**Waste Smuggling**

Waste smuggling is the transiting of illegal waste, predominantly from the Global North to the Global South. This waste is often illegal as a result of it being contaminated by toxic materials, or because it is mislabelled to circumvent the attainment of permits and overcome import barriers. Waste smuggling impacts the environment through plastic dumping in the ocean at terminus, or contamination through unsafe disposal. It is understood to fit into a wider category of waste crime, which considers the entire waste stream including its collection and disposal [[1]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn1).

1. Understanding
2. Scope
3. Impact
4. Reponses
5. Indicative cases
   1. Ghana
   2. China
6. Evaluation of evidence

A container full of garbage

Description automatically generated

*Customs officers inspect a container of waste in Thailand*

**Understanding**

**What is waste smuggling?**

Waste smuggling is the illegal transit of waste from one country to another. Illegal waste can take a number of forms, including most commonly: plastics [[4]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn4); medical waste; toxic waste such as chemical and radioactive; end-of-life vehicles; tyres; used lead-acid batteries; and electronic(e)-waste. Waste is most often transited in mislabelled containers using non-hazardous codes,[[5]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn5) or mixed with less harmful waste not requiring permits [[6]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn6). For example, co-mingled waste, a mixture of dry recyclables that often requires a permit, is sometimes exported the guise of clean paper waste [[7]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn7). The EU Waste Shipment Regulation specifically prohibits the export of household waste to non-OECD countries, and many non-OECD countries ban its import[[8]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn8).

Waste can also be hidden in goods or difficult to access with legal waste at the front of the container and illegal waste at the back [[9]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn9). The movement of waste takes place from the Global North to the Global South predominantly.  Europe, North America, Japan, and Australia are the main points of origin of illegal waste shipments, with China, Hong Kong, Indonesia, India, Malaysia, Pakistan, Vietnam, Côte d’Ivoire, Ghana, Guinea, Nigeria, Sierra Leone, Tanzania, Togo, Benin, and Senegal being countries of destination [[10]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn10). In these countries it is often informal actors without licenses who process the waste [[11]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn11). In order to ensure it reaches these countries, port-hopping has become common-place, where illegal operators exporting waste from the European Union to developing countries move their cargo through ports with more lenient scrutiny regimes [[12]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn12).

**What causes waste smuggling?**

Waste smuggling results from asymmetries in legislation, knowledge and the economy.  Asymmetries in environmental regulation and enforcement, for example, provide an opportunity for agents to find cheaper waste disposal solutions. Waste disposal in industrialised nations has generally become more strictly regulated, meaning waste is exported to countries with lower environmental standards [[13]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn13). While this practice can have harmful effects (see impact section below), some countries have not ratified international frameworks, either cannot enforce regulations, or accept such imports for economic reasons [[14]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn14).

Waste smuggling incorporates both push and pull causes. The push is the volume of waste as a result of global growth in production and consumption, pushing actors to find cheap methods of disposal. Some evidence suggests illegal disposal of waste can offer savings of up to 200 to 300 per cent compared to legal and safe disposal of the same waste [[15]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn15); indeed, it may be up to ten times cheaper to export some waste to Asia rather than process it in the United States for example [[16]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn16). As an illustration of costs involved, Ciafani suggests that Italian companies have to pay about USD 64,000 to dispose of a container of 15,000 tonnes of hazardous waste legally, which can be disposed of for USD 5000 in Asia if illegally shipped [[17]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn17).

The pull factor is the fact that waste then becomes a global commodity, and in some cases valuable components make recycling profitable as long as it is done as cheaply as possible [[18]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn18). This leads to livelihood creation and tax revenues for the importing countries. E-waste for example can contain valuable elements such as gold, copper, and nickel, and rare materials of strategic value, such as indium and palladium, but is expensive to dispose of properly. For example, 25 tonnes of mobile phones can yield 10 kg of gold [[19]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn19). It is often mislabelled as ‘second-hand goods’ to circumvent bans on its trade, and then dismantled in a harmful (and cheap) way which does not account for the hazardous substances in it [[20]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn20). Plastic waste can also sell for USD 150 per tonne, no matter the quality [[21]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn21). As such, profit is an important cause of waste smuggling. Another factor is that harms are transferred to the processing country [[22]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn22). Waste smuggling has become easier to achieve with the anonymity of containerization, whereby detection becomes difficult due to the volume of standardised containers being shipped at any one time globally.[[23]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn23)

