analytical process underlying this report involved two phases.

The first phase focused on building key hypothesis on emerging criminal trends through extensive data collection drawing on a combination of sources:

1. Open source scanning, particularly news articles;
2. Official law enforcement data provided by INTERPOL member countries to INTERPOL General Secretariat;
3. Operational reports concerning specific cases detected and investigated by member countries in the framework of INTERPOL Operation 30 Days at Sea 2.0 (October 2019) and other country-led operations in the course of 2019;
4. Focus group discussions and individual interviews conducted with national experts on waste enforcement gathered during the “INTERPOL Operational Coordination Centre on plastic waste enforcement” (October 2019).

Overall, the following 40 countries provided information and/or intelligence for the purpose of this report:

- |   |                           |                        |                         |
|---|---------------------------|------------------------|-------------------------|
| 1. <b>Argentina</b>                             | 11. <b>United Kingdom</b> | 21. <b>Jordan</b>      | 31. <b>Portugal</b>     |
| 2. <b>Australia</b>                             | 12. <b>France</b>         | 22. <b>Latvia</b>      | 32. <b>Romania</b>      |
| 3. <b>Bangladesh</b>                            | 13. <b>Germany</b>        | 23. <b>Luxembourg</b>  | 33. <b>Russia</b>       |
| 4. <b>Brazil</b>                                | 14. <b>Ghana</b>          | 24. <b>Malawi</b>      | 34. <b>Saudi Arabia</b> |
| 5. <b>Cambodia</b>                              | 15. <b>Guatemala</b>      | 25. <b>Malaysia</b>    | 35. <b>Slovakia</b>     |
| 6. <b>Canada</b>                                | 16. <b>Hungary</b>        | 26. <b>Malta</b>       | 36. <b>Spain</b>        |
| 7. <b>Chile</b>                                 | 17. <b>Indonesia</b>      | 27. <b>Mexico</b>      | 37. <b>Sweden</b>       |
| 8. <b>China</b>                                 | 18. <b>Ireland</b>        | 28. <b>Netherlands</b> | 38. <b>Switzerland</b>  |
| 9. <b>Czech Republic</b>                        | 19. <b>Italy</b>          | 29. <b>Palestine</b>   | 39. <b>Thailand</b>     |
| 10. <b>Democratic Republic<br/>of the Congo</b> | 20. <b>Japan</b>          | 30. <b>Philippines</b> | 40. <b>Turkey</b>       |

In the second phase, collected data were used for statistical analysis, trend analysis and qualitative analysis. A number of findings emerged clearly and consistently from this analytical process, allowing to verify hypothesis and define criminal trends, while also exposing information gaps. Both qualitative and quantitative findings are delivered in this report.

***The identified trends are assessed according to the following words of estimative probability (WEP): from almost certain; probable; likely; possible; unlikely; to almost certainly not.***

Appendix 1 (page 53) describes further the data collection methods used for this report.

## ASSESSMENT

### 1. OVERVIEW OF THE ILLEGAL PLASTIC WASTE SECTOR, A GROWING GLOBAL ISSUE

This section aims to provide a broad understanding of the context in which criminal activities in the recyclable plastic waste sector take place and to show why it is important to assess changes in related criminal trends since 2018. This crime area represents an “illegal within the legal” sector, an illicit side of two parallel markets. Analysing plastic waste crime must therefore require to understand the legitimate plastic waste business.

#### 1.1 Expansion of the legal plastic waste market and its high economic value

##### Plastic waste: a growing high value market

The plastics consumption per capita is rapidly growing at the global scale. As a result, global plastic waste production has steadily increased by 10 million metric tons every year in the 2010’s decade, to reach almost 360 million metric tons per year in 2018 [1].

Plastic waste processing is a high value market, providing business opportunities and revenue through energy recovery (via incineration) and raw material generation (via recycling) (see Figure 1). The global recycled plastics market alone was valued at USD 34.80 billion in 2016 and is projected to reach USD 50.36 billion by 2022 [2] - not counting the traditional waste processing market, including incineration and landfill.

The plastic waste market entails processing costs at different stages of the plastic waste value chain, notably infrastructure and labour costs, as well as taxation, especially taxes imposed on incineration and landfill in countries that encourage recycling. Plastic waste crime consists of efforts to reduce or circumvent those costs, or to make profit by charging those costs to clients (addressed in greater details in section 1.2).

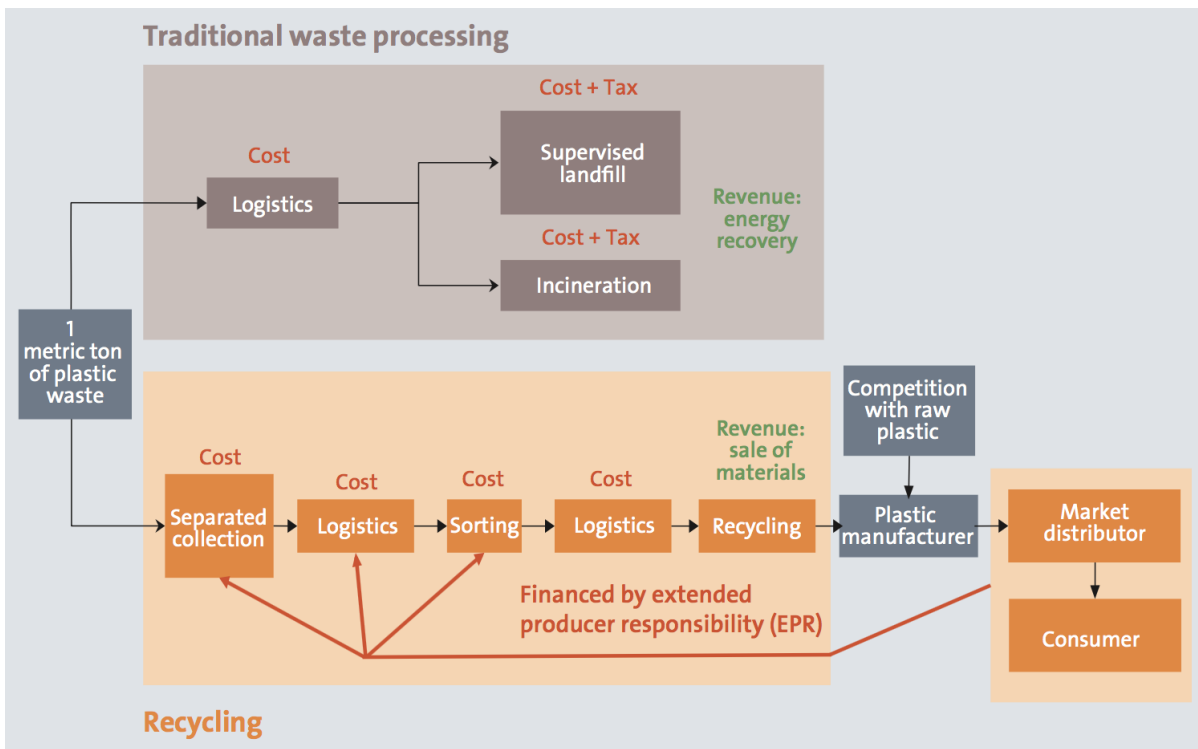


Figure 1: Value chain of plastic waste processing

Source: Field Actions Science Reports. The journal of field actions [3]

## The trade in recyclable plastic waste is large and international

Most high-income countries have regulations encouraging the recycling of plastic waste – with high recycling targets that scale up to 30%. This is particularly the case among the European Union (EU) member countries and Japan. [3]. Those countries have made large investments in recycling and have mature waste treatment infrastructure that allows for collecting and sorting out plastic waste.

For example in 2016, 31.1% of the 27.1 million metric tons of collected plastic waste in Europe (EU countries, Norway and Switzerland) was sent for recycling [4] (to both domestic and foreign recycling factories). This represents a high recycling target compared to a world average of 9% of recycled plastic waste [5].

However, they also have high labour costs, resulting in an economic incentive for retailing companies to export the sorted out waste to recycling companies in lower income countries where labour and processing costs are cheaper. In 2016, more than one third of the plastic sent for recycling was exported to be processed outside the European region [4].

As plastic recycling produces raw material with a certain market value, even high-income countries that lack an incentive policy towards recycling, such as the United States and Australia, export a significant share of their domestic waste for recycling overseas.

From the perspective of a high-income countries of the Organization for Economic Cooperation and Development (OECD), shipping goods to Asia is particularly opportune with respect to shipping to other destinations. Asia has a large production of consumers' products and exports a large share of them towards Europe and other Western countries. Hence in Asia there is a high demand for containers ready to be loaded with locally-produced goods and shipped overseas. Shipping companies have therefore a keen interest to send as many containers as possible to Asia, but sending empty containers would not allow them to maximise their profits. As a consequence, shipping lines create an incentive for European companies to export to Asia by keeping the price of transport towards Asia relatively low.

Over the time, this dynamic have greatly encouraged the growth of exports of any kinds towards Asia, and waste exports are no exception. Indeed, shipping a container of waste from Europe to Asia may be cheaper than paying for recycling costs in the European country of origin. With the arrival of growing quantities of waste in Asian ports, recycling companies have flourished in some Asian countries.

Recycling companies based in Asia likely rely on imported plastic waste to feed their business. This is explained by the fact that most Asian countries have very low investments into the collection and sorting out of their domestic waste, and unsorted and contaminated waste are not suitable for recycling. On the contrary, waste exported from Europe has often gone through a sorting process that makes it fir for recycling.

There are different types of plastic waste, responding to different trade regulations according to their classification under different annexes the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal [6]:

- non-hazardous plastic wastes (Annex IX),
- plastic from household waste requiring special consideration (Annex II), or
- hazardous plastic waste (Annex VIII)<sup>2</sup>.

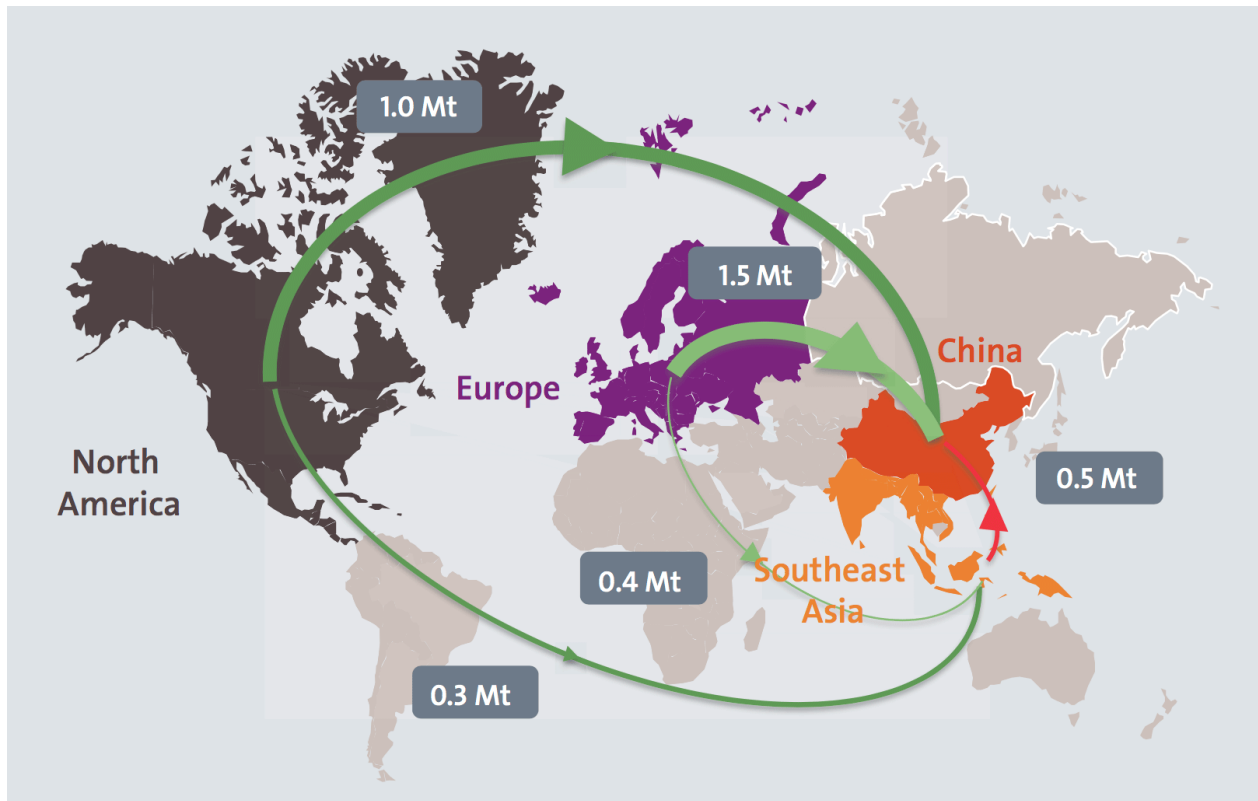
Only the two later waste streams are controlled under the Basel Convention. While recyclable plastic waste is classified as non-hazardous waste, the classification of mixed plastic waste has been subject to interpretation, considered as household waste by some Parties only.

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<sup>2</sup> Plastic waste can also be classified in Annex I when it is contaminated with Annex I constituents

Therefore plastic waste sent recycling has benefitted from a relatively unregulated trade regime, without the time-consuming procedures and paperwork that is required for the transport of hazardous wastes in accordance with the provisions of the Basel Convention.

All these factors have contributed to the establishment of a large scale transregional trade in recyclable plastic waste, where trading routes have consistently gone from high-income OECD countries to lower-income countries for decades, converging towards Asia, especially to China. Map 1 illustrates the trade routes in 2016.



Map 1: International trade in plastic waste in 2016

Source: Field Actions Science Reports. The journal of field actions [3]

Aware of the need for a broader set of plastic wastes to be monitored and controlled within the international waste trade, the 187 Parties to the Basel Convention - 186 countries as well as the European Union - have adopted a series of amendments during the Basel Conference of the Parties in April-May 2019, to increase the control of the plastic waste stream. They will be effective as of 1 January 2021 [7]<sup>3</sup>.

These “Plastic Amendments” bring a broader range of plastic wastes within the scope of the Convention, including not only hazardous plastic wastes (listed in Annex VIII), but also plastic wastes that “require special consideration”, namely those that are difficult to recycle (listed in Annex II).

It means that from January 2021:

- An export of Annex II plastic waste can only take place if the importing country expressly consents to the import, and if the waste will be managed in an environmentally sound manner.
- Non-hazardous, clean and sorted plastic waste destined for recycling in an environmentally sound manner (listed in Annex IX) can be traded without this prior informed consent (PIC) procedure.

Nevertheless the “Plastic Amendments” will be effective in 2021 and until their general implementation, it is crucial to understand better how the plastic waste market is currently exploited for illegal activities.

<sup>3</sup> Already in 2002, the Parties to the Convention adopted technical guidelines for the identification and environmentally sound management of plastic wastes and for their disposal (Access link: <http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW-WAST-GUID-PlasticWastes.English.pdf>).

## 1.2 Illegal activities in the plastic waste sector

### Opportunities for illegal activities at various stages of the plastic waste value chain

As in any business sector, opportunities for illegal activities can develop at various stages of the value chain of plastic waste processing (Figure 1, page 10), during:

- collection,
- transportation including transboundary movements,
- segregation (sorting out process),
- disposal (incineration or landfilling),
- recycling, and
- monitoring of waste.

Illegal activities can result from:

- negligence, or
- deliberate actions to generate profit.

On the one hand, negligence can be caused by poor understanding of trade legislations. The lack of standardized domestic legal frameworks regulating the trade in plastic waste, together with sudden reforms in countries' import policies, may lead to unintentional breaches of national regulations.

To mitigate this risk, it is indispensable that national reforms on waste trade are properly advertised through notification to the World Trade Organization and the Secretariat of the Basel Convention. For example, China's policy restricting imports of 24 types of solid waste including plastic waste was internationally announced in July 2017 before entering into force in January 2018. This pre-announcement was necessary for businesses and enforcers to adapt and prepare. In the absence of such notifications that make regulations publicly available, import restrictions in destination countries are likely to be unknown by the exporter or the custom officer in the export country.

On the other hand, significant amounts of plastic waste are also deliberately traded and disposed of illegally, taking advantage of regional inequalities in labour costs, environmental legislations and law enforcement capacities.

### Lack of traceability and limited enforcement capacities as the key facilitators of waste crime

The Basel Convention Annexes and the World Customs Organization (WCO) Harmonized Commodity Description and Coding System (HS) provide mechanisms of traceability of transnational transactions of waste, through a system of classification and codification:

- The Basel Convention codes are used to classify waste streams. The classification determines that a prior informed consent (PIC) procedure should be followed for the transboundary movement of waste listed in Annexes I and II. Parties can also decide under their national legislation that waste not mentioned in Annexes I and II need to be considered as hazardous and follow the PIC procedure too.
- The HS Convention aims is to facilitate trade and information exchange by harmonizing the description, classification and coding of commodities in international trade.<sup>4</sup>

In June 2017, INTERPOL coordinated a global law enforcement operation codenamed *30 Days of Action* tackling waste crime, with police, customs, border and environmental agencies from 43 member countries from every region of the world. During one month of operational activities, 664 violations were reported to INTERPOL, with 483 individuals and 264 companies involved in the offences. The value of the illicit waste detected was estimated in the order of USD 33 million, revealing the greatly profitable value of the illegal waste market [74].

In the framework of this Operation, plastic waste detected as illegally disposed or shipped amounted up to an estimated mass of 56,000 tons.

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<sup>4</sup> The HS is used for Customs tariffs and the collection of external trade statistics. It is also extensively used by governments, international organizations and the private sector for many other purposes, such as internal taxes, trade policies, monitoring of

However difficulties in practically tracing plastic waste from its origin point (waste collection stage) to its end state (waste treatment stage) has been recurrently reported to INTERPOL General Secretariat during the consultation with national enforcers and experts for this analysis.

The traceability of non-hazardous waste or waste that is not declared as waste is indeed very challenging:

- Under the Basel Convention, non-hazardous wastes, including most of the waste plastics, do not need a PIC procedure when they are transboundary moved, and are therefore hardly traceable. However a greater scope of plastic wastes will fall under the Basel Convention from January 2021, and therefore be more traceable.
- Under the HS Convention, the code HS 3915 refers to waste, parings and scrap of plastics. This code includes different types of plastics and do not necessarily differentiate plastic waste which need to be moved under the PIC procedure or which is prohibited to import into certain countries.

In addition, there is little information exchange between the inspection of an imported plastic waste container and the inspection of the facility that imported this waste. As a consequence, there is currently poor visibility of the actual recycling rate of the waste sent for recycling [5] [8].

As a result, a large and under-estimated share of recyclable plastics is does not end up recycled [5] [9]. Plastic waste import countries in emerging economies typically do not have the infrastructure to properly process all the domestic and imported plastic scrap, and often they are still developing enforcement capacity to tackle illegal waste activities. Some of the top destination countries for plastic waste report high waste mismanagement rates, such as India (87%), Indonesia (83%), Vietnam (88%) and Malaysia (57%) [5] [9]. Those numbers indicate that exporting nations may report artificially high recycling rate for their plastic waste [9], while in fact strong uncertainties remain on how plastic waste shipped overseas is treated. In addition, volumes of imported plastic waste can affect the recycling rates of domestic waste, especially when the import country lacks waste collecting and sorting out capacities.

