



TREND
INTERNATIONAL TRADE

From illegal flows to local recycling, waste treatment is being reorganized

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The bans on plastic waste imports to Asia, that started with China in 2018, have had the effect of shifting geopolitical lines, but their impact has not spurred more effective waste treatment in exporting countries. Considered as a resource in developing countries but viewed as waste in developed countries, plastic waste is a source of trade from which the gains are asymmetrical. Yet the urgent need to treat this type of waste has raised a new awareness, which can be observed in major transnational agreements and in local initiatives.



DATA OVERVIEW

Bans in Asia divert waste flows towards new destinations

Plastic fibres have multiple uses, in packaging, the transport and building sectors, in textiles, industrial machines, and electronic and electric products.¹ Over the period from 1950-2015, only 9% of plastic was recycled annually in the world,² while 79% was accumulated in landfills or dumped in nature, ending up in the oceans, and the remaining 12% was incinerated. A 2018 study by the OECD re-evaluated the rate of global recycling as between 14% and 18%, the incineration rate as 24%, and landfill or dumping at between 58% and 62%.³

72% of the global waste produced from 1992 to 2016 was exported to Hong Kong and China, most of it through illegal channels.⁴ Parts of Asia began to introduce restrictive policies at the start of the 2000s, culminating in the National Sword Policy (NSP) that came into force in China on 1 January, 2018. This policy prohibits the import of 24 types of recyclable solid waste:⁵ non-industrial plastic, mixed

papers, textiles, and vanadium slag, a rare metal used in steel metallurgy. As a result, imports of plastic waste shrank by 99%, and by more than a third for paper from 2017 to 2018.⁶ The main consequence of these prohibitions in Asia was the transfer of the plastic waste to different importers, given that the exporting countries did not have the means and industrial capacities in place to take over from China.

From 2016 to 2018, Southeast Asia saw a 171% surge in imports of plastic waste, according to a study by the NGO Greenpeace Southeast Asia,⁷ from 836,529 to 2,231,127 tonnes. In other words, in 2018, the region represented 27% of global plastic waste imports, compared to only 11% in 2017 and 5.38% in 2016.⁸ In fact, the impossibility of exporting to China that faced Western countries (mainly Europe and the United States) led them to turn towards Southeast Asian countries, such as Malaysia, the Philippines, Vietnam, and Thailand, until these countries also put restrictions in place. Since these nations have not ratified the Basel Convention (SEE BOX 1), controlling the entry of hazardous waste is more difficult. Accepting to treat with the plastic waste of countries in the North was seen as an opportunity for non-OECD countries that could then sell it after processing. Nevertheless, due to the limited



recycling equipment and infrastructure, toxic and contaminated waste^a often ends up being thrown away or burned.

BOX 1 • KEYS TO UNDERSTANDING

THE BASEL CONVENTION

In terms of international jurisdiction, the Basel Convention, in force since 1992, governs transboundary movements of waste in reaction to abuses observed in the 1980s, in order to prevent developed countries from dumping the management of their hazardous waste onto developing countries. Negotiations for the first amendment were at a standstill until 2011 before finally entering into force in December 2019. The convention defines the list of hazardous wastes, updated in May 2019 with the Plastics Amendment. This amendment categorizes plastics as hazardous, meaning that importing countries can require information on waste entering their territory, and refuse it. The amendment prohibits exports and imports of hazardous waste to and from States that are not party to the convention^b and, when appropriate, requires the agreement of the importing country. Since 1 January, 2021, the procedure for prior agreement established for hazardous plastic waste (Annex VIII) has been extended to household plastics requiring special consideration (Annex II). Hong Kong has transposed the amendment into its national legislation, and so has the European Commission in a new regulation stipulating that only non-hazardous plastic waste that is easy to recycle can be exported to countries outside the OECD. The new rule has been transposed and standardized in the OECD control system for waste recovery; as a result, even the United States, which is not party to the Basel Convention, is now subject to this rule. Lastly, the convention establishes cases for reimporting hazardous waste, in particular when illegal trafficking is concerned.