**Actors and degrees of illegality**

One of the complexities in understanding waste smuggling is the broad array of actors involved, and the varying degrees of illegal and legal practices of these actors. Bisschop, for example, uses a theory of legal/illegal interfaces in transnational crimes to highlight this complexity well – demonstrating that along the chain there are both legal and illegal actors who interact in sometimes cooperative and sometimes competitive ways [[24]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn24). For example, producers and consumers directly influence the amount of e-waste that is produced, and indirectly the amount illegally shipped, but do not engage in illegal activities. While most corporate actors do not engage in illicit practices themselves, they may be aware of illegality, but are primarily interested in cheap disposal [[25]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn25).  This can lead to the illegal export of the waste through brokers, who are act as intermediaries in the process [[26]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn26).

Shipping lines, shipping agents, and terminal operator are legal actors, but may have illegal waste smugglers as clients. As such, it can be unclear as to the extent of intentionality on behalf of the shipping lines themselves [[27]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn27). Some have questioned whether this lack of diligence is merely a convenience in order to facilitate the crime because waste shipments can be so lucrative for otherwise empty ships going to pick up goods in regions such as Asia. Up to 50 per cent of export containers are shipped empty for example [[28]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn28). This makes shipping waste cheap and financially attractive [[29]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn29). While some actors actively merely facilitate illegal activities, others simply shape the flows through more deliberate actions and omissions [[30]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn30).

As Bisschop and Huisman [[31]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn31) argue, these complexities blur the boundary between corporate crime, white-collar crime, organised crime, and the informal economy. ‘Conscious inaction’ of not fulfilling the regulatory action required is more likely from corporations, while actively falsifying loading bills is the work of organised criminal actors [[32]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn32). As a result, levels of organisation and illegality differ case by case, as it does at various stages of the smuggling itself [33]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn33). This complexity can also often makes it difficult to identify the responsible actors.

Some have argued that there should be a stronger focus on what is ecologically harmful rather than strict legal definitions [[34]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn34). This results from an expanding scope of just who is harmed, and therefore a wider consideration of the victims of illegal transportation of waste. Green criminology has led this intervention due to its focus on environmental harms, but others argue that recognition has not being expanded far enough [[35]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn35).

Bisschop and Walle’s approach is that victims of crime should not be limited to strict legal definitions of crime or victimisation: environmental victims should be understood as those harmed by changes in their environment due to deliberate or reckless (though not necessarily illegal) acts or omission [[36]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn36). These harms will be discussed in the impact section below, but it is important to note this broadens the activities and practices considered illegal, on the basis that waste trafficking is not a victimless crime as often assumed in the past.

**Scope**

The scope of waste smuggling is difficult to assess because so much of it takes place clandestinely. There are various reporting mechanisms, but these are generally understood to be limited.

Estimates range from 20 to 25 million tonnes per year [[37]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn37) to 20 to 50 million tonnes per year [[38]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn38). Much of this is from richer to poorer countries, with up to 51 per cent of waste flowing to non-OECD countries is thought to be illegal, the majority being e-waste [[39]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn39). Of around 50 million tonnes of e-waste generated annually [[40]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn40), the amount of e-waste properly recycled and disposed of ranges between 10 to 40 per cent [[41]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn41). INTERPOL believes the average value of e-waste is USD500 per tonne [[42]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn42), making the e-waste industry alone worth USD 12.5-18.8 billion annually.

Estimates can be drawn from the reporting of the Basel Convention on Controlling transboundary movements of hazardous waste and their disposal, whereby each country feeds back on intercepted illegal shipments of waste [[43]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn43). However, there is considerable scope for under-reporting, as not all parties report, and figures are based only on cases of successful detection and enforcement [[44]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn44) [[45]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn45) [[46]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn46).