It is estimated that since 1950, close to half of all plastic has ended up in landfill or dumped in the wild, and only 9% of used plastic has been adequately recycled. It is also estimated that 4 to 12 million metric tons of plastic waste ends up in the oceans every year [5].

### **Financial gain as the key motive of illegal waste activities**

The waste sector suffers from a range of illegal activities, perpetrated in a more or less organized manner, with a view to making profit by avoiding the costs of proper waste treatment or by creating profitable illegal business opportunities.

Such illegal activities mainly concerns illegal waste treatment at the domestic level and the illegal waste trade across borders. Table 1 presents a nomenclature of the terms used in this report to describe the different illegal activities in the waste sector<sup>5</sup>.

These activities apply to all types of waste, even though they do not affect all waste types with the same significance. Recyclable plastic waste is a significant waste streams and has a certain market value due to an increasing demand for recycled plastic. Therefore illegal recycling represent a certain business opportunity compared to the illegal disposal. However, prices for recycled plastics are still non-competitive compared to virgin plastics, which can be an incentive to dispose of the waste instead of baring the cost of recycling it. National policies and costs can therefore significantly impact the business opportunity represented by the different types of illegal activities.

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controlled goods, rules of origin, freight tariffs, transport statistics, price monitoring, quota controls, compilation of national accounts, and economic research and analysis. More details to find at the following link: <http://tfig.unece.org/contents/HS-convention.htm>

<sup>5</sup> This nomenclature aims to bring clarity on the terminology of the waste offences, as used in this report, however it does not intend to provide legal or official definitions of the same.

Illegal Waste Treatment <sup>6</sup>			Illegal Waste Trade <sup>7</sup>
Action of circumventing legal waste processing (see Figure 1) _ At the domestic level			Transboundary movement of waste not complying with export and/or import regulations _ At the international level
Illegal disposal	Illegal incineration	Illegal recycling	
<p><b>Non-authorized deposit of waste onto land</b>, including:</p> <ul style="list-style-type: none"> <li>• unauthorized disposal on a licensed site; or</li> <li>• disposal on a non-authorized site.</li> </ul> <p>Disposal comprises dump, landfill, fly-tipping<sup>8</sup> or burying.</p> <p>Non-authorized sites can be private or public and include but are not limited to roadsides; agricultural lands; isolated lands such as a forest or an abandoned industrial site; and private backyards.</p> <p>The level of organization and the gravity of the offence can vary greatly:</p> <ul style="list-style-type: none"> <li>• from a fly-tipping contravention committed by an individual,</li> <li>• to Organized Crime Groups (OCGs) perpetuating illegal dumping as a criminal business, in corroboration with money laundering, corruption and other types of crime.</li> </ul> <p>Motives for illegal disposal are financial, by cutting garbage tax (concerning residents), landfilling tax (from the government), disposal fee (from the landfill company), licensing fee, or recycling costs; and/or by generating profit from the revenues of an illegal landfill.</p> <p>Illegal dumping sites are also ground for illegal waste fire. They can be deliberate in an effort to reduce the quantity of disposed waste, as well as accidental and uncontrolled due to unsafe waste stockpiling.</p> <p>More marginally, illegal disposal can also refer to waste dumping at sea.</p>	<p><b>Non-authorized waste incineration</b>, including:</p> <ul style="list-style-type: none"> <li>• the incineration on an authorized site, of waste types improper or unauthorized for thermal treatment; or</li> <li>• the incineration of waste on a non-authorized site.</li> </ul> <p>Authorized sites found to be used for illegal waste incineration include cement industries, as they can legally incinerate number of hazardous wastes for energy-recovery.</p> <p>Motives for illegal incineration are financial, by cutting similar costs as for disposal; and/or by generating profit through energy recovery such as fuel production issued from plastic incineration</p>	<p><b>Recycling by a non-licensed facility</b></p> <p>As illegal recycling entails the reception of recyclable waste, and resell of produced recycled material, it requires a certain level of organization.</p> <p>It is often coupled with fraudulent license, sometimes involving illegal labour and other types of crime (e.g. money laundering, official corruption).</p> <p>Illegal recycling is mostly found in countries with developing economies, importing plastic waste from other countries that have better sorting out system and therefore better quality waste to processed (granulated, non-contaminated, etc.)</p> <p>Motives for illegal recycling are financial, by cutting costs from licensing fees, and/or by generating profit. Profit can be gained by reselling raw material without costs related to complying with regulations ensuring an environmentally sound management of waste (ESM), and safety measures, such as control of atmospheric emissions, effluent discharges and waste stockpiling.</p>	<p><b>Illegal shipment of waste, in violation of<sup>9</sup></b></p> <ul style="list-style-type: none"> <li>• export restrictions by the origin country;</li> <li>• import restrictions by the (actual) destination country; and/or</li> <li>• waste treatment requirements (waste sent for legal recycling is illegally managed in destination country).</li> </ul> <p>Illegal waste trade can occur at different stages of the waste shipment:</p> <ul style="list-style-type: none"> <li>• <i>At its origin</i>: during the collection, segregation, initial transfer from the producers to the shipping line, the container packing, and the export declaration. This involves a false declaration by the exporter on his export license, the waste type shipped, the destination country or the importer.</li> <li>• <i>During transit</i>: during transportation and storage activities, by the shipping line or third party firm in the transit country (often in a free trade zone) which may re-route the waste shipment.</li> <li>• <i>At destination</i>: during the container reception, import license, and the waste treatment. The import company (recycling facility) illegally receives and/or manages the imported waste.</li> </ul> <p>Considering the nature of the trade and the minimum number of people to be involved in the offence, the illegal waste trade is necessarily transnational and organized, but at different degrees:</p> <ul style="list-style-type: none"> <li>• The offence can be committed at a single stage, for example if the importer is a non-licensed facility who forged its license document</li> <li>• The offence can also cover all stages of the shipment, with exporter, shipping line and importer collaborating in a transnational organized crime (TOC) network.</li> </ul> <p>Motives for the illegal waste trade is financial. Illegal exporters avoid recycling costs in their country and exploit lower labour costs, environmental regulations and law enforcement capacities in import countries. Illegal importers profit from cheap recyclable waste to produce recycled goods, while cutting ESM and licensing costs.</p>

Table 1: Nomenclature of illegal activities perpetrated in the waste sector

<sup>6</sup> Illegal waste treatment can also be designated as illegal waste processing or illegal waste management, depending on the source.

<sup>7</sup> The Basel Convention provides an agreed definition of “illegal traffic” in waste, however the definition of “illegal waste trade” provided in this table intends to include waste streams that are not covered by the Basel Convention, such as certain types of recyclable plastics until 2021. The Basel Convention definition of illegal traffic can be found at the following link: <http://www.basel.int/Implementation/LegalMatters/IllegalTraffic/Overview/tabid/3421/Default.aspx>

<sup>8</sup> Fly-tipping corresponds to the deliberate action of dumping rubbish in an unauthorized place, it is usually not considered an organized activity and concern small quantities.

<sup>9</sup> The violated restrictions or requirements can include complete ban (for export or import), or notification processes requirements, as well as restriction on impurities or shipped quantities for example.

### Document fraud as the core modus operandi in all types of waste crimes

Misdeclaration on documents is a cross-cutting modus operandi that criminals use to facilitate all types of illegal activities in the waste sector. Table 2 illustrates how misdeclaration is used in the illegal waste sector, and what documents are commonly concerned by such fraud.

<b>Misdeclaration includes but is not limited to:</b>	<b>Documents commonly concerned by fraud include but are not limited to:</b>
<ul style="list-style-type: none"> <li>• Misdescription of waste in documentation:                             <ul style="list-style-type: none"> <li>○ Misdescribed in order to facilitate illegal trade (e.g. plastic waste, prohibited for import in a certain destination country, described as raw materials, reusable plastic, or plastic granules instead, which import is non-prohibited)</li> <li>○ Mislabeled type of waste, specifically contaminated plastic waste declared as non-hazardous plastic waste to facilitate illegal trade</li> </ul> </li> <li>• Misdescription of the waste state in terms of segregation, granulation or level of impurity</li> <li>• Misdeclaration of waste site, for example declaring a landfill (subject to tax) as a deposit for recovery (not subject to tax).</li> </ul>	<ul style="list-style-type: none"> <li>• Licences such as recycling licences; landfilling licences; import / consignee licenses, etc.</li> <li>• Waste processing invoice E.g. declaring that the waste was sent to the recycling facility by providing a fake invoice, while in fact it was disposed at the truck transporter property to get the recycling fee for himself.</li> <li>• Export/import documents such as waste transport certificates; export notification; import declaration; manifest; bill of landing.</li> <li>• Notification and movement documents for waste subject to the PIC procedure under the Basel Convention (e.g. plastic waste mixed with household wastes)</li> <li>• Packaging Waste Recovery Note<sup>10</sup></li> </ul>

**Table 2. Description the use of document fraud in the illegal waste sector**

Waste-related offences are often opportunistic. For example, waste criminals take advantage of changes in regulations to exploit potential enforcement gaps in the early phase of implementation. They can also take advantage of prices fluctuations in the waste market, for instance by managing illegal disposal sites to attract illegal business when the legal market prices for disposal increase (e.g. after an increase in landfill tax).

### 1.3 Significant import restrictions disrupting the existing plastic waste market

#### Restrictions on plastic waste imports towards China since January 2018

The plastic waste market is currently in an important transitory period as the main destination countries in Asia have recently taken measures limiting the import of plastic waste into their national territories.

In April 2016, India imposed a partial ban on plastic waste import [10], but the transnational demand-supply chain of plastic scrap was truly impacted by waste import restrictions imposed by China and implemented since January 2018. China's new import restrictions enacted new contamination standards on the importation of 24 types of solid waste into China and was extended to a total of 32 waste types in January 2019. It sets much

<sup>10</sup> The Packaging Waste Recovery Note (PRN) or Packaging Waste Export Recovery Note (PERN) is a tradeable certificate used to record and identify packaging waste materials received for recovery or recycling.



stricter contamination standard on plastics scraps, from a purity of 90-95% to 99.5%. Such limits have made even small materials like water bottles not eligible to be exported to China [11].

### **A turning point in the global plastic waste market**

Since 1992 until 2018, China imported a cumulative 45% of the world's plastic waste [12]. The global plastic waste market was therefore heavily dependent on the access to the Chinese recycling sector. This explains why the China's waste import restrictions has deeply impacted the global plastic waste market, determining trade adjustments and reactive regulatory and enforcement policies worldwide. Globally, an estimated 111 million metric tons of plastic waste will be displaced by 2030 [12].

In Europe, around 8 million metric tons of plastics is sorted out each year. Before the implementation of China's waste import restrictions, nearly 3 million metric tons of this plastic waste were exported from Europe to Asia, including 2.6 million to China [13]. This means that plastic waste exports to China represented 85% of all plastic waste export out of Europe. Ireland for example, with the highest per capita production of plastic waste in the EU, depended on China to deal with 95 percent of its plastic waste [14].

Similarly, the United States sent more than half of its plastic exports to China in 2016 (16.2 million metric tons) [15] and about 35% of Australian recyclable plastics used to be exported to China as well [16].

### **The immediate effect of China's waste import restrictions has been a general decline of plastic waste exports:**

- In Europe the share of plastic waste sent for recycling oversea dropped by about 40% after January 2018, from 3.1 million metric tons in 2016 [4] to 1.8 million metric tons in 2018 [17].
- The United States' exports to China also fell 20.8% [18], with a significant economic impact on the United States' national waste export sector where it was estimated that 40,000 jobs would be directly affected and 94,000 indirectly [19].

As the recycling industry in export countries cannot absorb the waste accumulation, the two main avenues for the waste previously exported to China are being either

- re-routed towards other destinations, or
- incinerated or placed in landfills in the country of origin [20].

### **Sudden shift in trade routes and domino effect in South-East Asia**

**The re-routing of plastic waste exports, especially towards alternative South and South-East Asian countries, has been a prominent trend since the entry into force of China's waste import restrictions.** Europe and North America are believed to divert most of their exports to Cambodia [21], India [21] [22] [15] [21] [23], Indonesia [23], Malaysia [24] [25] [21] [26], Pakistan [21], Vietnam [20] [15] [21] [26], Thailand [15] [21] [27], as well as Turkey [26] [22]. Some North American plastic was reported to be exported towards Latin America [15] [21] and South Korea [26]. Australia and New Zealand have also increased their waste exports to other Asian countries such as Malaysia [24], and Japan have increased its waste exports to Thailand [27].

Increased quantities of plastic waste exported to those destinations are significant. In the first quarter of 2018, US waste exports to Malaysia rose 330%, to Thailand +300%, to Vietnam +277%, to Indonesia +191%, and to India +165% [21]. This situation has presented both new business opportunities and pollution challenges in the receiving countries, considering that many lack the infrastructure to manage their own domestic waste [12].

The overwhelming increase in waste exports to those countries resulted in stricter regulations and strengthened border control in major Asian destinations, such as Thailand; Vietnam; Malaysia; Indonesia; and Taiwan, China. Figure 2 shows the different restrictions on plastic waste imports implemented or announced by Asian countries between January 2018 and March 2019. Those new policies range from taxation policies and limits on waste import permits, to partial and complete bans on plastic waste imports, somehow replicating the key aims of China's waste import restrictions.

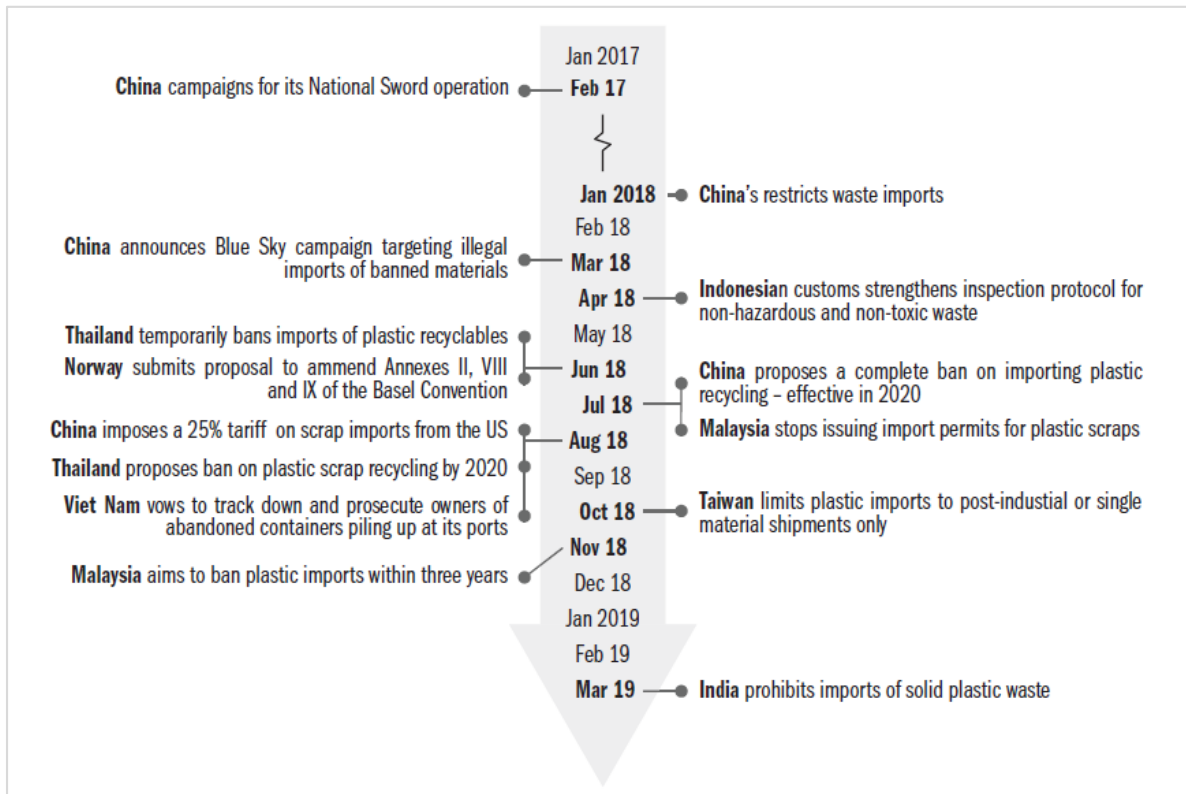


Figure 2: Recent measures limiting plastic waste imports into main destination countries in Asia<sup>11</sup>

Source: Grid-Arendal [9]

### Market fluctuations in the plastic waste sector: an open door for opportunistic crime

Such domino effect in the South-East Asian region has created strong fluctuations and uncertainties in the plastic waste market. **Difficulties in treating and monitoring the waste surplus has opened doors for opportunistic crime in the plastic waste sector.**

As regulations on waste imports are rapidly changing and are not standardized across destination countries, exporters and enforcers face challenges in ensuring that plastic waste exports comply with the import regulations. This situation, coupled with the lack of traceability of plastic waste, presents a great risk for certain individuals and crime groups to take advantage of legal loopholes, information gaps among the enforcement community, and new trade routes in the plastic waste market that are not fully monitored yet.

The “Plastic Amendments” to the Basel Convention present a key step forward a better monitoring and control of the plastic waste stream, under a common international legal framework. However, until general implementation starting in 2021, there is a need to understand how plastic waste-related criminality is evolving in a context of lack of traceability and rapid and unpredictable market fluctuations.

<sup>11</sup> In this figure, “Taiwan” refers to Taiwan, China.

## 2. EMERGING CRIMINAL TRENDS IN THE PLASTIC WASTE SECTOR SINCE JANUARY 2018

This section explores how the significant changes on the global plastic waste market have impacted waste crime, focusing on emerging criminal threats currently observed as well as anticipating foreseen criminal threats. January 2018, the date of implementation of China's new waste import restrictions, is taken as a benchmark in this analysis to identify those changes.

### 2.1 Overview of the key informants and results

The challenge of waste accumulation in export countries, coupled with the diversion of the main plastic waste trading routes, raises questions of whether there has been a parallel re-routing illegal trade in plastic waste, and if new types of illicit activities have emerged in the plastic market. In addition, the lucrative nature of the waste market suggests the need to investigate whether organized criminal groups have been taking advantage of the rapid and scarcely monitored transformations in that market.

INTERPOL General Secretariat collected and analysed official data from authorities in 40 INTERPOL member countries worldwide, to answer these questions. As shown in Map 2 below, the majority of contributing countries were European (19), followed by South-East Asian countries (6). Readers shall bear in mind that the results of this assessment may be biased by the greater representation of European responses, compared to other regions of the world<sup>12</sup>.