Exports of plastic waste from European countries dropped from 1,583 million kilogrammes (Mkg) in 2020 to 1,135 Mkg in 2021 (2,500 Mkg in 2017) and exports directed to non-OECD countries decreased by 45% from 2020 (887 Mkg) to 2021 (486 Mkg).⁹ The bans by Asian countries therefore triggered a drop in exports to countries outside the OECD and a drop in exports in general (FIG. 1).^c Apart from cargoes sent to Vietnam, which have increased, exports of waste from the EU to Southeast Asian countries went down in 2021, as did exports to Turkey, which had become the main destination for plastic waste exported by EU countries.¹⁰

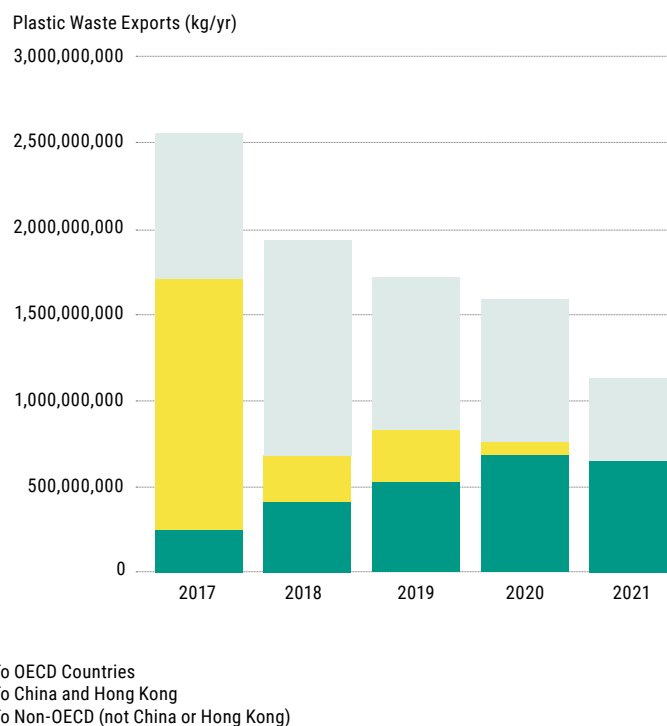
In general, total exports of plastic waste diminished annually from 2017 to 2021 from the major exporting countries (from 6.75 Mt to 3.75 Mt).¹¹ The main waste exporters towards non-OECD countries in 2021 were Japan, the United States, the Netherlands, Germany, Australia, Belgium and the United Kingdom, while the biggest importers were Turkey, Malaysia, Vietnam, Indonesia, India, and Thailand.¹² India transformed

the “prohibition” on imports of plastic waste decided in 2019 into “restrictions” in 2022. As a consequence of the closure of Asian borders, exports from the United States to Latin America (Ecuador, Mexico, Salvador, Guatemala and Honduras) almost doubled from 2019 to 2021. Exports of plastic waste from Europe and North America to Africa also rose, following the same trade flows in place for waste from electrical and electronic equipment (WEEE).

FIGURE 1

PLASTICS WASTE EXPORTS DESTINATIONS OF EUROPEAN COUNTRIES FROM 2017 TO 2021

Source: [UN Comtrade](#), 2022



Despite the drastic drop in imports of plastic waste by China, the demand for recycled plastic particles has increased as major global chains step up their commitments to reduce the use of primary plastics. Stricter international trade rules, Asian import bans, and the lucrative market it represents (predicted to reach \$50.36 billion in 2022)¹³ have served to boost illegal activities. In parallel, recycling and circular economy activities have inevitably developed in waste-producing countries.

^a Contamination designates the mixing of recyclable and non-recyclable waste. Due to relatively ineffective standards regarding the quality of the waste accepted, recyclable and non-recyclable waste often end up being mixed.

^b There are 190 parties to the Basel Convention, which was signed by an initial 51 countries, not including the United States.

^c “Plastic waste” refers to the UNcomtrade database classification HS3915 (named “Waste, parings and scrap, of plastics”). From 2017 to 2019, the EU includes the UK.