Enforcement actions coordinated by the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL)[[47]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn47) found that 28.9 per cent of inspections were illegal shipments [[48]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn48). As with the Basel Convention, however, these are based on successful detection and enforcement, and do not represent total figures [[49]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn49). Overall, one in five containers exported from the EU contains waste and an estimated 20 per cent of those are in violation of export bans or administrative requirements for waste trading [[50]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn50).

Another measure is to draw together estimated arrivals or disappearances at various hotspots, or analyse enforcement operations – though this has been done in a mostly ad hoc manner. In Lagos, for example, it is estimated that 500 containers of illegal waste arrive every month [[51]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn51). In 2013 China ran a significant operation, where they confiscated 976 500 tonnes of illegal waste material, and intercepted 221 instances of smuggling solid waste – mainly from the US, Europe, and Japan [[52]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn52). 20,000 tonnes of hazardous waste are thought to disappear from Italy, much of it going to West Africa [[53]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn53). A further indication of scope is the amount of containers that lay abandoned, with suggestions that many of the 1000s of containers unclaimed in Southeast Asia contain illegal waste and have essentially being dumped in ports [[54]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn54).

The Seaport Environmental Security Network found that the illegal waste streams most often encountered during the event were: electronic waste (e-waste) falsely declared as second-hand goods; waste batteries falsely declared as plastic or mixed metal scrap; cathode ray tubes from television and computer monitors wrongly described as metal scrap; and refrigerators containing chlorofluorocarbons [[55]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn55). According to research done by IMPEL, 100 out of 1011 detected illegal shipments in European countries participating in the 2012-2013 study were illegal shipments of plastic waste [[56]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn56).

**Impact**

There is a growing recognition that waste trafficking is not a victimless crime, as it often harms individuals and communities at the destinations where illicit disposal occurs. Bisschop and Walle argue that knowing the impact is important, as it changes the practice from being a ‘victimless’ crime that can be ignored, to one that causes harm [[57]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn57).

The first environmental harm is the impact of the hazardous components upon ecosystems, as toxins and waste can leak into the natural environment, effecting the quality of water, air and soil. This has been referred to as a “toxic time bomb” [[58]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn58). Soil damage is particularly concerning,  posing a threat to the food chain and ultimately to consumers when dangerous products reach the market [[59]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn59). A second environmental effect is the contribution to climate change, through the release of the greenhouse gases when illegal waste is disposed of through burning. While the impact might seem minimal, it becomes problematic due to the mass quantity of items such as batteries and monitors which are burnt [[60]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn60).

Waste trafficking also impacts on human health, though Bisschop [[61]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn61) argues this is often ignored as victims do not always know they are harmed, they accept harm because they depend on the waste disposal business, or because health impacts are not immediately visible or identifiable. There is increasing evidence of illness, however, in areas of high concentration of illegally transported waste [[62]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn62).

The improper dismantling and recycling of e-waste has a detectable impact on the health of workers. The precarious working circumstances in recycling facilities in Africa and Asia in terms of health, safety, and working standards have been illustrated multiple times, resulting from people going through dumps of waste and dismantling it without protective gear [[63]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn63). Vulnerable groups are most likely to suffer, due to the likelihood of them living in a closer proximity to areas of waste dumping, having to work in illegal facilities due to requiring income [[64]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn64), while also lacking the power to oppose these activities [[65]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn65). Children have are also identified as being at greater risk, which is especially problematic because many of the informal disposal facilities employ children to carry out the work [[66]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn66).

A young child standing on a pile of trash

Description automatically generated

*A boy plays in Ghana’s Agbogbloshie e-waste dump*

Illegal waste shipments can also have an economic impact, despite providing livelihoods for those dismantling the waste. There are, for example, impacts on legitimate companies who cannot compete with illegal transporters as they cannot offer the same prices. The clean-up of dumps also causes a heavy economic burden for developing countries, as does the cost of enforcement.

**Responses**

The main international instrument for preventing waste smuggling is the Basel Convention, which regulates the movement of various wastes. One of its provisions includes an obligation for Parties to cooperate in cases where illegally shipped waste has to be repatriated, and there has been the establishment of the Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic (ENFORCE). This is identified as important considering the transnationality of the issue, which makes national governance alone problematic.