Even though the lack of comparable data from before and after January 2018 was reported as an important challenge by most countries, some key trends emerged clearly and consistently from the data analysis:

- Continuous **re-routing** of illegal waste shipments, including using transit countries to disguise the origin of the waste;
- Increase in **illegal plastic waste imports** in South and South-East Asian countries as well as in Eastern European countries;
- Increase in **illegal waste treatment within these emerging import countries**, particularly the increase in plastic waste being diverted towards **unauthorized recycling facilities** in Asian import countries;
- Slight increase in **misdeclaration** of plastic waste as the key modus operandi facilitating illegal shipments (e.g. as plastic raw material);
- Increase in **illegal waste treatment within some export countries**, as a result of the decrease in incentive for international trade as the value of plastic waste dropped;
- Increase in **waste fires**, both deliberate and accidental, in both legal and illegal waste sites.

The most prominent change among the trends described above was the re-routing of illegal waste shipments, which was reported by 60% of the participating countries. All the other trends, particularly the modus operandi, were not new at the global scale, but resulted more pronounced since January 2018 or they emerged in countries where they were not reported before.

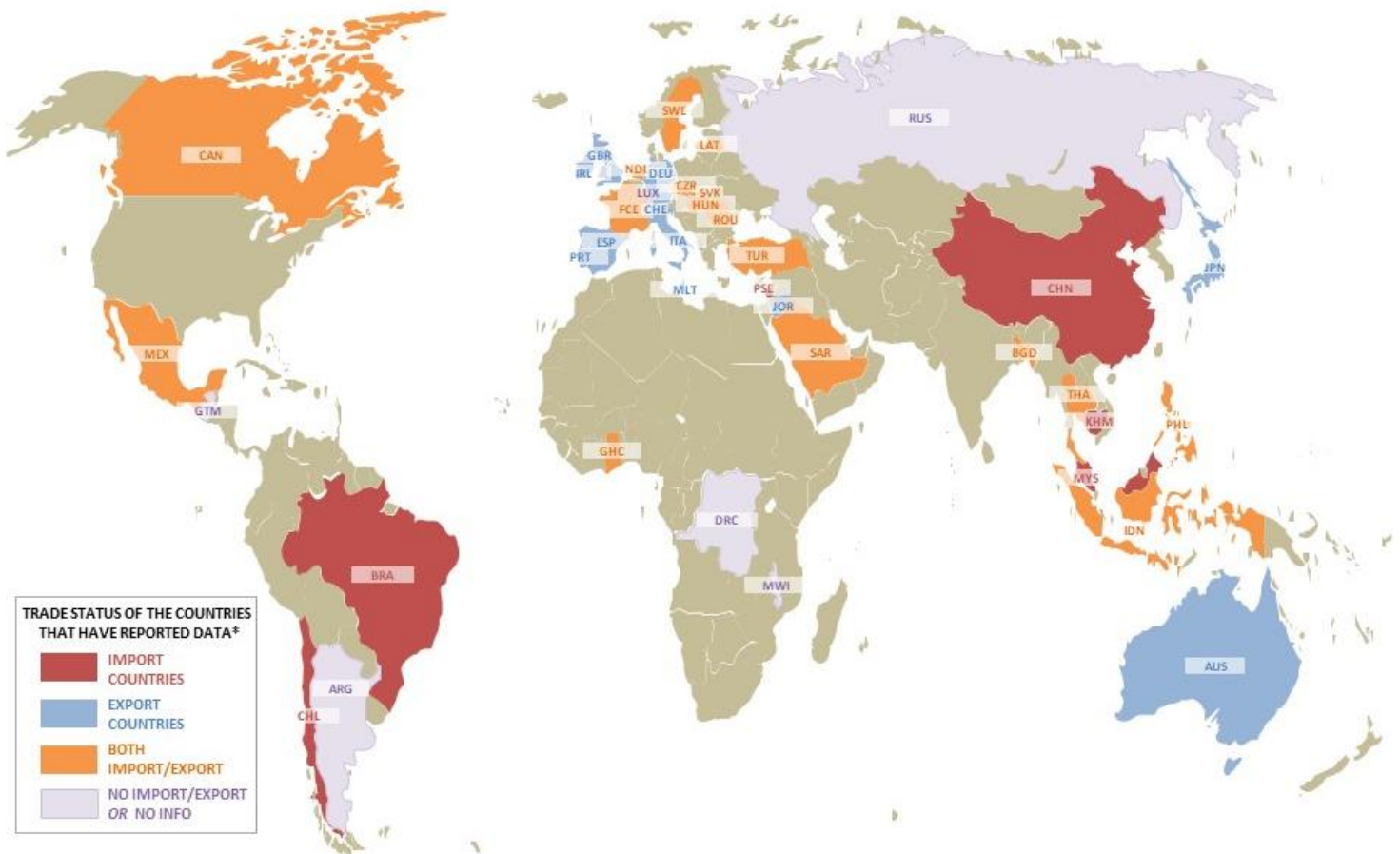
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<sup>12</sup> All 194 INTERPOL member countries were invited to contribute to this assessment. The discrepancy in regional representation in the data set is due to the response rate by countries, not to a selection of data made by INTERPOL.



## GEOGRAPHY OF THE COLLECTED DATA

40 COUNTRIES PROVIDED DATA ON OBSERVED TRENDS OF OR CASES TO INTERPOL



**Map 2. Geographic distribution of the 40 INTERPOL member countries that provided official data for this assessment**

**Note:** \*The colour code indicates data availability. It shows whether the contributory countries have provided data about their import, export, or both. It does not intend to present a global overview of the actual export/import countries.

#### **North America (2)**

- CAN - Canada
- MEX - Mexico

#### **Central and South America (4)**

- ARG - Argentina
- CHL - Chile
- GTM - Guatemala
- BRA – Brazil

#### **Europe (19)<sup>13</sup>**

- CHE - Switzerland
- CZR - Czech Republic
- DEU - Germany
- ESP - Spain
- FRA - France
- GBR - United Kingdom
- HUN - Hungary
- IRL - Ireland
- ITA – Italy
- LAT - Latvia
- LUX - Luxembourg
- MLT - Malta
- NDL - Netherlands
- POR - Portugal
- ROU - Romania
- RUS - Russia
- SVK - Slovakia
- SWE - Sweden
- TUR - Turkey

#### **Middle East (3)**

- JOR - Jordan
- PAL - Palestine
- SAR - Saudi Arabia

#### **Africa (3)**

- DRC - Democratic Republic of the Congo
- GHA - Ghana
- MWI - Malawi

#### **East Asia (2)**

- CHN - China
- JPN - Japan

#### **South And South-East Asia (6)**

- BGD - Bangladesh
- IDN - Indonesia
- KHM - Cambodia
- MYS - Malaysia
- PHL - Philippines
- THA - Thailand

#### **Pacific (1)**

- AUS - Australia

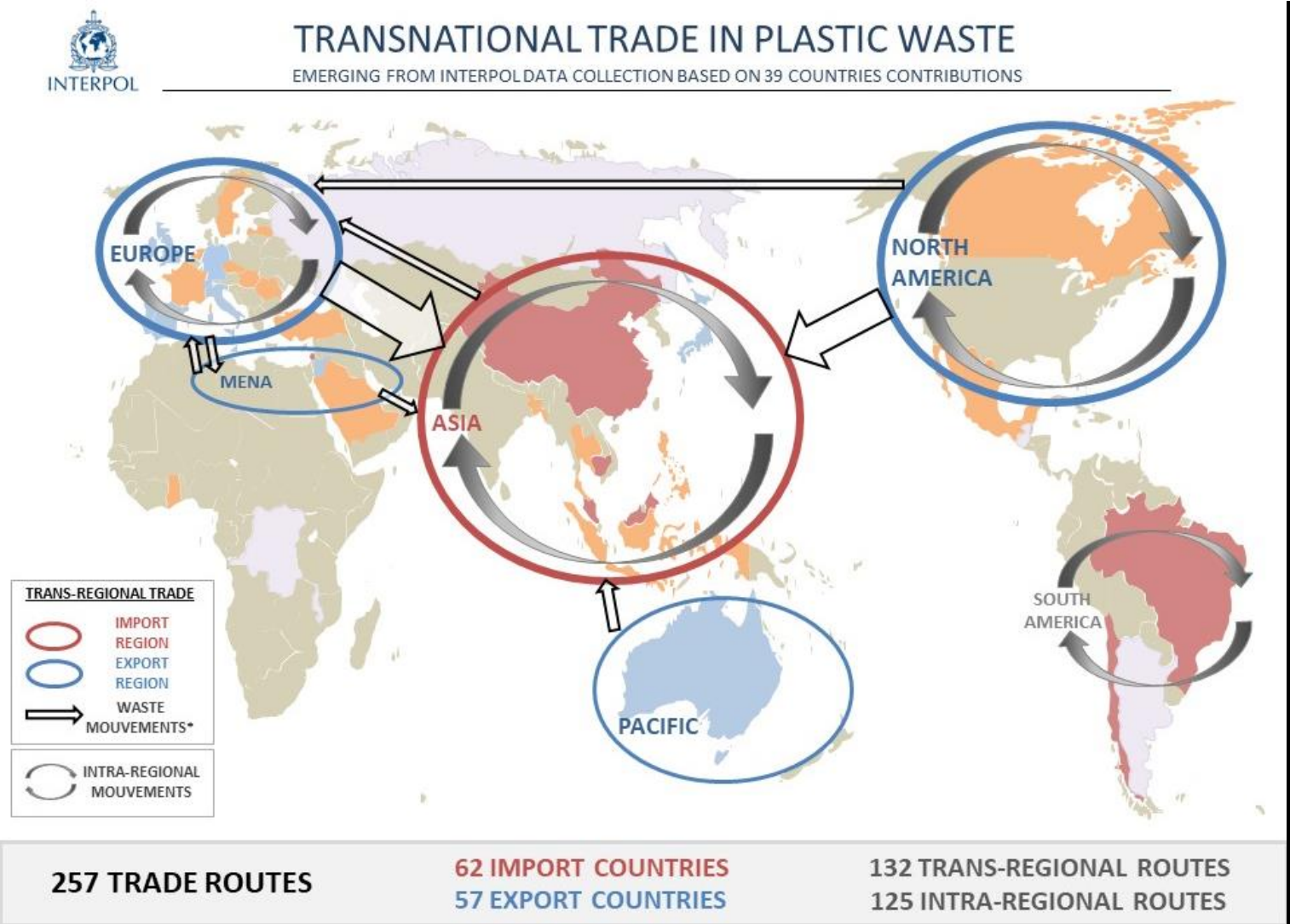
<sup>13</sup> Countries are grouped by geographic regions. In particular, “Europe” refers to the European region, not to the European Union.

## 2.2 Re-routing of illegal plastic waste shipments and emerging illegal waste markets

### The preponderance of the Asian and the European markets

A total of 257 transnational plastic waste trade routes involving 64 import countries and 57 export countries were reported to INTERPOL General Secretariat by the 40 countries who contributed to the data collection<sup>14</sup>.

Map 3 provides a visual description of the very transnational nature of the trade in plastic waste, combining both intra-regional and trans-regional flows<sup>15</sup>.



Map 3. The global plastic waste market emerging from INTERPOL data collection on legal and illegal trade routes

Note: \*This map includes both trans-regional and intra-regional waste movements with a minimum of 4 routes identified (except for intra-regional movements in North America: 3 routes were reported among the 3 countries).

<sup>14</sup> One trade route is identified in this assessment when among countries contributions, country A has reported exports to country B, or country B has reported imports from country A (in this case, one single trade route is identified). Trade routes reported by countries included five main export and import routes, trade routes impacted by the market transformation since 2018, and trade routes used for illegal plastic waste shipment detected since January 2018.

<sup>15</sup> The reliability of these data was verified as the global market mapped in Map 3 is consistent with the known plastic waste trade (Map 1).

**Illegal shipments of plastic waste detected since January 2018 were reported on 52 of those 257 routes (20%), affecting every transregional markets and almost all intra-regional markets, with a higher concentration of illegal routes destined to Asia.** Reported cases of illegal shipments pointed out that at least 24 countries were affected by illegal imports of plastic waste and 17 by illegal exports. In particular, illegal shipments were detected on 40% of trade routes from Europe to Asia and a third of those from North America to Asia. Only 13% of intra-European trade routes were reported as subject to illegal shipments, however most of them were characterized by a growing trend.

Two regions clearly stand out in this map, each of them playing a specific role in the global plastic waste market:

- **Asia appears to be the key regional importer in the global plastic waste market.** With 74% of all the transregional trade routes (95 out of 131) destined to Asia, mostly from Europe and North America, Asia is the epicentre of the global trade. It is also true for illegal trade, as 13 of the 24 countries identified as affected by illegal imports were Asian.
- **Europe appears to be the key regional exporter in the global plastic waste market.** The majority (65%) of all reported exports originate from Europe<sup>16</sup> and are destined to both its own dynamic intra-regional market and overseas markets, particularly through a large exporting movement towards Asia.

North America is also an important region of export, especially towards Asia. Significant seizures of plastic waste containers illegally shipped to South-East Asia from North America - as highlighted in Case study 1, page 30 – seem to indicate that the North America-to-South-East Asia trade route is significant, and is substantially exploited for illegal shipments. However the scarcity of data with regard to illegal shipments from North America fails to provide a complete picture of this phenomenon.

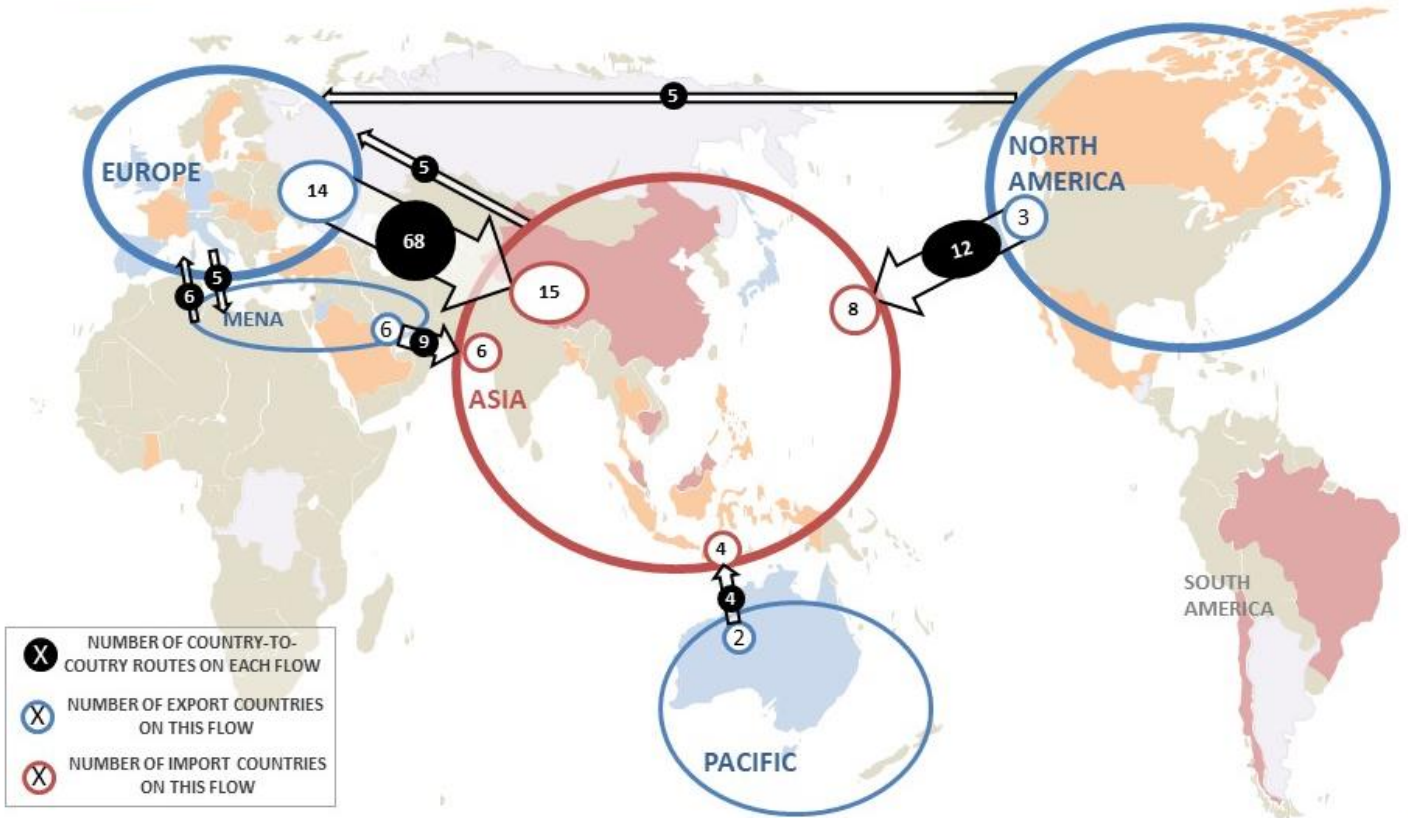
Each waste flow displayed in Map 3 comprises of several routes (country-to-country trade), further detailed in Map 4 for trans-regional waste flows and in Map 5 for intra-regional waste flows.

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<sup>16</sup> Those proportion do not refer to waste volumes – as the collected data did not allow us to perform such analysis - but instead in percentage of routes involved.



TRANS-REGIONAL ROUTES CHARACTERIZING THE TRADE IN PLASTIC WASTE



**132 TRANS-REGIONAL TRADE ROUTES INCLUDING 95 DESTINED TOWARDS ASIA**

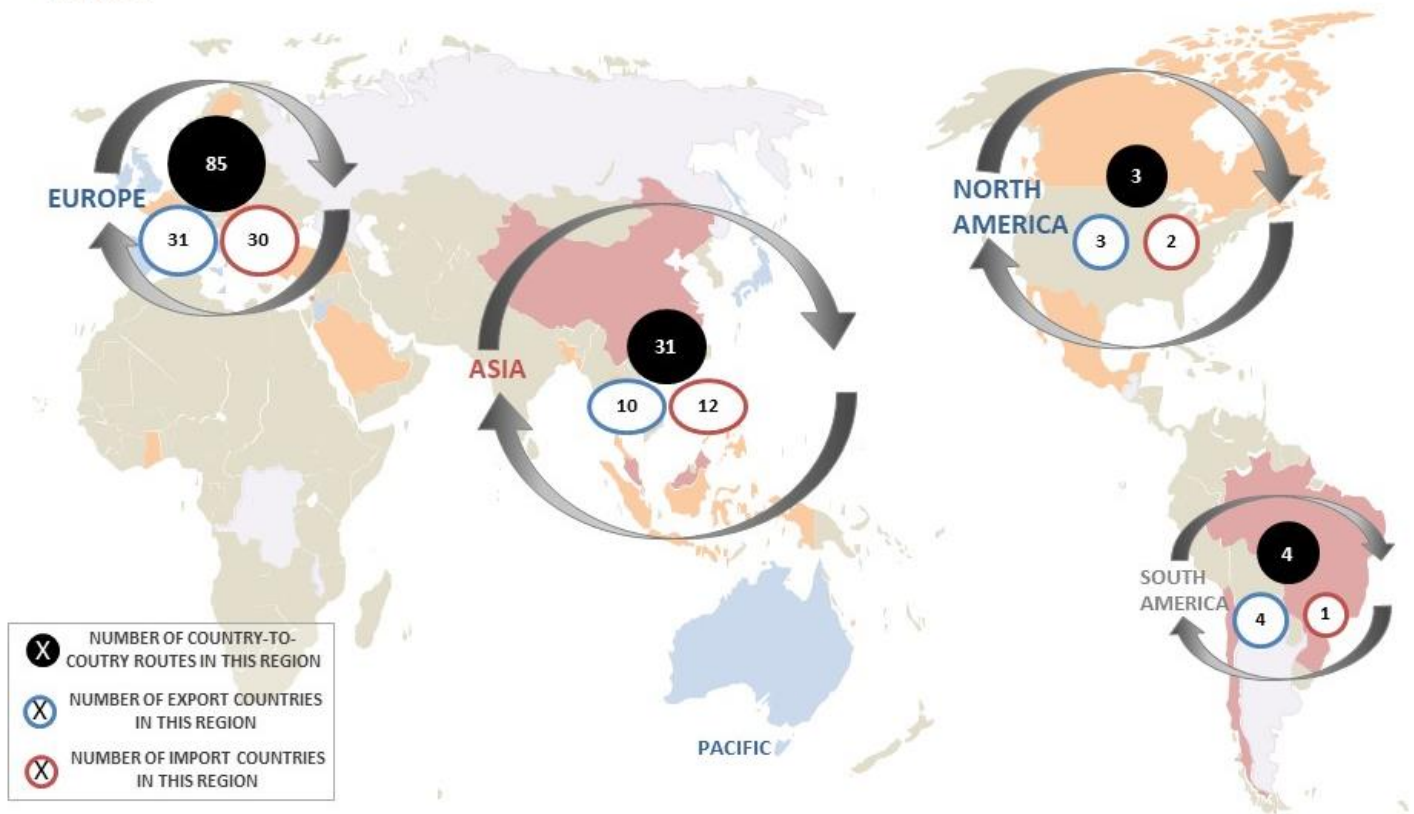
**Map 4. The trans-regional trade in plastic waste, converging towards Asia**

Note: Since waste flows with less than 4 routes are not displayed on the map, a few routes do not appear, such as those from Europe to Africa, from North to South America, and from Africa to Asia.