Faced with deficient recycling systems and illegal transfers, circularity hinges on reusing plastic waste

Recognized as hazardous waste, plastics fuel illegal trafficking

Illegal waste transactions involve different activities: waste transportation on the black market, contamination, false declarations about hazardous waste, or declarations stating reusable products rather than waste. In the latter case, the products are then not subject to international regulations on waste trade and thus can be exchanged with developing countries.¹⁴ While these countries depend on reusable products like certain types of electronic waste and cars, most of these imported products no longer function and can hide other types of waste. According to the World Customs Organization (WCO), this type of action complicates the distinction between illegal and legal waste, creating a vast grey area in which international rules are difficult to apply.¹⁵

As waste accumulates, illegal transactions increase in an underground economy of trade in recycled plastic. A study has evaluated the extent of this economy by observing differences in announcements by two parties involved in the same exchange. On average, waste exporters declare a value 18.47% higher than importers do (the opposite of what is observed in other types of economic exchange).¹⁶ According to the WCO, illegal flows are particularly high for waste trade. The WCO launched the Demeter IV operation to combat illegal flows of waste in 2018: in the 199 seizures carried out, the most common type of waste comprised plastics and electronics.¹⁷ Illegal waste flows are transported from Western Europe, in particular the Adriatic Sea, to Turkey and Bulgaria.¹⁸ In December 2021, the boat *Cosco Pride*, transporting 37 containers of plastic waste travelling from Germany to Turkey before being exported again to Vietnam,¹⁹ was stopped en route to Asia, brought back by the Greek authorities following a warning from the Basel Action Network.^d In fact, flows rarely move straight from A to B, in particular when importing countries receive illegal deliveries and then move them on to other neighbouring countries (FIG. 2).

In a report published in August 2020, Interpol analysed the emerging criminal trends on the global plastic waste market since the implementation of the Chinese policy in January 2018. Drawing from data and information from 40 countries, Interpol identified a multiplication of unlawful practices: transfers of illegal waste cargoes to other destinations, unauthorized dumping, illegal incinerations, and administrative frauds have all proliferated in the absence of domestic recycling capacities in

countries hitherto dependent on China.²⁰ In 2020, port and air freight control units intercepted 630 tonnes of waste.²¹ Thirteen of the 24 countries affected by illegal exports were located in Asia. Interpol's analysis observes that illegal waste routes follow legal ones and therefore also follow their changing destinations resulting from more restrictive laws. Nevertheless, following the complaints and prohibitions established in some Southeast Asian countries, these illegal transfers tend to shift towards non-importing countries, thus rerouting toxic waste to the most vulnerable countries equipped with fewer waste treatment facilities. While this trend has already been observed in Southeast Asian countries, it will be some years before statistics are available on Africa and Latin America, which, according to Interpol, is where transfers seem to be directed. In particular, the routes used to transfer WEEE to Africa may be employed to transfer plastic waste.

WEEE headed for Africa is partly exported under false names.²² The new report by the French council on sustainable development (CGEDD), concludes that France only knows the fate of 20% of its exported waste,²³ due to gaps in existing data. In particular, it points out that a large part of WEEE is exported under the label "second-hand products" rather than "waste", or that the same code covers products and waste, making precise data analysis impossible. Until October 2021,²⁴ electronic and electrical waste did not feature in the European Union's Combined Nomenclature. According to a two-year investigation (2015-2016) by the UN published in 2018, 77% of WEEE imports came in the EU, with Germany and the United Kingdom each representing 20%.²⁵ Imports were mostly directed towards West Africa. The investigation concluded that the Basel Convention was largely deficient concerning controls on the nature of waste, leading to hazardous and therefore illegal waste being sent without transparency and prior agreement. Out of the 30,000 tonnes of WEEE that arrived in Nigeria in 2018, at least 25% did not function and could not be repaired, and about 70% had arrived concealed in second-hand cars.²⁶ In a podcast by French-language radio RFI,²⁷ following a report in Cotonou, Benin, journalist Samuel Turpin observes that countries can refuse waste at the point of reception according to the Convention, but that controls require resources and political volition that are mostly lacking. In May 2021, the city of Dakar (Senegal) refused to receive 25 containers of plastic waste weighing 581 tonnes from the German transporter Hapag-Lloyd, which then had to re-export the cargo to Spain and pay a fine of 2 billion CFA francs (€3 M).²⁸ Senegal has in fact prohibited imports of a number of single-use plastic waste products since April 2020.²⁹