The evidence, however, points to issues in the Basel Convention, such as significant gaps, a lack of harmonization, and difficulties in ensuring that the convention is properly interpreted implemented [[67]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn67). Even though the Basel Convention contains a definition of waste, for example, there are various interpretations of the term and a lack of harmonization between the codes of different countries [[68]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn68). Other regulations have been recognised as being more stringent, such as the European Waste Shipment Regulation [[69]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn69), but it is recognised to suffer from problems of national enforcement and coordination.[[70]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn70). There is also an Organisation for Economic Cooperation and Development (OECD) Decision on Control of Transboundary Movements of Wastes Destined for Recovery Operations [[71]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn71) [[72]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn72), Regional conventions include the Bamako Convention, for the African region, and the Waigani Convention for the South Pacific region [[73]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn73).

Individual countries have also adopted strict regulations prohibiting and restricting the important of various waste, through either setting allowable percentages of contaminated waste in shipments or banning them altogether [[74]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn74). However, ‘Grey areas’ emerge when countries allow the import of second hand electronic goods, that may be in practice be illegal waste, making enforcement difficult [[75]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn75). More regulations can also drive further illegal waste, as cheaper ways to treat and dispose of it become more difficult to implement legally [[76]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn76).

Because waste is often mislabelled or disguised, containers need to be inspected to identify illegal waste smuggling, and sanctions need to be implemented to dis-incentivise waste smuggling. There are significant barriers identified to these responses, however. In many countries there is a tension between prioritising the flow of trade and enforcing rules against waste smuggling – both at the source and at the terminus. In exporting countries, for example, waste is generally not a priority because it is being shipped out of country [[77]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn77) [[78]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn78).

As a result, those that could enforce the rules such as environmental inspectorates, customs, or police lack willingness, autonomy, resources and expertise for waste smuggling. This is problematic as waste is complex – for example distinguishing between second-hand goods (with functionality) and e-waste [[79]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn79). Customs and police in particular may lack expertise, and be focused on other forms of criminality due to the sheer amount of goods being transported at any one time [[80]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn80). Investigations are not consistent as they are demanding and require a strong degree of coordination from different agencies who often have different priorities [[81]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn81)[[82]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn82).

Cases only rarely go to court, even in source countries with greater capacity, and even successful prosecutions rarely lead to strong fines or sanctions [[83]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn83). Corruption can be a barrier to enforcement, as is the capacity to search sufficient amounts of containers due to a lack of resources and expertise [[84]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn84). This is made more problematic in countries that do not have sufficient regulations in place, or where environmental inspectorates do not have enforcement powers.

There have been some cases of successful waste trafficking prosecutions, such as China’s 2013 Operation Green Fence, where authorities confiscated 976 500 tonnes of illegal waste material, and intercepted 221 instances of smuggling solid waste [[85]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn85). An operation by INTERPOL investigated 40 companies in 2013.[[86]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn86). The British Environment Agency has increased their focused on waste fraud over the last decade and have successfully prosecuted over 30 cases involving companies and their directors through intelligence led investigations [[87]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn87). An issue that occurs, however, is a lack of harmonization on enforcement –  a pattern that emerges is that when enforcement occurs in one country, traditional routes shift to other (often neighbouring) countries or there is an increase in port-hopping [[88]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn88).

Some corporations and shipping lines have implemented environmental self-regulation initiatives, though evidence suggests success is only limited [[89]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn89) [[90]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn90). Self-regulation is also often financially beneficial for corporations, as it helps to ward off more intrusive regulation [[91]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn91) [[92]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn92). While NGOs have been important in raising awareness of the issue, there can be tensions between balancing advocacy and working with relevant actors in the local context. Even advocacy has faced difficulties, as waste smuggling and the resultant dumping is a ‘silent’ environmental harm, which does not often attract significant attention [[93]](https://www.safeseas.net/evidence/2020/02/10/waste-smuggling/#_edn93).

There is also recognition that responses cannot tackle the environmental cost without approaching the issues of compensation or alternative sources of income for those that rely on the informal economy that waste smuggling gives rise to.

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