Map 4 illustrates how Asia mostly imports from the European market, with as many as 15 different Asian destinations reported as importing from 14 European countries. Imports into Asia also came from all other regions, with 8 Asian destinations importing plastic waste from North America (3 export countries); 6 from the region of Middle East and North Africa (MENA) (6 export countries); 4 from the Pacific (2 export countries); and 2 from Africa (1 export country).



## INTRA-REGIONAL ROUTES CHARACTERIZING THE TRADE IN PLASTIC WASTE



**125 INTRA-REGIONAL TRADE ROUTES**

**INCLUDING 85 WITHIN EUROPE**

### Map 5. The intra-regional trade in plastic waste, exposing the high density of the European market

Note: Since waste movements composed of less than 4 routes are not displayed on the map, a few intra-regional routes do not appear, such as the waste exchanges within the MENA region.

Map 5 shows a particularly dense intra-regional plastic waste market within Europe, with 85 intra-European trade routes, representing as much as 70% of all intra-regional exchanges identified in this assessment. The majority of European countries (35 out of 44) are concerned by these flows, as export or import country or both. ‘

The second largest regional market is the Asian one, with 31 routes and a total of 14 countries concerned. Little information is available for all of the other regions.

While previous maps have shown Europe as the main exporter in the global market, its dynamic intra-regional market position this region as a key player also from the import perspective. Taking into account all trade routes in our collected data, 65% of all trading routes originate in Europe and 41% are destined to Europe<sup>17</sup>.

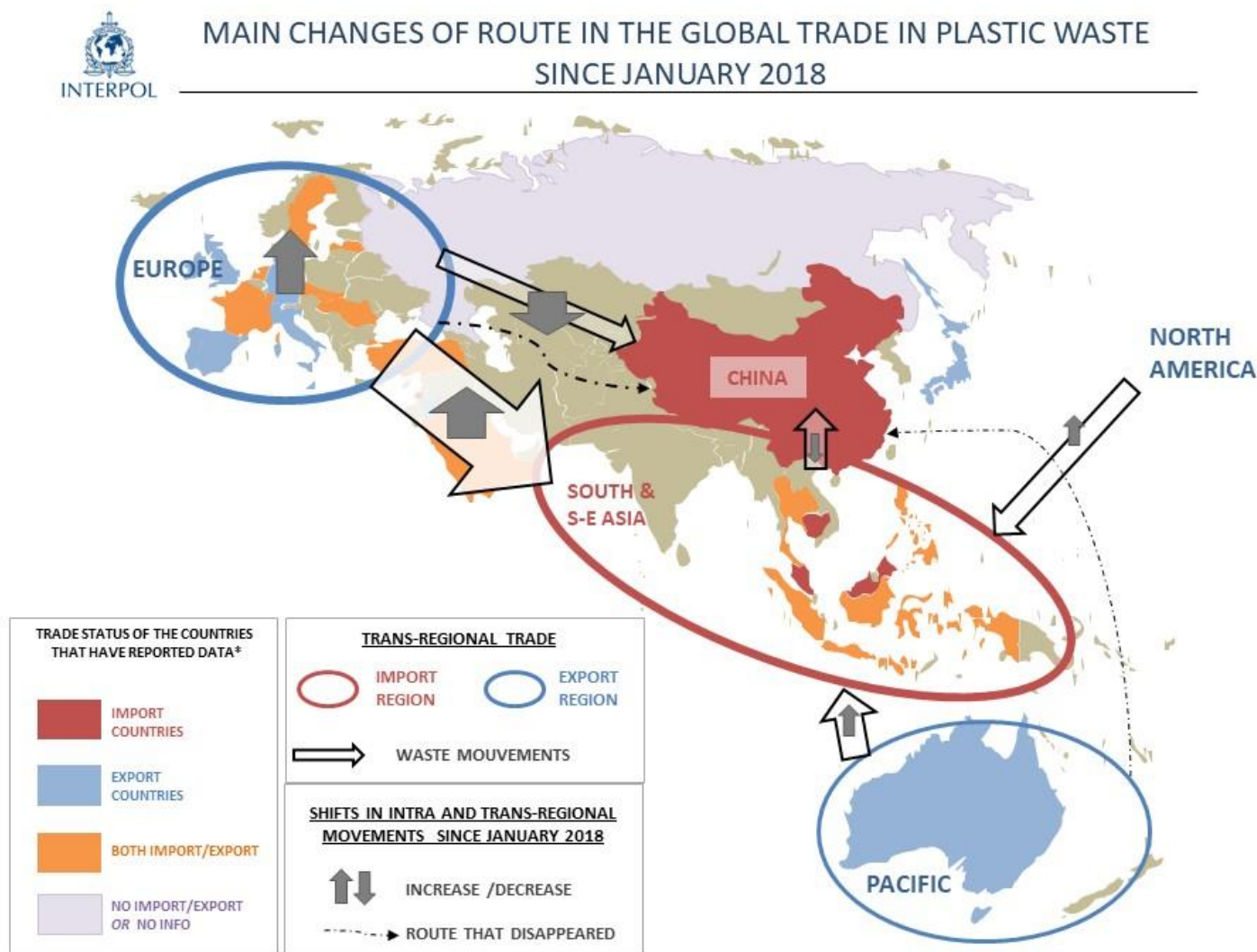
<sup>17</sup> In reading these data, one should take into account a number of elements which might have influenced the results, and avoid interpretations where Europe is the only massive waste exporter. First, the European region is composed of a large number of countries than any other regions, translating into a large number of routes since those are calculated as country-to-country flows. Secondly, the European region was particularly responsive to the call for contributions to this assessment, providing more data than every other region. This may be explained through a third factor, which is the well-developed policy framework and enforcement capacity of European countries in the field of waste control, which provides for better data collection and availability than in other regions. Nevertheless, 35 European countries were identified rather as exporters (31) and/or as importers (32) of plastic waste, showing that the region is quasi-integrally concerned by the transnational trade in plastic waste (35 over 44 countries in total).



### The Asian market: illegal shipments shifting towards emerging Asian destinations

Data collection focused on the evolution of the routes and quantities of traded plastic waste in the global plastic waste market since January 2018<sup>18</sup>. Seventy per cent (70%) of countries with available data reported changes in the waste volume being traded on at least one of their trade route.

Map 6 illustrates those changes at the global scale, clearly highlighting a key trend: **all plastic waste exports to China have dropped or disappeared, while exports towards South and South-East Asian countries have raised from all origins: Europe, North America and the Pacific.**



Map 6. Main changes in routes observed in the global trade in plastic waste since January 2018

**Most of the observed changes concerned trans-regional flows towards Asia.** As highlighted in Map 6, nearly half (44%) of all reported trade routes towards Asia were subject to a shift of waste volume, which reads as a shift of destination from China to South and South-East Asian countries.

A breakdown of plastic waste flows towards Asia indicates that 74% of Europe-to-Asia routes have been subject to changes (on 37 routes the volume of traded plastic waste increased and in 13 it decreased, notably on routes destined to China). Changes also occurred in Asian imports from the Pacific (3 out of 4 routes), from North

<sup>18</sup> Responses to the Questionnaire questions 1.4 and 3.7 (see questionnaire template in Appendix 2)

America (3 out of 12 routes) and from MENA (1 out of 9)<sup>19</sup>. All 15 Asian countries importing plastic waste from other regions were concerned by such changes.

**All trade routes<sup>20</sup> destined to China were reported as decreasing or disappearing.** This included both legal and illegal shipments. Nevertheless, Chinese authorities are still observing some illegal plastic waste shipments imports. Even though illegal plastic waste trade toward China persists, its level has strongly decreased since January 2018. According to official data, China Customs Anti-Smuggling Bureau seized nearly 231,700 metric tons of waste in 2018 and 40,500 metric tons of waste in 2019. With a focus on plastic waste, China saw a year-on-year reduction in seizures of illegal imports of 22.6% from 2017 to 2018, and of minus 50.9% from 2018 onwards. The use of strategic transit points between the source country and Chinese mainland has been featured as a key modus operandi for persistent illegal imports into China.

At the same time, number of South, South-East, and East-Asian destinations were concerned by an increase in illegal imports of plastic waste. Map 7 illustrates the evolution of the importing Asian market since January 2018, from being largely destined to China, to being distributed towards more numerous destinations in the region.

Malaysia and Thailand is where the biggest increase in illegal imports occurred. As Malaysia and Thailand also became the biggest importers of plastic waste since 2018, the above observation suggests that it is almost certain that growing **trade routes towards emerging Asian destinations are exploited for illegal shipments.**

This trend is further supported by the observation of recycling businesses relocating across the Asian region and beyond. Since waste exports to China have decreased significantly, Chinese recycling and manufacturing industries have seen a drastic fall in the supply of necessary raw materials. These industries were forced to rapidly find new sources of raw materials. As a result, there has been a surge of such businesses relocating to neighbouring countries such as Malaysia, Thailand and Vietnam that are now receiving higher volumes of waste imports previously destined to China.

This situation further generates an incentive to re-route plastic waste trade to countries where these businesses re-establish. It is likely that those recycling businesses that depended on plastic waste sent to China before 2018 explored illicit avenues to maintain their waste supply necessary to their profitability, especially in the initial adjustment period.

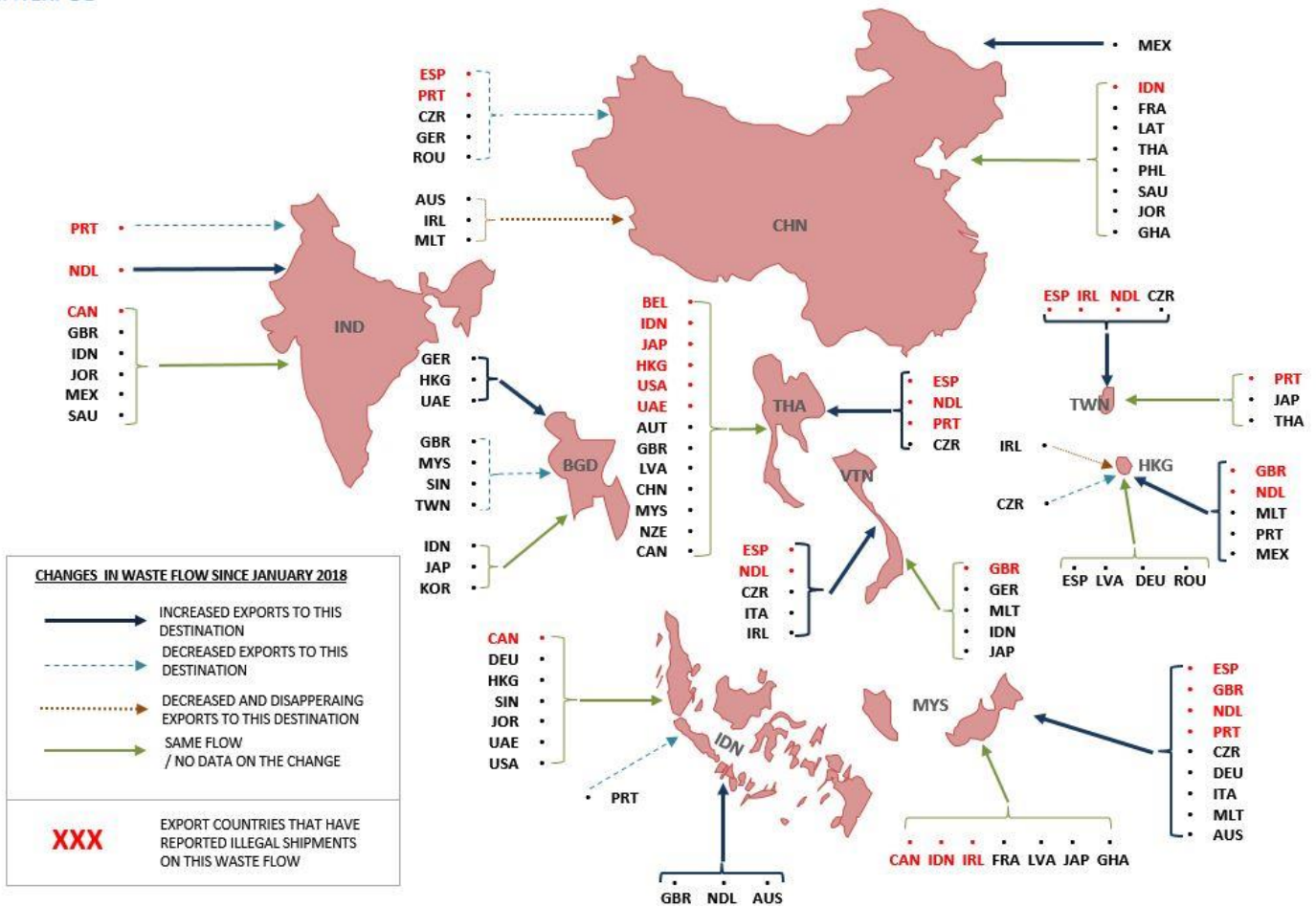
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<sup>19</sup> This was significant considering that contributory Asian countries did not have available data on the changes in their trade routes since 2018, therefore all changes come from reports from export countries.

<sup>20</sup> All routes with available data on its evolution since January 2018, with one exception of the route from Mexico to China, with reported increased legal exports.



THE SHIFT IN THE ASIAN PLASTIC WASTE IMPORTING MARKET SINCE JANUARY 2018



At the same time, a few cases showed that some Asian countries that have not seen a significant increase in their legal plastic waste imports since 2018 have however been concerned by an increase in illegal imports. These alternative destinations largely lack recycling infrastructure for plastic waste, and some have an import ban on waste. As new import restrictions are progressively enforced in several South-East Asian import countries (as shown in Figure 2), there is a possibility that those relatively marginal destinations will see their imports of plastic waste increase in the future, replicating the “domino effect” observed so far in the region.

## The challenge of repatriation of illegal plastic waste shipments

As illegal plastic waste exports towards South-East Asian countries have grown, so have the requests from those countries to repatriate illegal shipments back to their exporter<sup>21</sup>.

As an example, out of all 1,095 plastic waste containers imported into Indonesia and all manually inspected in 2019, 433 (45%) were declared illegal by Indonesian authorities (contaminated waste) and to be repatriated to their source location. According to official data<sup>22</sup> a total of 280 containers have been repatriated from Indonesia to their country or origin until March 2020. The standard repatriation procedure followed by authorities is to request the relevant export country and/or company to take the waste back. If the relevant counterpart was not identified, a criminal investigation was opened.

However, repatriation requests entail a number of challenges:

- The notifier (the exporter) needs to be identified and clear proof of the shipment origin and its illegality need to be presented to justify repatriation. Difficulties in identifying the exporter – which are not uncommon - may impede the repatriation process at all.
- The procedure of repatriation may take a long time as it requires:
  - evidence gathering in the import country;
  - a negotiation between the authorities of the import and export countries; and
  - a parallel investigation in the export country to verify the identity of the exporter and ensure it will bear the cost of the container return.

As a consequence, many containers detected as illegally imported by the state of import have remained at ports for months, sometimes years, generating congestion and affecting operations within port areas. For instance, the Port of Penang (Malaysia) has experienced several such episodes in the past couple of years, as a result of the increase in illegal imports into Malaysia (see Case Study 1).

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<sup>21</sup> Repatriation of waste containers can be requested by the competent authorities of the import country under Article 9.2 of the Basel Convention for waste covered by the convention, including shipments of plastic waste considered as hazardous, or as household waste. Parties can also consider certain waste as hazardous based on national legislation and request for repatriation following the Basel Convention, provided the other Parties have been informed (Basel Convention, Article 3). For other waste types – like recyclable plastic waste can be - repatriations are based on other regulations and bilateral agreements.

Basel Convention Article 9.2 stipulates that “In case of a transboundary movement of hazardous wastes or other wastes deemed to be illegal traffic as the result of conduct on the part of the exporter or generator, the State of export shall ensure that the wastes in question are: (a) taken back by the exporter or the generator or, if necessary, by itself into the State of export, or, if impracticable; (b) are otherwise disposed of in accordance with the provisions of this Convention, within 30 days from the time the State of export has been informed about the illegal traffic or such other period of time as States concerned may agree. To this end the Parties concerned shall not oppose, hinder or prevent the return of those wastes to the State of export.”

Guidance on the implementation of the Basel Convention provisions dealing with illegal traffic (paragraphs 2, 3 and 4 of Article 9) including repatriation is available at:

<http://www.basel.int/Implementation/Publications/GuidanceManuals/tabid/2364/Default.aspx#>

<sup>22</sup> This information is based on data officially provided by the Directorate General for Management of Garbage, Waste and Hazardous Substance of the Ministry for the Environmental and Forestry of the Republic of Indonesia.

### **CASE STUDY 1: Hundreds of containers stuck at Malaysian ports as the government launches an enforcement campaign to return illegally imported plastic waste to their exporters**

Following the implementation of China's waste import restrictions in January 2018, Malaysia has become the top destination for plastic waste exports in the world, with its growing import routes being also exploited for illegal shipments. As a result, Malaysia temporarily stopped issuing import permits for plastic scrap from July 2018 to October 2018.