Tougher international legislation on waste flows

Plastic pollution restrictions target informal networks. In June 2022,³⁰ the Indian Ministry of Environment, Forest and Climate Change announced a ban on the production, import, stocking, distribution, and sale of single-use plastic products with a low utility and high littering potential. Anyone not respecting this new measure faces up to five years in prison

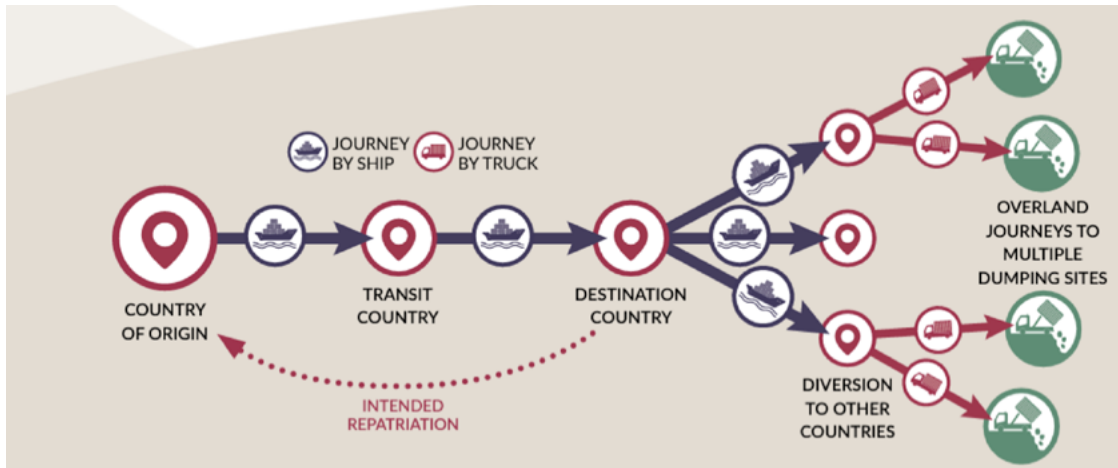
^d The Basel Action Network is an NGO created following the Basel Convention to ensure its implementation and sanction its non-respect. It deals with three types of toxic waste covered by the convention: WEEE, old ships, and plastic pollution.



FIGURE 2

TRANSNATIONAL FLOWS OF PLASTIC WASTE

Source: [Global Initiative against transnational organized crime, 2021](#)



and a fine of 100,000 rupees (€1,220). On 31 December 2022, the measure is due to extend to more products.³¹ In New Delhi, about 150,000 ragpickers³² and informal waste gatherers (about 5 M in India) depend on the trash mountains present in the city. They are not officially recognized as workers but about one-fifth of municipal waste is recycled thanks to their efforts, involving exposure to potentially dangerous chemical products and methane present in the waste. These informal ragpickers are the first victims of the danger of plastic products and dependency. The announcement by the Indian government marks a positive move to reduce plastic waste, but threatens the livelihoods of the waste pickers. After three months, studies point out disproportionate consequences for the most vulnerable compared to negligible impacts on multinationals.³³

Other Indian local and state governments had previously attempted to ban plastic bags but failed due to numerous obstacles. The state of Maharashtra tried to reinforce and extend its policy restricting plastic bags in 2018,³⁴ leading to the closure of 300 plastic bag manufacturers during the first few weeks and confusion among inhabitants regarding their usage. Faced with the general confusion and pressure from major groups, the government ended up relaxing the measure. The government went on to develop other complementary measures, for example demanding a payment of 0.25 rupees by large industries for each “tetrapak”^e to feed into a waste collection and recycling fund.³⁵