As public have protested against poor air quality due to illegal waste incineration arose, the newly elected government increasingly prioritized enforcement of illegal plastic waste imports through stricter container inspections at ports. Imports of plastic waste into Malaysia were temporarily banned from 23<sup>rd</sup> July 2018 to 26<sup>th</sup> October 2018. Declarations from the Minister of Energy, Science, Technology, Environment and Climate Change declared the repatriation of illegally imported waste a national priority: "We will work very hard to make sure that whoever sends their waste to Malaysia, we will send it back and we will fight back (...)".

Consequently, the volume of plastic waste shipped to Malaysia dropped in the second half of 2018, while detection of illegal shipments increased. Numerous requests for repatriation were launched in 2019. Authorities recorded many incidents of illegal plastic waste containers stuck at port, waiting for repatriation or abandoned as both the exporter and the importer were unidentified. For example, 265 containers of plastic waste were abandoned in the Port of Penang alone in May 2019.

More recently, a major repatriation movement was initiated by Malaysia. 150 containers with a combined volume of 3,737 metric tons of plastic waste were sent back to 13 different countries of origin, including 43 containers to France, 42 to the United Kingdom, 17 to the United States, and 11 to Canada. In addition, Malaysian authorities announced a plan to send back another 110 containers by the middle of 2020, including 60 to the USA.

*Source: Official data provided by the Department of Environment (DoE) of Malaysia, and media information (Elevate Limited [89]; Resource [87]; Straits Times [88] [94] [85]) verified by the DoE of Malaysia.*

Increasing requests for repatriation of illegal plastic waste shipments from authorities in South-East Asian countries back to their export countries, mostly from developed economies, has generated diplomatic concerns in some cases. As a result, authorities in export countries have tightened container controls and sanctions. In November 2019 for example, French authorities imposed a record fine of EUR 192,000 to a trading company based in France for illegally exporting plastic waste to Malaysia, repatriated earlier in the year (see Case Study 2).

**Even though the number of repatriations of plastic waste containers has sharply increased since January 2018, it remains a long and challenging procedure for many countries of import. There is a probability that shipments of plastic waste illegally imported into some Asian destinations are being re-exported illegally to other neighbours in the region, in an effort to transfer the burden of dealing with containers.**

## CASE STUDY 2: France imposes a record fine for the illegal export of plastic waste to Malaysia

In November 2019, French authorities imposed a fine of EUR 192,000 (USD 212,500) to a trading company who exported plastic waste to Malaysia without respecting the mandatory notification procedure for some containers, and who did not ensure the repatriation of those containers after a request from the Malaysian authorities.

The violation concerned the notification procedure, mandatory for 13 of their containers filled with mixed polymer and PVC plastics according to the provisions of the Basel Convention. The company was identified as recidivist.

The administrative sanction imposed on the company pursuant Article L541-42-2 of the French Code for the Environment was a milestone for this kind of violation. It reveals the willingness of France to show its intransigence towards such illegal exports, which damage the brand image of French professionals and their exports. It also represents an example of productive cooperation with import countries.

This unprecedented sanction also reflects a growing sentiment in France and in the broader European region to strengthen regulations and enforcement of waste trafficking. Amendments to the law on circular economy are currently being discussed in France and they could lead to the codification of waste trafficking as a criminal offense, as opposed to the current status of administrative violation.

Such a stance is also increasingly endorsed by the industry. Following this sanction, some important waste-related companies in France have announced that they would increase surveillance over their sites to verify that requirements for recycling are fulfilled and that the recycling facility actually exists.

*Source: Media information (Le Parisien [76]) verified, and official data provided by the Central Office for Combating Environmental and Public Health-related Crimes (OCLAESP) of the French Gendarmerie.*

## The European market: increased intra-regional exchanges, with waste criminals exploiting vulnerabilities in Central and Eastern Europe

It was previously discussed how the China's waste import restrictions impacted waste flows from Europe to Asia more than any other flows, with exports to China dropping and exports to South and South-East Asian countries raising<sup>23</sup>.

**A parallel set of repercussions were felt also within the intra-European market.** Changes mostly concerned the intra-regional trade, with a third (33%) of the intra-European trade routes reported as subject to increased or decreased quantities of traded plastic waste since 2018. However increase in plastic waste imports from a few export countries from East Asia and MENA were also reported.

Collected data showed a general increase in the intra-European trade in plastic waste. This might be explained by the fact that the volume of plastic waste exported to emerging destinations in Asia does not compensate the volume that was sent to China prior 2018, meaning that European export countries have also looked for alternative destinations within their region.

European destination countries with growing imports of plastic waste are mostly countries located in Eastern Europe, with more landfill traditions and lower taxes and prices for the disposal of wastes than other European countries. Waste criminals exploit this reliance on landfills to illegally export waste to those countries – often misdescribed as other products especially when the country prohibits waste importations - for illegal disposal. **Both shipments of “green listed plastic waste”<sup>24</sup> and illegal shipments misdescribed as green listed plastic waste have grown among some Central and Eastern European destinations.** Moreover, the EU imposes

<sup>23</sup> Among all changes observed on trade routes destined to or originating in Europe, 53% (50 out of 94 routes) concerned routes from Europe to Asia.

<sup>24</sup> The European Union Waste Shipments Regulation ((EC) 1013/2006) establishes categorization of wastes in two lists, the green list for non-hazardous waste destined for recovery, and the amber list for waste requiring prior written notification and consent by the competent Environmental Authorities of the destination country before being exported. Green listed waste may be imported/exported for recovery without particular shipment restriction within Europe.

stricter control regimes<sup>25</sup> over green listed waste exported to non-OECD countries (including those neighbouring the EU) than exports within the EU. This likely explains why some increase in illegal plastic waste shipments have been observed within the EU, especially since enforcement in Asian destinations have increased.

Based on data received by INTERPOL, **the Czech Republic and Romania appeared as the most concerned by this trend**. Waste shipments falsely labelled as “for recovery” in fact end up disposed of or burned, as the recipient facility is changed once the shipment enters the country.

A major case of illegal imports following this pattern was also reported in Poland in 2018. Organized criminal groups (OCGs) operating in the United Kingdom and Poland organized the illegal shipment of thousands of tons of waste misdescribed as green listed plastic from the United Kingdom to Poland where it was illegally disposed of and burned (See Case Study 3).

### **CASE STUDY 3: Major case of illegal waste exports from the United Kingdom to Poland in early 2018**

A series of waste fires taking place in Poland in the first trimester of 2018 sounded the alarm on the illegal disposal of large quantities of imported waste, especially from the United Kingdom.

An investigation by British authorities revealed that approximately 2,600 metric tons of waste were illegally sent from the United Kingdom to an illegal dump site in Poland. “This was mainly baled household waste but misdescribed as green list plastic, thus avoiding notification. The unloaded waste remained at site whilst efforts were made to repatriate and investigate but the site was subject of a significant fire in May 2018. This was one of some 80 waste fires in Poland in 2018 most of which are suspected to have been deliberate in an effort to destroy evidence.” [52] The illegal waste was mostly composed of non-segregated plastics from the United Kingdom households and supermarkets.

The investigation also disclosed the highly organized nature of this criminal case, with the collaboration of members of five OCGs and other similar offenses involving deposit sites in Poland found in 2017 and 2018.

Open source data highlighted high criminal proceeds involved in this case, with millions of euros paid to the owners of the illegal landfills. The owners of a landfill in Zgierz, central Poland, was allegedly paid EUR 1.4 to EUR 2.8 million (USD 1.55 million to USD 3.1 million) to supposedly put fire to the illegally disposed waste.

The repercussion of this case were important on public health and environmental security as waste fires were associated with the release of toxic emissions into the atmosphere. Public revenues were also affected by enormous expenses to ensure fire fighters service.

This case raises concerns on the proliferation of plastic waste-related crimes in Europe as well as on the involvement of organised crimes in such offences. Poland had previously experiences waste fires, at a pace of about 10 every year; this series of some 80 illegal fires in early 2018 represented a clear upward trend. The growing market of plastic waste recovery within Europe indeed provides significant opportunities for illegal enterprises, including criminal organizations, to thrive thanks to the high financial value of this business sector.

*Source: Media information (Poland In [66], Unearthed [77]) and official data from the England Environment Agency [52]*

Most of the main European waste import countries share the important feature of being at the same time part of the group of the 12 major exporters of plastic waste at the global scale, suggesting that they also act as ports of exit of plastic waste shipments from many European sources.

The use of transit countries can be explained by the fact that trans-regional shipments converge towards large ports, used as distributors. Nevertheless this situation also weakens waste traceability, which benefits illegal trade. Transhipments are indeed frequently used as modus operandi for the illegal waste trade and data suggest that they have increased for the plastic waste stream since 2018.

Data also reveals a **slight increase in exports from Europe towards the MENA region**.

<sup>25</sup> Stricter regime of control for shipments leaving the EU to non-OECD destinations are based on EU Regulation 1418/2007.

### **The illegal plastic waste market in Africa: a by-product trafficking in other waste types**

Despite the African continent being situated geographically closer to Europe than Asia, there is no evidence pointing to African countries as significant destinations for plastic waste exports.

From a European perspective, shipping to Asia is cheaper because Asia has a greater capacity for container traffic at their ports. Only three African countries (Ghana, Malawi and South Africa) were identified in this data collection as (non-major) destinations for illegal shipments of plastic waste through the present assessment, with no consistent offending pattern among them.

The low response rate from African countries to INTERPOL data collection<sup>26</sup>, coupled with the very anecdotal mention of African countries in exporters' reports, seems to indicate that the region is less impacted by the recent transformation of the plastic waste market, or at least that authorities do not observe such phenomenon.

However African countries, particularly West African countries, face a very significant trafficking in electronic and vehicle-related waste into their countries. This trafficking acts as a carrier of plastic soon-to-be waste imports, as most electronic and electric products such as fridges, computers and auto spare parts are partly composed of plastic. Plastic compounds associated with electronic waste are of particular concern, as they are known to be hazardous due for example to heavy metals in flame retardants.

Even though recuperation of the plastic compounds from those products have been observed, authorities lack knowledge on how they are further used and whether they are source of illegal waste treatment – more field investigations are needed to bring light on this specific situation.

The three African countries that have reported data to INTERPOL have indicated that this illicit activity is driven by gaps in legal frameworks to regulate waste management in their countries, including the lack of criminalization of such acts.

### **Indicators of emerging import hubs in the Americas<sup>27</sup>**

Recent open source information suggests that developing economies in the Americas could become a new destination for plastic waste, especially from the United States, following growing investments to implant new recycling facilities in Mexico, Argentina and other Central and South American countries, as well as in the Caribbean.

These investments are told to be the combination of both US recycling companies opening facilities in Latin America to divert American waste previously sent to China [21], and Chinese recycling businesses relocating to emerging economies in the Americas to import plastic scraps from the US [28]. Chinese businesses who relocated to neighbouring countries in late 2017 and early 2018 may have faced challenges as some South-East Asian countries have adopted import restrictions, pushing waste recyclers to seek alternative markets. Some Latin American countries with less restrictions on imports can represent a viable option. For instance, in Argentina a recent decree has provided for a much more flexible legal framework for the import of plastic.

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<sup>26</sup> Only three African countries provided INTERPOL with relevant data for this assessment - see Map 2.

<sup>27</sup> These elements are largely open source-based and hypothesis drawn from a few countries' reports as there is a significant gap of official data concerning plastic waste-related crime in the Americas.



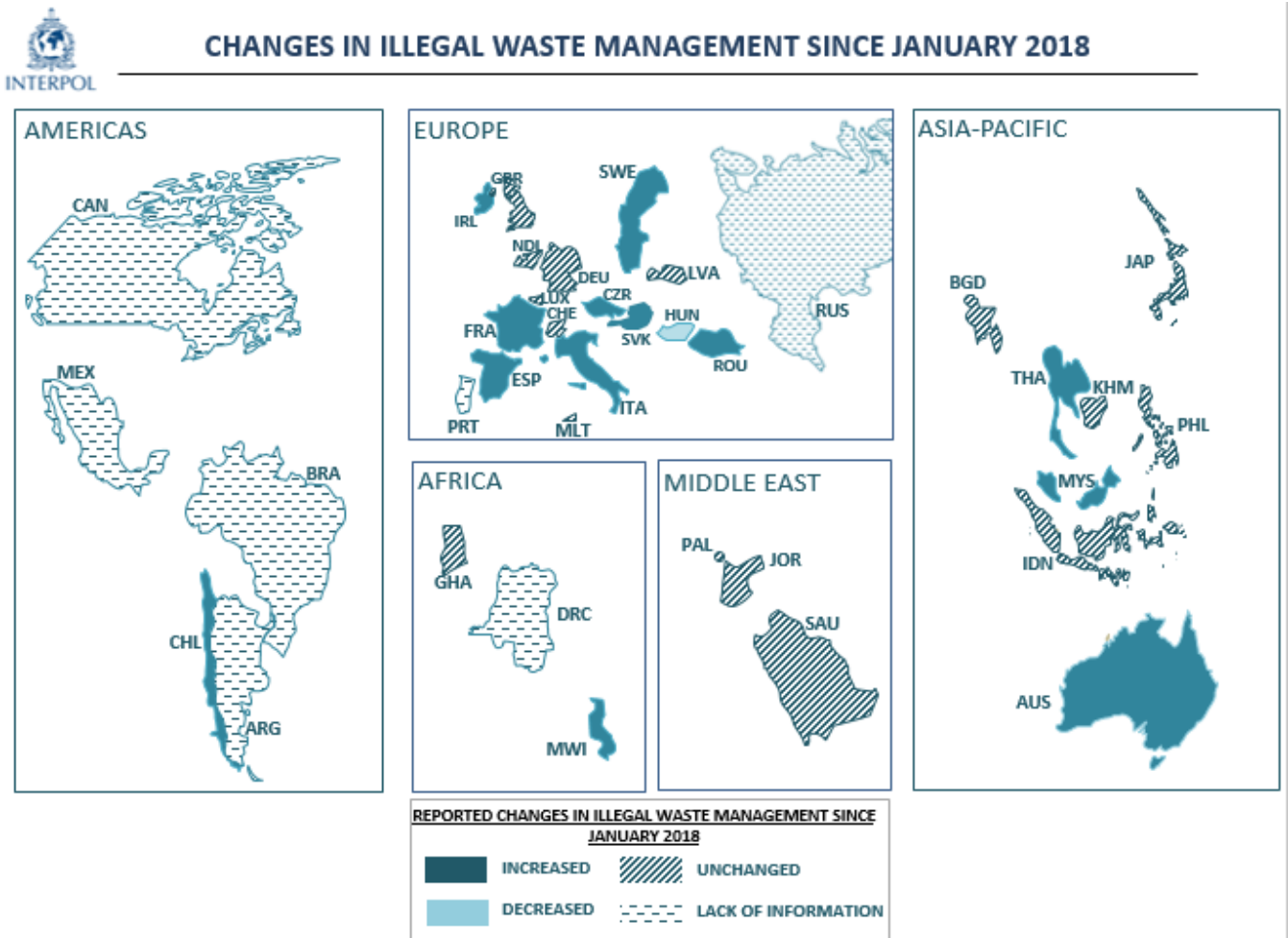
### 2.3 The increase in illegal plastic waste treatment

#### Widespread increase in illegal waste treatment both in plastic waste import and export countries

The previous section described re-routing trends as one of the two key responses to the sudden fall in plastic waste exports to China. However, the absorption capacity of the emerging recyclers cannot compensate for the loss of access to the Chinese recycling market. Consequent to the waste surplus, the second emerging criminal trend being observed is the surge of irregular methods to dispose of plastic waste both in export and import countries.

Illegal practices to deal with stockpiling of waste in landfills, dumping sites and recycling facilities include illegal incineration, dumping in unauthorized sites, illegal dumping in legitimate sites, illegal recycling, and waste fires.

As shown in Map 8, **almost half (40%) of the countries that provided data to INTERPOL on the evolution of illegal waste treatment in their territories since 2018, reported an increase in such illegal activities** (Australia, Chile, Czech Republic, France, Ireland, Italy, Malawi, Malaysia, Slovakia, Spain, Sweden, and Thailand).

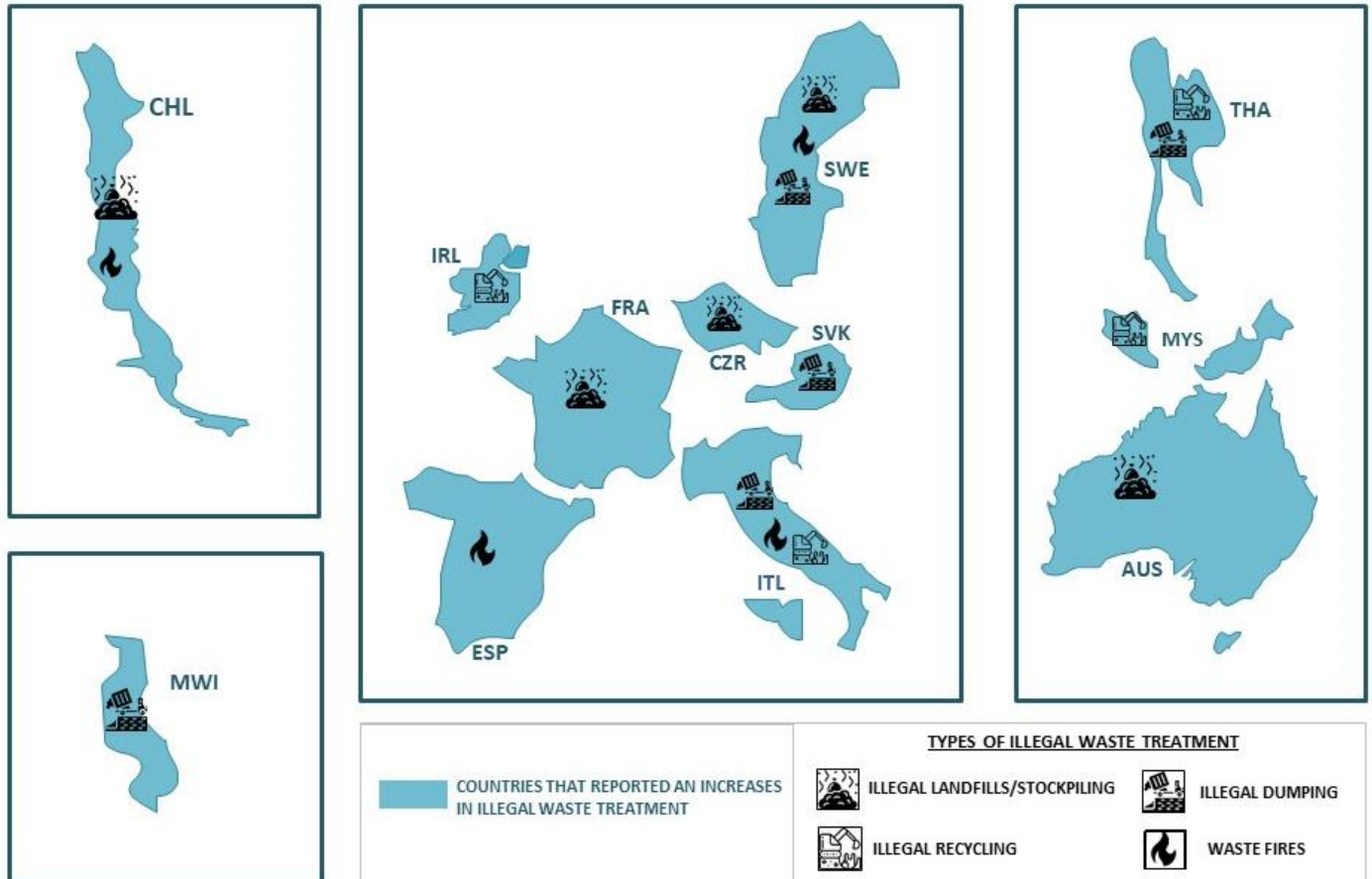


Map 8. Changes in illegal waste treatment since January 2018

Map 9 below highlights the types of illegal waste treatment activities concerned by an increase in those 12 countries.



## CHARACTERIZING THE INCREASE IN ILLEGAL WASTE TREATMENT



Map 9. Types of illegal waste treatment activities observed as increasing since January 2018 in concerned countries

Two major trends were recognized:

- 1) **Export countries have experienced a significant increase in disposal in illegal landfills and in waste fires, both accidental and deliberate, as methods to cheaply deal with large volumes of untreated domestic waste previously exported to China.**
- 2) **In import countries, the rapidly increasing supply of waste has fuelled unauthorized recycling facilities, and illegal landfilling.**

### Accumulation of plastic waste in export countries leading to waste crimes

Many export countries seem to share the challenge of coping with the sudden waste accumulation. For instance, the Ministry of Environment of Japan conducted a survey revealing that about a quarter of regional and municipal governments surveyed reported seeing accumulating plastic waste, sometimes going beyond sanitary standards.

Governments have taken a range of measures to tackle the emergency. Australia has sped up the industrial progress towards increasing its recycling capacities to cope with the restrictions on waste exports. According to media information, the United States of America, where the negative effect of waste accumulation was

reported as significant in 13 States and noticeable in 28 [29], has lifted restrictions on the dumping of recyclable materials in landfills [30]. Moreover, some municipalities no longer collect certain materials or send them to landfills, while some recycling companies store the waste excess in the open air or in car parks [31].

Despite government' interventions, waste accumulation has led to waste crime. Media information reveals that increased **illegal dumping** and fly-tipping was observed in the United States. Reasons for this include that US recycling facilities have significantly increased their processing fees, to compensate loss of value of recycled waste and higher processing costs related to higher levels of impurities in the plastic waste treated domestically. In Alabama for example, a major recycling plant more than doubled its processing fees from USD 30 to USD 65 per ton since October 2019. Such increase in processing fees has generated an incentive for illegal waste treatment. Similar challenges have emerged in Europe, whose recycling capacity is insufficient to treat the recyclable plastic waste produced in the region. A recycling target and a deposit-return system is being discussed in some countries but the sorting out system is not optimal yet to enable this new process. As a result, a growing amount of plastic waste is being landfilled and incinerated, especially in countries lacking a sorting out deposit scheme [22].

**Illegal landfills** and wild dumps have been an existing problem in European countries for years. However a significant aggravation of the phenomenon has been observed since January 2018 in the countries that now export less waste.

The **incineration** of plastic waste is also on a rise in Europe. The cement industry is sometimes used to this end, as it is allowed to incinerate many waste types for energy recovery (production of refused-derived fuel). For instance in Ireland the cement industry burns an increasing amount of plastic waste, given that 95% of the domestic recyclable plastic waste used to be exported to China and now needs an alternative solution [14]. Incineration for energy recovery in the cement industry is not immune from criminality: in Romania, in particular, the cement industry has been infamous for burning waste illegally imported from Italian facilities suspected to be managed by Italian mafia groups [32].

### **Emerging plastic recycling-related crime in South-East Asian import countries and the respective enforcement priorities<sup>28</sup>**

The sudden and sharp increase in imported waste volumes into South-East Asia has generated a burden on the limited recycling capacity of emerging import countries.

Even though some of those countries have benefitted from large investments in the recycling sector, this does not match yet the waste surplus. In addition, despite the high volume of domestic plastic consumption, recycling companies in the region often prefer to process imported rather than domestic plastic waste, due to the lack of waste collection and segregation system in those countries. As a result, increased plastic waste imports have driven the stockpile and fuelled **illegal landfilling of unprocessed domestic plastic waste** in emerging import countries in South-East Asia.

Regarding emerging recycling-related illegal activities, two main trends were identified:

- 1) The increasing trade towards non-licensed facilities**, as authorities in both export and import countries detected.

For example, Malaysia shut down 170 illegal recycling factories from January to November 2019 (see Case Study 6).

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<sup>28</sup> It is important to note that illegal waste treatment existed before in the region, but the extent to which it grew in the past year brought new attention from enforcement authorities and increased severity in the criminalization of the offence. This new enforcement attention allowed for a better understanding of the criminal activities at stake. However, it is sometimes difficult to determine whether those criminal activities result from the market change since 2018, or have been existing trends for years, only newly observed.

## **CASE STUDY 6: Malaysia tightens waste enforcement shutting down 170 unlicensed facilities in less than one year**

Malaysia is among the countries most affected by the proliferation of non-licensed recycling facilities, operating without compliance with environmental and safety regulations. As a consequence, the country experienced a peak of air pollution in mid-2018, with repeated incidents denounced by the population together with a strong call for government action. A sound response was given at the Ministerial level, with political investment and a sharp increase in customs inspections at ports and enforcement of environmental regulations.

From January to November 2019, Malaysia shut down 170 illegal recycling factories. Moreover, by mid-October 2019, Malaysia had initiated investigations on 79 cases of illegal plastic waste shipments from major countries including the United Kingdom and the United States. While cooperation with the British authorities led to officers being sent to Malaysia to inspect suspected containers, cooperation with other countries was deemed to be far more challenging. A reason was that there are no standard mechanisms in place to notify export countries and there is no clarity on what exact documentation is required to prove that the waste entered Malaysian borders illegally.

*Source: Official data provided by Malaysia Department of Environment.*

### **2) Illicit activities perpetrated within licensed recycling facilities and by legitimate waste treatment companies. This “illegal within the legal” activity ranged from exceeding import quota (thus importing waste unlawfully) to keep operating after the license has expired.**

When legitimate recycling businesses exhaust their import quota or have not renewed their licenses, continuing their business become illegal but waste criminals can exploit their existing infrastructures while avoiding high licensing and procedural costs.

An additional incentive for criminals to infiltrate legitimate businesses is that companies who have been licensed by relevant government bodies do not raise any red flag unless specific information is reported to the authorities by informants (e.g. the general public or legitimate companies). These instances were often identified in Malaysia, as a result of which authorities are now instructed to inspect every container declared as waste. In 2019, a total of 306 containers destined to licensed facilities were inspected on arrival.

Similarly, it has been increasingly observed in Thailand that recycling facilities purposely avoid renewing their expiring licenses in order to cut costs, while maintaining import contracts with foreign export companies and even engaging in new ones.

### **The increase in accidental and deliberate waste fires, as plastic waste accumulates**

As a result of new dynamics in the waste market and of the relative lack of preparedness by many countries to effectively react to changes in the market, large amounts of plastic waste have been stockpiling in both legitimate landfills and unauthorized dumpsites. These sites are often prone to waste fires, whether deliberate or accidental (caused by spontaneous combustion of accumulated waste).

While waste fires are widespread, their nature and scale vary greatly across countries. In Cambodia and Bangladesh, for instance, they are an ordinary practice as a legal way to dispose of waste.

**Fires have been occurring in open fields, factories, recycling plants, stockpiling houses and various disposal facilities.** They are usually reported as accidental, although in several instances (including fires in Italy, Malaysia, Netherlands, Poland, Romania, Thailand and Turkey) they were suspected to have been triggered to eliminate plastic waste that was illegally landfilled. However evidence to prove the deliberate origin is often lacking.

Authorities in several countries are taking a closer look into this phenomenon and focusing on more investigations. For instance, Dutch authorities have been working together with insurance companies in the investigation of several waste fires. As a result, insurance companies in the Netherlands recently changed their

payment policy and are not covering outdoor storage fires anymore. Dutch authorities have observed a clear drop in the number of fires at recycling plants from January to March 2020, following this change in insurance coverage. This case shows that a part of the increase in waste fire is almost certainly due to deliberate acts.

**Increase in waste fires were mostly reported by Southern European countries**. There are growing indicators that waste surplus fuels domestic waste mafias who build their business model on irregular and unsafe waste disposal. However, waste fires are suspected to be increasing in other regions as well, such as in South-East Asian countries where suspicious fires at disposal sites were observed.

In this regard, Italy witnessed a large increase in waste fires, and of the amount of waste involved in each fire. Spanish authorities have also noted increasing fires in landfills and waste treatment centres in order to eliminate the accumulated waste in Spain. Indeed Spain used to export almost 60% of its plastic waste to China and current recycling centres do not have the capacity to recycle all the plastic that is not being exported anymore. It has been estimated that from 2017 to 2018, incidents of waste fires in Spain have increased by 100%<sup>29</sup>.

**Some waste fire incidents in South-East Asian import countries have also been observed and are believed to have increased since 2018**, in spite of the lack of official data from before 2018. Such incidents were related to illegal recycling facilities, illegal landfills, and illegal plastic factories associated with illegal labour. Uncontrolled fire in this context can degenerate into tragic events, as observed in an illegal plastic factory in Bangladesh which caught fire killing 13 workers and injuring 21 others (media information [33], confirmed by Bangladesh official informant). This case, along with others such as the river contamination in Malaysia described in Case Study 7, highlight the severe impacts that the surge in plastic waste-related crime has had on communities since January 2018.

#### **CASE STUDY 7: Malaysia observes major public health incidents as illegal waste treatment causes air and water pollution**

Illegal plastic recycling factories in Malaysia have been found to be linked with number of pollution events including a number of serious air and water pollution incidents resulting from unfiltered noxious fumes from burning scraps and the release of toxic waste water in the environment.

The country observed a peak of air pollution mid-2018 followed by various protests from the population, such as in the small town of Jenjarom where nearly 19,000 metric tons of plastic waste was piled up and burnt at night. Some illegal plastic recycling factories and waste dumping sites were found hidden inside oil palm plantations in Kuala Langat, where there is access to land for burying waste and bodies of water to dump contaminants. [91]

Some rivers were found contaminated by illegal discharges of toxic effluents derived from waste treatment plants. The most significant case of contamination concerned the Kim Kim River in the Malaysian region of Johor, in March 2019, which had serious impacts on public health, the environment and local economy. The dumping of about 2.4 metric tons of chemical waste into the river and the related toxic fumes affected the health of 2,775 individuals including 8 of which required intensive care, and provoked the closure of 111 schools in the area as a preventative safety measure. Clean-up operations of the Kim River reportedly involved the clean-up of 650 metric tons of contaminated soil and 830 metric tons of polluted water, and cost USD 1.5 million (RM6.4 million), according to the estimation of the Ministry of Energy, Technology, Science, Climate Change and Environment provided to INTERPOL.

This case required a multi-agency intervention. The authorities involved in the crisis management operations included the National Disaster Management Agency, the Malaysian Armed Forces, the Ministry of Health and the Department of Environment, the Royal Malaysia Police, the Malaysian Fire and Rescue Department, the Hazardous Materials Management Team, the Drainage and Irrigation Department and the Ministry of Education.

*Source: Media information (The Straits Times [91]), government publication [90], and official information from Malaysia Department of Environment*

<sup>29</sup> The data from this paragraph are not official figures, they are estimations based on the intelligence and information from the investigations carried out by SEPRONA (the unit of Nature Protection Service from the Spanish Civil Guard).

## 2.4 Key criminal features and modus operandi in the plastic waste sector

This section, largely based on official data provided by INTERPOL member countries, aims to investigate the potential evolution of modus operandi and other key criminal features in plastic waste-related crimes.

While there were significant changes in trade routes for plastic waste (section 2.2) and an aggravation of illicit waste treatment situations (section 2.3), **the modus operandi and the profile of the offenders remained largely unchanged from before 2018**. Some specific forms of misdeclaration and of concealment of illegally shipped waste plastics have intensified since January 2018, which will be of interest to law enforcement in order to better profile suspicious movements.

There is a persistent discrepancy between countries that have solid evidence of the involvement of organised crime in the waste sector, and countries who lack this information. Despite too little information available for comparative analysis, this chapter provides some investigative leads in this area.

*The version restricted to law enforcement of this report provides more in depth analysis of the evolution of the criminality in the plastic waste sector. Law enforcement practitioners are encourage to consult the restricted version.*

### Misdeclaration and use of fraudulent documents remain key modus operandi

**Collected data confirmed the pre-eminence of misdeclaration and use of fraudulent documents to facilitate illegal trade and treatment of plastic waste.**

In order to evade authorities, contaminated or mixed plastic waste – covered by the Basel Convention and in particular by its provisions on illegal traffic - has been fraudulently declared as sorted out non-hazardous plastic waste – not covered by the Basel Convention. In other cases, plastic waste has been fraudulently declared as raw materials, reusable plastic, metal scraps, plastic granules and other substances that are not prohibited or restricted by the receiving market or buyer.

Another common form of misdeclaration concerns false information on the shipment's origin and destinations. These frauds are often coupled with various concealment methods to hide the illegal plastic waste in the container or storage place.

Resorting to misdeclaration and fraudulent documents aggravates the waste-related offence for two reasons at least: it incorporates additional crimes in the violation, typically frauds but also financial offences (where for instance the misdeclaration results into a tax evasion); moreover, it implies a certain degree of premeditation, preparation and sometimes organization.

Misdeclaration has been identified as a common modus operandi in waste crime for a long time. Nevertheless an increase in its frequency and complexity has been observed since January 2018, and countries for which waste enforcement is only emerging are observing this trend for the first time.

Among the frauds identified in illegal waste shipments, there has been a rising misdeclaration of final destination country, involving a transit point, which makes the detection of the origin state of illicit shipment all the more challenging. These kind of operations likely require a broker in the transit country, able to send the received waste to its final destination. This implies a certain level of organization, and potentially a criminal network involved at origin, transit and most of the time at destination as well.

## Involvement of Organized Crime Groups in the plastic waste sector

**One third of countries that contributed to this assessment<sup>30</sup> observed indicators and/or collected evidence of the involvement of organized crime groups (OCGs) in the illegal trade and treatment of plastic waste.**

Criminal data collected by INTERPOL has identified that the infiltration of OCGs into the waste sector usually happens through legitimate business as a cover for illegal operations, with regular involvement of financial frauds and documents forgery. Such infiltration in legitimate businesses also reveals a certain level of sophistication of the criminal enterprise and professional competencies among offenders, essential in concealing the criminal activity through the manipulation of legal records.

**The convergence with financial crime is a key feature of organized criminal waste activity**, with tax evasion being often part of the offence itself, which in turn fuels money laundering as a way to divert illicit profits into legitimate businesses and properties. Corruption has also been found commonly related to this kind of offence in some countries.

Organized waste crime is often profiled as an opportunistic white collar crime, where individuals and/or companies seize an opportunity for large profits by accessing the illegal market. However, recent incidents of violence associated to cases of illegal waste disposal might reveal new, more complex and increasingly threatening profiles of waste crime. In France the mayor of the town of Signes was murdered in August 2019 for trying to prevent an illegal waste discharge from a truck.

Many countries have only recently started to look at the organized crime-waste crime nexus and therefore more data is expected to be available in the coming years to determine further the extent, nature and particular features of the organized crime involvement specific to the plastic waste sector.

Nevertheless, the manipulation of the growing intra-European plastic waste market by organized crime groups is probable. The increase in shipments of “green listed plastic waste” towards Central and Eastern European destinations has been exploited by individuals and organized crime groups not only to ship contaminated plastic waste but also other types of waste and commodities fraudulently listed as green listed plastic.

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<sup>30</sup> 13 over 40 respondents (33%), including key export and import countries.

### 3. ANTICIPATING FORTHCOMING RISKS IN THE PLASTIC WASTE SECTOR

Consultations with key national experts and partner organizations allowed INTERPOL to identify some risks currently emerging from newly adopted regulations in the plastic and the waste sectors. Scanning risks at the horizon to anticipate them allows to both prevent threats and plan responses, making enforcement more cost-efficient and containing negative impacts.

**A key recommendation of this strategic report is moving away from a reactive approach towards a proactive approach in waste enforcement: with risk indicators identified and dealt with before they turn into threats.**

The following sections identify some of those forthcoming risks that are expected to impact the illegal plastic waste sector in order to support proactive enforcement.

#### 3.1 Risk of re-routing of illegal trade to new and more vulnerable countries following upcoming bans on plastic waste imports

Upcoming bans on plastic waste imports include but are not limited to those enacted in India and Thailand, which are important countries of import (as highlighted in Map 7, page 27):

- India already had strict laws on plastic imports since a partial ban on plastic import was adopted in 2016. However, plastic traders were taking advantages of legal exemptions to pursue the plastic trade. Following a sharp increase in plastic imports in 2018, the Indian government has published an amendment to the rule extending the ban to the whole country in March 2019 [34], with clarification in October 2019 that the ban applies to all forms of plastic scrap [35].
- Thailand's Ministry of Natural Resources and Environment announced in the first half of 2019 that the proposition of a total ban on the import of plastic waste into Thailand will be reviewed in the beginning of 2020 [36]. As of January 2020, the Thai government was still discussing whether adopting a general ban or imposing import quotas for electronic and plastic waste [37].

If those new waste import regulations are not properly communicated to the World Trade Organization, the Basel Convention Secretariat nor the EU, there are risks that they will not be enforced at the export level. This would impose an important burden on the enforcers in the import country with new restrictions, in addition to hinder the enforcement of illegal waste shipments to those destinations.

Moreover, as plastic waste imports get further restricted in some countries, it is very probable that plastic waste traders will continue to adapt and re-route shipments to new and vulnerable countries. Recent detections of illegal plastic waste shipments towards alternative South-East Asian destinations such as Laos and Myanmar suggest that the future re-routing of the plastic waste trade will probably affect new destinations, neighbouring those import countries that have implemented restrictions.

It is possible that other destinations will be found in Africa and Latin America, however more data from those regions is necessary to assess this risk further. In Africa, the existing routes for illegal electronic waste trade could possibly be used for plastic waste shipments, as some countries in the region already receive large quantities of plastic material "soon-to-be waste" as embedded in illegally imported e-waste. In Latin America, the recycling sector is reportedly growing, which may attract increased plastic waste exports.

Medium term mitigation strategies include more illegal shipments stopped before they leave the departure points through more accurate detection; and upgraded detection and enforcement capacities in countries that are predicted to become emerging destinations. Longer term strategies include the reduction of the volume of plastic waste being produced and exported globally, and the investment in recycling infrastructure within export regions.



### **3.2 Risk of increased illegal disposal in the event of improper implementation of the Basel Convention amendment on plastic waste trade**

The core principle of the “Plastic Amendment” to the Basel Convention is to increase the regulation of plastic waste shipments through regular standardized customs checks on procedures and paper work related to plastic shipments.

The amendment includes also the principles of environmental sound management of waste (ESM), and of proximity between the production and the recycling site of waste. They imply that all countries follow ESM guidance to process their waste, as close as possible from where it was produced and collected. Notably, this means that source countries are required to be more self-sufficient in terms of recycling and for import countries to treat more of their domestic waste.

Therefore in principle, the amendment should improve plastic waste traceability, strengthen shipment procedures under the Basel Convention and increase environmental accountability of plastic recycling. As a result of these and regulations the global plastic waste trade is expected to decrease in size.

However, if the principles of ESM and proximity are not implemented, the amendment could likely result in increased illegal disposal of plastics in source regions, along with illegal imports in destination regions.

The implementation of policies stimulating recycling investment in export regions as well as policies reducing plastic waste generation (e.g. policies limiting the use of single-use plastics) should go hand in hand with the implementation of the “Plastic Amendment”. They are essential to prevent domestic illegal disposal, as well as more illegal trade at the intra-regional level where border control is softer, especially within the EU. On the import region side, waste collection system should be improved so that recycling facilities do not have the incentive to import high quality recyclable plastic waste instead of processing lower quality domestic waste.

All in all, enforcement should generate sufficient deterrence to avoid risks associated with the implementation of this amendment. Officers should be trained on waste enforcement and countries would develop intelligence and investigation methods accordingly (see related-recommendations, page 46).

### **3.3 Risk of new criminal activities emerging from upcoming regulations on plastic-derived chemicals<sup>31</sup>**

Recent studies have demonstrated how plastic-derived chemicals (e.g. plastic additives) leach from plastics into the environment. Those chemicals leach into rivers and seas in particular with detrimental effects on the flora, fauna, as well as food and water security.

High levels of some plastic-derived chemicals (e.g. PBDD/Fs and PBDEs<sup>32</sup>) were found in recycled plastic, including in sensitive-use material such as kid toys or kitchen utensils. This indicates that there is little control over the chemicals contained in recycled plastic material.

Two provisional amendment proposals to the Basel, Rotterdam and Stockholm Conventions envisage to limit the persistent organic pollutants content (POPs) in plastics to 50 or 100ppm. Experts note that the current recycling infrastructure, which has difficulty respecting these treatment limits, may lead to a high risk of non-compliance. In addition, many uncertainties persist regarding the substitutes to those chemicals being banned, for example on their hazardousness, which could also generate legal loopholes on the plastic waste market.

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<sup>31</sup> The information contained in this sub-section comes from consultations with key partners including from the Basel and Stockholm Convention Regional Centre for Asia and the Pacific (BCRC-SCRC China), and from the Stockholm Convention Secretariat.

<sup>32</sup> Polybrominated dibenzo-p-dioxins, dibenzofurans (PBDD/Fs) and polybrominated diphenyl ethers (PBDEs)

### 3.4 Risk of new criminal activities related to banned plastic items

As the awareness of plastic pollution is growing, various countries are taking measures to ban single-use plastic items, such as plastic bags or straws. In a 2018 review, the United Nations Environment Programme (UNEP) registered that over 60 countries had introduced bans and levies to limit the production of single-use plastic items [38]. As the use of those items is made illegal, illegal businesses trafficking plastic items may emerge.

Further, UNEP's review estimated that among the countries with restrictive measures on single-use plastics 30% registered a reduction in the use of plastic bags, while 20% reported little to no change, primarily due to lack of enforcement and of affordable alternatives [38].

On 24 October 2018, the European Parliament voted to ban single-use plastic items by 2030 [39]. India also committed to completely phase out single-use plastics by 2022 [40]. China is banning single-use plastic bags in Shanghai and Beijing in 2020, and plan to extend the ban to the whole Chinese mainland by 2022 [41] [42].

As countries with major consumption rates have committed to phase out some single-use plastic items, it is of major importance for the enforcement community to understand the criminal threats developing along with the new regulations and the enforcement practices to deter them.

### 3.5 Risk of criminal activities emerging from restrictions on other waste streams

China's policy restricting solid waste imports entered into force in January 2018 concerned 24 types of solid waste. It was expanded to 32 types of waste starting on 31 December 2018. The streams concerned include among others ships scraps, auto parts, hardware, nonferrous metal, waste and scrap of stainless steel, titanium, paper and wood scraps.

Consultations with countries enabled to identify the main waste streams, other than plastic waste, prone to see an increase in illegal trade following their market disruption. Aluminium and copper scraps were reported as among the most sensitive commodities, followed by wood scraps, paper waste, and shipbreaking.

Such as for the plastic waste market, China has long been the largest import market for copper and aluminium scraps. Between 2007 and 2013, China imported more than 30% of all traded aluminium scraps and more than 60% of all traded copper scraps worldwide. [43]

China's policy banned the import of category 7 copper scrap (e.g. electrical cables, radiators and engine motors). In the effort to limit waste imports to higher-purity material, China limited import quotas of high-grade Category 6 copper scraps (average 95% copper content), starting in July 2019. In October 2019, China announced a new classification of copper scrap, banning copper scrap with less than 96 percent copper content from import. [43] [44] [45]

Open-source data highlight the fall in nonferrous metal scrap imports in China to its lowest level in a century in 2018, with a fall of 32% regarding copper scrap [45]. It was also analysed in 2017 and 2018 that the first restriction on imports entered into force in 2018 would not significantly impact the global supply [46] and the price of those metal scrap [47]. However, little information is available on how the more recent and more drastic regulations - and therefore market changes - are impacting illegal trade or illegal treatment of those scraps.

A clear market displacement was observed, with copper and aluminium exports being diverted to Southeast Asia, where new nonferrous metal recovery plants have emerged. In addition, China-based scrap companies are investing in those neighbouring countries to install processing equipment enabling to upgrade low-quality scraps to 96 percent copper content scraps, then re-exported to their business in China. [43]

**The similarity in the patterns observed on the recyclable plastic waste market could raise the question on whether the emerging criminal trends discussed in this paper would also be reflected in the aluminium and copper scrap market.**

Expectations in the Chinese market are that import quota volumes for copper scrap will be slashed in 2020 and that no further quotas under the existing system would be issued from 2021 onward. Alternative import markets have had already developed, as imports in aluminium and copper scraps into China had gradually declined from 2012 to 2017 (due to increased domestic production). This element indicate that the impacts on the metal scrap market might possibly be lesser than the ones observed on the plastic waste market, however a rigorous analysis of criminal data would be needed to establish such impacts.

It is therefore essential that export and import countries of nonferrous metal scraps strengthen the enforcement of such trades.

Similarly, the impact of China's waste import restrictions on other types of waste is little understood. Countries particularly expressed concern regarding the potential market displacement and related increase in illegal trade in wood scrap as well as an increase in illegal shipbreaking. In addition, although paper waste is less hazardous to the environment and health than most other waste streams (except when contaminated and burnt in an unsound manner), there are signals that the price of scrap paper has dropped dramatically – by more than 300% in three years - resulting in its stockpiling in several OECD countries [48].

### **3.6 Risks of emerging illegal trade and disposal of photovoltaic panels**

Because solar panels have a long life expectancy (25 years) and have been introduced into the market only in the past two decades, a very little amount of photovoltaic panels have turned to waste requiring waste processing. Specialized treatment facilities have poorly developed as a result of this currently low demand for recycling, as well as from the evolution of the panel materials, which could require different types of treatments, making a specialized facility fast to be obsolete.

However, the 2020 decade will see the first generation of photovoltaic panels go to waste. The demand for their recycling is expected to gradually grow, following the growth of their production since the beginning of the 21<sup>st</sup> century. Although the extended producer responsibility (EPR) should apply in this case, there are high risks that traders will look for illegal avenues to dispose of the panels, in the absence of appropriate recycling business.

Even if sufficient investments are taken in the next years to find the appropriate recycling techniques for dedicated facilities to develop, the specialized nature of those facilities will certainly be paired with high processing costs. This would also generate an incentive for illegal disposal of solar panels.

In 2019, a transnational organized criminal group trafficking large quantities of photovoltaic panels using triangular transactions from Europe to Africa was detected. This case should serve as an indicator of the potential risk that OCGs penetrate the recycling business of solar panels and should raise the alarm among the enforcement community in countries where solar panels are produced and used.

### **3.7 Risks of emerging illegal management of lead batteries and lithium batteries-related waste**

There is strong political incitation to phase out combustion cars – using lead batteries - in order to reduce the carbon footprint of the automobile sector, and replace them by electric cars – using lithium-ion batteries.

On the one hand, lead batteries recycling is a profitable business that the decline in combustion cars and therefore in lead recycling demand is threatening. Without proper monitoring, those businesses could chose illegal avenues to maintain their supply through illegal trade. However, in the transition time from combustion to electric vehicles, the demand for lead batteries recycling might significantly increase for a short term.

On the other hand, the volume of lithium batteries is expected to increase exponentially as electronic take over the automobile sector. The electric car market passed the 2 million vehicles in 2016, and it is estimated that by 2030, there will be 140 million electric cars globally. [49] In addition, lithium batteries weight about 250 kg per car. Such increase poses two criminal threats: the illegal extraction and trafficking of primary but limited raw material of the batteries, like cobalt, lithium and graphite [50]; and the illegal trade and waste treatment of those batteries when turned to waste. In the latter, incentives include low recycling offers, such as in the European Union where only 5% of lithium batteries were recycled until 2017. [49] The illegal extraction of limited raw material from the waste batteries also represents an incentive to trade those batteries illegally to extract its raw material out.

In both cases, the current rate of lead batteries and lithium batteries waste generation significantly exceeds management capacities, which generate opportunities for illegal waste treatment.

In addition, the phasing out of fossil fuelled cars might also increase the quantity of plastic waste to be processed, considering the large part of plastic compounds in car parts.

## CONCLUSION

By exposing the criminal trends in a global plastic waste sector in transition, this strategic analysis report provides enforcement and policy tools to combat such criminality. It also raises awareness on a waste criminality that is not sufficiently held responsible for its impacts on environmental security, public health, but also for its contribution to other crimes such as illegal labour, fraud, money laundering and corruption.

This report highlights how criminals have been exploiting market transformations to grow criminal businesses in countries vulnerable to waste mismanagement. They have been doing so by disposing of plastic waste illegally, taking advantage of confusion in the marketplace, as well as using increased imports of plastic waste to cover the trafficking in other commodities.

As an increasing number of countries are adopting approaches towards a more circular economy, where waste becomes a resource, the waste market is expected to continue to show significant changes in the near future. Once effective in 2021, the “Plastic Amendments” to the Basel Convention will also be a key step forward a better monitoring and control of the plastic waste stream, under a common international legal framework.

Nevertheless waste criminals have proven to adapt their modus operandi to regulation changes fast and criminal trends have shown rapid evolutions in the past couple years. Moreover, when changes are not well regulated, they may offer opportunities for new criminal businesses to grow. It is therefore crucial for the global enforcement community to keep monitoring criminal trends in the plastic waste sector, to adapt enforcement methods to the rapid changes in criminal trends. International enforcement operations are essential to this end.

INTERPOL’s recent operations in the pollution enforcement area have demonstrated that apart from increasing crime detection and deterrence for a period of time, such operations also increase international information exchange, enhance the global collection and analysis of intelligence, and allow to identify capacity needs. Following Operation 30 Days of Sea carried out in October 2018 [51] for example, INTERPOL identified criminal trends characterizing marine pollution-related offences, but also conducted a need assessment allowing to tailor technical support and capacity trainings. Improving capacity need assessment and adapt training offers are also key to the enforcement of waste regulations.

A more collaborative approach is necessary to better prevent crime in the global waste sector. Plastic waste-related crime is driven in part by structural deficiencies in the waste market, such as limited waste collection capacities in import countries and the shortage of recycling capacities in export countries, affecting the management of domestic waste in both cases. Enforcement is just a required complement to structural changes in the market.

Global awareness on how criminality has been infiltrating the waste sector and contributing to plastic pollution is a necessary step towards raising the status of waste crime in policymaking. This seems a necessary step in order to mobilize appropriate resources for enforcement agencies, and to establish appropriate legislations and sanctions exercising sufficient deterrence. Collaboration between regulators, inspection bodies, enforcement officers, and the private waste sector is essential to achieve relevant governance of this sector.

## RECOMMENDATIONS: EXPLORING SOLUTIONS TO STRENGTHEN ENFORCEMENT

Countries reported a number of challenges that they face while enforcing the laws and regulations against plastic pollution, especially in the current context of rapid changes in the plastic waste market (new regulations, prices fluctuations, etc.). Four main challenges and their potential solutions were identified and discussed in this section: challenges in detecting illegal activities (3.1); limitations of investigative powers (3.2); the lack of waste traceability at the international level (3.3); and the rapidly changing import regulations (3.4).

The challenges and solutions discussed below were identified through the questionnaire (Appendix 2) and consultations with key import and export countries. They suggest ways forward to strengthen enforcement without expecting to offer an exhaustive picture of the available solutions.

### **Solution 1: Developing risk indicators and financial investigations in response to detection and investigative challenges**

#### **Challenges in gathering information that is instrumental to detecting and investigating plastic waste-related crime**

Practitioners consulted for this report outlined two key reasons why detecting and investigating illicit waste activity is so challenging.

First, the inspection rate of waste shipments and waste companies is relatively low as most countries suffer from a **shortage of human resources specially trained and allocated to waste enforcement**. This challenge affects in particular emerging import countries, where the reinforcement of control measures can hardly cope with the drastic increase in imported waste.

Second, **information that is key to conducting investigations** can be particularly difficult to obtain. The nature of the plastic waste market makes it difficult to identify essential elements such as:

- **The source of waste and its destination** to determine if export and import regulations have been respected: Before the implementation of the Basel Convention “Plastic Amendments” in 2021, there is no electronic records of international transactions of the plastic waste that is not covered by the Convention yet, nor standardized import/export procedures. Enforcers in export countries have then few tools to accurately determine where the waste is actually being sent and how it will be treated after it reaches destination.
- **The nature of waste**: whether the waste being shipped, stored or processed is contaminated and whether it corresponds to the waste type described in the paperwork is instrumental to determining the legality of a waste activity. As observed in the previous chapter, misdeclaration of waste is a common modus operandi in waste crime.  
The accurate identification of waste is complex due to legal inconsistencies across countries, as plastic products considered as plastic waste in one country can be considered as usable plastic scraps in another. In addition, customs officers often lack appropriate training and knowledge of the Basel Convention waste codes, and are therefore unable to determine if the international standards in the labelling of waste types of a given shipment is being met.
- **The network behind the illegal waste activity**: once a waste crime has been detected, investigations should identify the responsible network and determine the roles of the perpetrators. However, environmental authorities mandated to investigate waste crimes often lack the necessary mandate to conduct financial and criminal investigations to trace perpetrators.

These challenges and limitations make it **necessary to develop inspection strategies that are targeted and time-efficient**.

### **Recommendation: develop risk indicators to guide more targeted inspections**

**Law enforcement agencies are encouraged to develop an intelligence-led approach, with risk indicators that would allow officers to increase the detection rate over the same number of inspections.** INTERPOL has developed a series of risk indicators that could be used to better target suspicious shipments and facilities. This list has been made available to law enforcement and compliance agencies of INTERPOL 194 member countries.

### **Recommendation: increase financial investigations**

As the financial motive is a common denominator across all illegal waste activities, **financial investigations are key in advancing waste crime enforcement.** By integrating financial investigations into any environmental crime investigation and training environmental enforcers accordingly, Spanish authorities have significantly increased detection of OCGs in the waste sector. Stronger measures have been taken at the prosecution stage, such as the confiscation of assets to halt cash flows.

Integrating financial investigations into waste enforcement allows the investigation to focus on the criminal network rather than on the crime scene such as an illegal landfill, or a single criminal event. **The shift from a traditional focus on waste sites to a more holistic approach tackling criminal networks and illicit assets, has been identified as key to detect and investigate waste offences** [52].

For example, British authorities investigated a case where an OCG owned and operated several illegal waste sites. Focusing on the illegal sites separately would not expose the full picture of the criminal network at stake. Instead, focusing on the perpetrators allowed investigators to uncover OCG members previously convicted of fraud and drug importation, and map the criminal network. [52]

## **Solution 2: Enhancing inter-agency responses to overcome limitations of power**

### **Challenges faced by authorities in adopting the appropriate investigative approach**

In many countries, waste offences are investigated by environmental protection agencies who rarely have training in financial investigation or the legal mandates to investigate organised crime. At the same time, several agencies may be involved in waste enforcement with different mandates, primarily the customs bureau at the frontline of waste shipments control, the police and the environmental protection agency.

Therefore **investigations can easily be fragmented among different authorities, which may impede the identification of a criminal network.** Critical information on an illegal waste shipment and an illegal recycling facility involving the same offenders might never be shared if the relevant authorities do not communicate to each other.

This challenge is particularly felt in countries where the waste trade towards illegal recycling facilities is rapidly increasing and waste crime is an emerging enforcement area. Authorities in charge of the licensing system for recycling facilities and of verifying compliance with recycling quotas, should make sure that other authorities in charge of waste enforcement are constantly updated on licensing information and compliance. This inter-agency communication is necessary to verify whether the consignee of a waste shipment is authorized to receive the waste.

**In a context where the volume of information to communicate has exponentially increased in a short time, effective interagency coordination is both a critical challenge and an opportunity for successful enforcement.** Limited cooperation and communication between agencies is a challenge frequently reported in almost every country.

### **Recommendation: strengthen inter-agency cooperation for stronger expertise and mandates**

Inter-agency cooperation can provide an appropriate response to the challenges discussed above, by combining competencies, mandates and statutory powers from different authorities, towards **achieving an investigative approach to waste crime comprising of environmental, financial and organized crime investigations, where appropriate**. Prosecutors should also be involved at an early stage of the investigation.

The Waste Crime Taskforce established in the State of New South Wales in Australia has achieved great successes in disrupting criminal networks in the waste sector, and has identified several lessons learned:

- Clearly defined roles, mandates and targets are strong assets for inter-agency cooperation.
- A prior assessment of the capabilities and mandates that each agency can bring to the task force is also necessary to ensure a relevant distribution of responsibilities.
- The establishment of Memorandum of Understanding between agencies may be required to ensure information sharing between parties.
- The establishment of a task force requires sufficient political interest and financial support.

### **Solution 3: Enhancing international waste traceability through better information exchange and intelligence sharing between import and export countries**

#### **An enforcement challenge: the lack of plastic waste traceability**

The lack of plastic waste traceability<sup>33</sup> jeopardizes the detection of waste crime and the development of internationally coordinated enforcement responses.

**International cooperation is necessary to disrupt criminal networks that trade plastic waste transnationally** (see Case Study 3, page 34).

On the one hand, **enforcers in the import country sometimes face difficulties in identifying the source of an illegal waste shipment**. This information is necessary to initiate the repatriation process as well as the investigation on the exporter in the country of origin. A number of repatriations of illegal plastic waste were not followed by prosecution because offenders could not be identified in the export country, or because the information received on the offence was not sufficient to prosecute it.

On the other hand, **enforcers in export countries often lack information to determine whether the declared consignee is an authorized recycling facility**. Therefore they have little leverage to determine the illegal status of the waste shipment, especially when it comes to clean and properly described recyclable plastic waste but in fact destined to an illegal recycling facility.

Several past enforcement operations on waste trafficking – such as INTERPOL Operation 30 Days of Action, June 2017 - have demonstrated that illegal waste shipments are more often detected at the import point. This further supports that the enforcement of illegal waste shipment is insufficient at the export level, in particular because of the lack of visibility on key information to determine the legality of a shipment. Nevertheless, reinforced inspections at export ports and increased sanctions against illegal exporters (see Case Study 2) might be a signal of an increase in shared responsibility between import and export countries.

#### **Recommendation: strengthen the licensing system of waste facilities nationwide**

**A licensing system that is standardized nationwide and indicates clearly the types of waste each licensed facility is authorized to manage or import/export, is a prerequisite for effective waste control in every country. It is equally important that information on licenses are collected, updated and managed by one**

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<sup>33</sup> Sections 1.2 page 10, and 3.1 page 39.



**designated authority. If compatible with national resources and capacities, this information should be organised in a national database.**

For example, the Approval Permit (AP) in Malaysia is a key tool used by Malaysian authorities to control the waste coming into the country. Exporters are required to ensure that they only ship their goods to facilities with a valid AP. This is what the Malaysian authorities are going to check when receiving the e-permit of a waste shipment destined to Malaysia, sent for verification by the export country authorities.

**Recommendation: communicate databases of licensed facilities under the Basel Convention**

**National databases of licensed facilities (such as waste import and waste recycling companies) are a useful tool to bridge the information gap on consignees. Such information greatly helps enforcers at the export point to determine whether the shipment is legal or not.**

Under the Basel Convention, Parties should report on an annual basis information on their disposal facilities, including recycling facilities<sup>34</sup>. This information is publicly available. However only half of the Parties report that information to the Basel Convention Secretariat.

Challenges met by countries to provide this information include a lack of coordination at the national level between Competent Authorities, which operate the Basel Convention trade control regime and its legal requirements pertaining to the transboundary movement of wastes, and other enforcement authorities with other priorities and areas of expertise.

In Malaysia for example, the Department of Environment (DoE) designed the Electronic Scheduled Waste Information System (eSWIS), a public website<sup>35</sup> listing all licensed waste facilities and transporters, with details on their consignment and inventory. A more detailed database is currently restricted to authorized users only, but access can be requested by any government agency to Malaysia's DoE. eSWIS represents a secured platform where all consignment information, note for transfer and waste reception is archived and easily accessible.



The procedure currently followed by most enforcement officers inspecting a plastic waste shipment destined to Malaysia is to contact Malaysia's DoE by email to confirm that the consignee declared on the e-permit is authorized to receive the shipment. However, having direct access to the abovementioned database via the Basel Secretariat platform would simplify and hasten control procedure by export authorities, while relieving the burden on the import authorities to respond to all requests.

Similarly in Italy the internal database "Albo Nazionale Gestori Ambientali" (National Register of Environmental Companies)<sup>36</sup> lists all of registered waste companies, with updated information on what shipments they are authorized to handle and on their past transactions. Companies have the legal obligation to provide these information to the Ministry of Environment, including the quantity and types of waste managed by the company, their origin and their destination if they are shipped, and related waste code (Basel Convention code).



This database allows Italian authorities to easily flag suspicious exports. Today the database is used exclusively by Italian authorities, however it could serve as a useful tool for authorities in import countries to verify the origin of a waste shipment from Italy. Even though its content is currently in Italian only, names of authorized companies and associated waste codes are accessible regardless the language barrier.

<sup>34</sup> See: <http://www.basel.int/Countries/NationalReporting/NationalReports/BC2018Reports/tabid/8202/Default.aspx>

<sup>35</sup> Access to the public list of the eSWIS: <https://eswis.doe.gov.my/facilityList.aspx>

<sup>36</sup> Access to the Italian database: <https://www.albonazionalegestoriambientali.it/Public/Login>. Additional information can be found in the EcoCamere website, handled by a consortium company of the Italian Chambers of Commerce: <https://www.ecocamere.it/>.

**Competent authorities responsible for regulating waste management are encouraged to provide the Basel Convention Secretariat with similar inventories, as an essential enforcement tool.** Authorities from non-Parties to the Basel Convention are also encouraged to make such inventories available to other countries enforcement.

**Recommendation: develop an electronic platform to monitor waste movements**

**The development of an electronic platform where all waste movements should be recorded by law, and that all designated authorities could access globally, would possibly allow fluid information exchange between import and export countries.** It could also facilitate joint investigations by providing a common pool of data, and better allow authorities to bring red flag companies to light through risk based targeting.

The United Kingdom is currently working on an innovative digital solution to track waste through the economy (UK Waste Tracking Project)<sup>37</sup>. Its objective is to “improve the management of waste and reduce the risk of economic, environmental and social harm that illegal activity often causes. These measures will help level the playing field by ensuring all businesses are adopting legitimate waste management practices, including through powers to introduce an electronic waste tracking system” [53]. In the current phase 2 of the project, two companies are working to develop a prototype digital waste tracking service by October 2020.

This solution is obviously a long term objective due to its complex legal, data collection and sharing, and financial implications. The Conference of the Parties to the Basel Convention and relevant international intergovernmental organizations could play a key role in promoting the development of this ambitious goal or to find alternatives that would not impose an excessive burden on trading companies.

**Recommendation: enhance the use of existent secured communication channels to share critical intelligence**

Key information to be exchanged were identified as follows:

- Information on containers that were previously inspected based on suspicion or intelligence should be transmitted to the next port of destination.
- Intelligence on companies that were flagged for illegal waste shipments in the past should be made available to all customs agencies.
- The status of recycling facilities in terms of import permits and recycling quotas should be made available, especially to customs authorities in export countries.
- The speed of exchange should be prioritized over the volume of intelligence being exchanged, as shipment inspections are usually time critical.
- Authorities in an export country should inform the intended import country when stopping an illegal shipment before it leaves its departure point, so that the import country can investigate the intended consignee to prevent future offending.

In this regard, streamlined, accessible and effective communication channels are essential. The establishment of a single Customs Point of Contact for these issues or the enhancement of the role of the national Basel Convention Points of Contact might be suitable options. INTERPOL and WCO provide secured platform for information exchange, for police (I24/7) and custom authorities (CenComm) respectively. The INTERPOL National Central Bureaus are an important resource for distribution of information to relevant national and foreign agencies.

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<sup>37</sup> More about the United Kingdom Waste Tracking Project (GovTech Catalyst), aiming at building the United Kingdom’s first comprehensive digital waste tracking system: <https://www.gov.uk/government/collections/waste-management-smart-tracking-of-waste-govtech-catalyst#govtech-smart-waste-tracking-challenge--phase-2>

## Recommendation: clarify the requirements from export countries to proceed with repatriation

INTERPOL has consulted with key export and import countries to identify general recommendations to facilitate the repatriation procedure and address the challenge of deficiency in plastic waste traceability.

In order for an import country to request waste repatriation, authorities must present to their counterparts in the export country sufficient evidence that proves the illegality of the shipment, the country of export, the exporter, and the responsibilities of the involved entities<sup>38</sup>.

First, **bilateral consultation between authorities in the country of origin and the country of destination is necessary** to ensure exporter identification and therefore repatriation. Consultation **at an early stage** is essential. In the absence of a standardized procedure of consultation, **using the Competent Authorities of the Basel Convention** to discuss repatriation matters can facilitate this information exchange. Bilateral consultation is especially important because the export authorities sometimes entirely rely on information provided by import authorities to launch an investigation on an exporter.

Challenges might be even higher when the export country is not identified. INTERPOL Operation 30 DAYS AT SEA 2.0 (October 2019) contributed to overcome this challenge in a few cases. During the operation, INTERPOL's Operational Coordination Centre brought key countries together to trigger investigations into cases of illegal trade of plastic waste. In this context, information exchanged between Malaysia and The Netherlands permitted authorities to identify the source country of seven abandoned containers of plastic waste illegally shipped into Malaysia from Belgium via Hong Kong SAR. Cooperation with Belgian authorities allowed Malaysia to initiate the repatriation of these illegal shipments.

Second, **evidence gathering by import authorities must respect the repatriation requirements imposed by the export country**, which entails for container inspectors to know how to handle the waste and proceed to the inspection accordingly. For example, if the container inspection involved unloading or displacing the waste, proof that the exact same waste has been reloaded in the container requested to be repatriated has to be gathered such as via photo or footages of the inspection. However, the documentation and evidence required by the export authorities has been sometimes unclear to import countries. The lack of clear repatriation requirements has resulted in time-consuming back-and-forth communication between import and export countries, obstructing the repatriation process and generating diplomatic tensions.

Unanimously, import countries have expressed the **need for a clear list of documents required to efficiently repatriate illegal containers**. A manual on "best practices of repatriation of illegal waste shipments from Asia to Europe" is currently being developed in the framework of the WasteForce Project<sup>39</sup> and could provide this needed clarity on the repatriation requirements. This new guidance material will add on the existing guides on how to proceed in case of illegal waste shipment, provided by the Basel Convention and the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL).<sup>40</sup>

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<sup>38</sup> The majority of repatriation requests since 2018 are from Asia to Europe. The EU repatriation regulation (Articles 22 to 25 of EU Waste Shipment Regulation), reflecting on the Basel Convention, has two options. (1) If the exporter is identified and recognizes the offence, the exporter will bear the cost of repatriation as well as of the waste processing in an environmentally sound manner. Alternatively, the competent authorities of destination can decide on another way of treatment of the waste on their territory or elsewhere, provided a prior agreement between the competent authorities of dispatch transit and destination. (2) If the exporter is not identified, an investigation will be launched to follow the trail and determine responsibility.

<sup>39</sup> The WasteForce Project is funded by the European Union and carried out by a consortium of organizations led by the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL). It consists in the development of work packages providing clarity and recommendations on (1) strategies and methodologies, (2) forensics and tools, (3) the international operational networking between the European Union and the Asian Pacific Region, and (4) Capacity Building Activities for European and Asia-Pacific Authorities. More on the WasteForce Project: <https://www.wasteforceproject.eu/>

<sup>40</sup> Guidance material on reporting illegal waste trade and requesting for waste repatriation are available in

## Solution 4: Bringing clarity to rapidly changing import regulations

### A challenge for enforcers in export countries: the lack of clarity on new import regulations

In conjunction to the re-routing of plastic waste shipments, emerging import countries – especially in Asia - have been adopting temporary and permanent measures to control import in plastic waste and prevent illegal imports (see section 1.3, page 17).

This policy dynamism has resulted in **rapidly changing import regulations**, which have not always been advertised internationally in a timely and efficient manner. As a consequence, both exporters (private companies) and enforcers (government agencies) in export countries have been left with an unclear understanding of the import requirements currently in force, making it difficult for them to comply with the new policies and to enforce violations of the same.

In addition, countries reported a lack of clarity with regard to the entity responsible for the official translation of regulations that are communicated to the Basel Convention Secretariat and disseminated on its website. As new regulations on waste imports are often communicated in the original language, exporting competent authorities face challenges in verifying the compliance of a waste export shipment with the import regulations of the country of destination, during their enforcement activities and criminal investigations.

### Recommendation: improve visibility to the import legislation in place

**It is recommended that countries implementing new regulations on plastic waste import communicate the update to all other countries in a timely, official and clear manner, especially to countries that are usually the origin of the imported waste.** The use of focal points, such as the Basel national points of contact, and the Basel Convention Secretariat can be essential resources to this communication end.

When a country changes its waste import regulations, it should inform officially the Basel Convention Secretariat that will disseminate the new legal text on its website and inform the Basel Convention Parties, following Article 3 of the Basel Convention. However, new regulations on waste imports are often communicated in the language of the import country. Challenged by the language barrier, exporting competent authorities have reported difficulties in verifying the compliance of waste export shipments with the import regulations of the country of destination, during their enforcement activities and criminal investigations. While clarity needs to be brought on the entity responsible for the official translation of those new regulations, countries are encouraged to share a version of their regulation in English.

In addition, it is recommended that non-OECD countries also communicate their import regulation changes to the EU. A single procedure exists to inform all the European Union member countries, aiming to simplify the information process: the European Commission periodically issues a questionnaire to all non-OECD countries who can communicate their regulation update regarding import of waste for recovery (including recyclable plastic waste). This procedure follows EU Regulation 1418/2007, based on article 37 of the EU Waste Shipment Regulation. It is essential that import countries comply with this procedure in order to receive support in the enforcement of their own regulations.

Furthermore the European Commission is currently revising this information process to allow non-OECD countries to provide more real-time updates, which is needed in this very dynamic period of proliferating waste import prohibitions, a more real life update could/should be considered.

## APPENDICES

### Appendix 1: Details on data collection methods used in this assessment

The analytical process underlying this report involved of two phases. The first one focused on open source scanning, particularly news articles. The second phase consisted in collecting and analysing official law enforcement data from INTERPOL member countries.

#### Collection of open source intelligence

News on plastic waste-related criminal incidents were monitored on a weekly basis from November 2017 to January 2020, through an automated search using a consistent series of key words in English, French and Spanish. This exercise led to the identification of some key trends in the legal plastic waste market, as well as a few hypothesis on the criminal implications of this market. News articles served as an indicator of the scale and geographical distribution of the phenomenon: they pointed to main trading routes, suggesting what key countries have been primarily concerned by the export or import of plastic waste, and have possibly seen changes in the related criminality since January 2018.

Complementary to scanning news media, INTERPOL conducted consultations with some key partner organizations<sup>41</sup> to identify published reports on the subject that are widely recognized as reliable source of information. This action served as a verification step for literature review.

While open sources provided crucial investigative leads, they also presented several limitations. Biases included that news search was limited to three languages, or stemmed from the unofficial nature of data contained in news articles.

Information on criminal trends gathered through open sources were therefore subject to testing against official government data and information.

#### Collection of official data from INTERPOL member countries

In July 2019, INTERPOL sent a questionnaire to all National Central Bureaus across its 194 member countries to request official data on the scope and scale of illegal activities related to plastic waste international trade, and domestic waste treatment. The core questions asked enforcement agencies what changes in modus operandi, criminal motive, and routes of waste shipments they have been observing during the first year and a half from the entry into force of the Chinese restrictions on waste imports in January 2018.

#### Operational data and experts consultations

INTERPOL gathered operational data through the results of Operation 30 Days at Sea 2.0, which addressed the illegal trade in plastic waste through ports in October 2019, among other pollution-related targets [51]. An Operational Coordination Centre was established at the INTERPOL Global Complex for Innovation in Singapore, gathering law enforcement representatives from twelve (12) key plastic waste export and import countries. Cases investigated during this operation, experts' reports on the shifting criminal activities observed over the last year, updated information on legal frameworks, and practitioners' advice on key challenges in plastic waste enforcement and possible solutions, all contributed to verify the initial hypothesis and to shape the original findings of this report.

Responses to the questionnaire and operational data provided by the following 40 countries served as the core database for the analysis. The analytical phase compiled data into a comparative analysis file where they were harmonized and processed, to generate quantitative and qualitative findings.

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<sup>41</sup> Including England Environment Agency, the Dutch Human Environment and Transport Inspectorate (ILT), the Secretariat of the Basel, Stockholm and Rotterdam Conventions, UN Environment, Grid-Arendal, and the National University of Singapore.

## Appendix 2: Useful links

### Basel Convention:

- Text of the Convention:  
<http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx>
- List of Basel National Point of Contacts:  
<http://www.basel.int/Countries/CountryContacts/tabid/1342/Default.aspx>
- Guidance on the implementation of the Basel Convention provisions dealing with illegal traffic (paragraphs 2, 3 and 4 of Article 9) (2014):  
<http://archive.basel.int/legalmatters/illegtraff/index.html>

*This document provides authoritative guidance, since it was adopted by the 187 Parties to the Convention, on how to proceed in case of illegal traffic.*

### Waste repatriation (or take back) guidelines:

- From the Basel Convention Secretariat, 2014:  
<http://www.basel.int/Implementation/LegalMatters/Compliance/GeneralIssuesActivities/Activities201415/Illegaltraffictakeback/tabid/3562/Default.aspx>
- From IMPEL, 2008:  
[https://www.env.go.jp/en/recycle/asian\\_net/Annual\\_Workshops/2010\\_II\\_PDF/Additional\\_Paper/IMPEL-TFS-Manual-return-of-illegal-waste-shipments-Dec-2008.pdf](https://www.env.go.jp/en/recycle/asian_net/Annual_Workshops/2010_II_PDF/Additional_Paper/IMPEL-TFS-Manual-return-of-illegal-waste-shipments-Dec-2008.pdf)

### Inspection guidelines:

- Guidance on Effective Waste Shipment Inspection Planning (IMPEL, 2016):  
<https://www.impel.eu/tools/guidance-on-effective-waste-shipment-inspection-planning/>
- Risk Management Compendium: Volume II Risk Indicators (WCO, 2011):  
<http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools/compendiums/rmc.aspx> (Volume II restricted to Members)

### Investigation and prosecution guidelines:

- WasteForce Library: collection of good practices and lessons learned in the detection, investigation and prosecution of the illicit management and illegal trade of waste:  
<https://www.wasteforceproject.eu/resources/library/>
- INTERPOL Pollution Crime Forensics Investigation Manual, Volumes I and II (INTERPOL, 2014) (restricted to law enforcement only)
- Instruction manual on the prosecution of illegal traffic of hazardous wastes or other wastes (Basel Convention, 2011): <http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW-GUID-PUB-ProsecutorsManual.English.pdf>

### Operational reports:

- INTERPOL Operation 30 Days of Action (INTERPOL, 2017):  
<https://www.interpol.int/en/content/download/5168/file/Operation%2030%20Days%20of%20Action%20Final%20Report.pdf>
- WCO Operation Demeter IV (WCO, 2018):  
<http://www.wcoomd.org/en/media/newsroom/2018/november/illegal-trade-in-waste-overview-of-operation-demeter-iv.aspx> (complete report restricted to Members)
- WCO Operation Demeter V (WCO, 2019):  
<http://www.wcoomd.org/en/media/newsroom/2019/december/customs-successfully-target-environmentally-sensitive-goods-during-operation-demeter-v.aspx> (complete report restricted to Members)

### Policy briefs

- Controlling Transboundary Trade in Plastic Waste (GRID-Arendal 2019):  
<http://www.grida.no/activities/311>

### Appendix 3: Abbreviations

<b>AP</b>	Approval Permit
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>DOE</b>	Department of Environment
<b>ESM</b>	Environmental sound management of waste
<b>EU</b>	European Union
<b>IMPEL</b>	The European Union Network for the Implementation and Enforcement of Environmental Law
<b>MENA</b>	Region of the Middle East and North Africa
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>OCG</b>	Organized criminal group
<b>PIC</b>	Prior informed consent
<b>POPs</b>	Persistent organic pollutants
<b>PRN/PERN</b>	Packaging waste recovery note (PRN) or Packaging waste export recovery note (PERN)
<b>TOC</b>	Transnational organized crime
<b>UNEP</b>	The United Nations Environment Programme
<b>WCO</b>	World Customs Organization

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