Turkey, which became the leading destination for European exports following the Chinese bans, imported 50% of the EU’s plastic waste in 2020-2021. Nevertheless, a report³⁶ by Human Rights Watch (HRW) published in September 2022, points out

the negative local consequences of recycling plastic in Turkey. The lack of standards and controls has significant impacts on health and the environment. Due to the toxins released, the plastic waste recycling process endangers health (and drastically reduces life expectancy) if workers are not correctly equipped. Employees questioned^f in the HRW study are on particularly low incomes and cannot risk losing their jobs. In a report on the illegal trade of plastic waste, Global Initiative^g observes that on average two suspicious incinerations take place every week in Turkish recycling plants.³⁷

On 17 November, 2021,³⁸ the European Commission adopted new rules on the subject of waste transfers outside the European Union. The objective of the proposed European measures is to only authorize exports if the importing countries “are able to manage them sustainably” and to oblige EU companies to subject the facilities that manage their waste abroad to environmental audits.³⁹ NGOs have nevertheless called for a stricter ban on waste exports, underlining the derogations granted and the insufficient distinction made between recycling and other less ambitious forms of treatment, such as incineration.⁴⁰ According to the NGOs, the revision of the text could temporarily make it possible to transfer waste to OECD countries, but would not make waste exports more difficult. In September 2021, a report⁴¹ by the Environmental Investigation Agency^h called on the European Union to amend the Waste Shipment Regulation due to the environmental and social consequences of these flows.

e The term tetrapak refers to food packaging. Tetra Pak is a Franco-Swedish company that is the leading global designer of food packaging and processing solutions.

f The HRW study is based on the testimonials of 64 people.

g Global Initiative is an independent NGO comprising members working for the respect of international laws. It acts to combat international crime networks.

h The Environmental Investigation Agency is a British association whose objective is to investigate environmental crimes and then use these investigations to campaign against environmental crime and abuse.



Initiatives at the local, regional and national level nevertheless shine some light on the future of waste treatment

175 countries agreed to negotiate a legally binding UN treaty on plastic⁴² in March 2022. The treaty could represent a major step forward in action against plastic pollution and has even been championed as a way to impede the plan B of oil companies waging on petrochemical production to ensure their future (SEE SIGNALS). On an international level, at the One Ocean Summit in February 2022,⁴³ CMA-CGM drew attention to the strong influence of transporters and stakeholders in the sector when it announced that it would stop transporting plastic waste on its boats from 1 June, 2022. While companies like Hapag-Lloyd, Maersk, Hamburg Sud and MSC had already stopped shipping plastic waste in Chinese waters – plus Hong Kong for the latter three – CMA-CGM has extended its ban to cover the entire globe.⁴⁴

In the European Green Deal, in order to reach climate neutrality by 2050 the European Union has established a circular economy action plan⁴⁵ aiming to reduce waste production. In the EU strategy for plastics adopted in 2018, the measures concerning plastic waste and its production have led to a recycling rate of 41.5%⁴⁶ (as against less than 10% in the United States,⁴⁷ and 14% to 18% in the world).⁴⁸ Although primary plastic production has dropped in Europe since 2017 (from 64 Mt to 55 Mt in 2019), the average consumption of plastic products continues to rise.

From 2009 to 2019, the quantity of plastic packaging waste increased, as did the quantity of recycling but not its relative value (FIG. 3). Processing of plastic packaging through incineration with energy recovery has increased from 34.4% in 2016 to 36.5% in 2019.⁴⁹ Using waste to produce energy emerged as a solution to foster local energy independence during the 2022 energy crisis. For example, the Fnade, the federation of companies in the waste sector in France, has proposed to double the production of heat generated from waste;⁵⁰ however, the combustion of waste required for this energy conversion emits greenhouse gases. The revision of the EU's Waste Framework Directive is planned during the first half of 2023⁵¹ and the planned revision of the Packaging and Packaging Waste Directive aims to better cover waste prevention and not just recycling.⁵² Ten plastic products have been withdrawn from the European market since 3 July, 2021 following an EU directive in 2019, but some NGOs underline the relatively low impact of the measure since it only concerns 1% of Europe's plastic production.⁵³

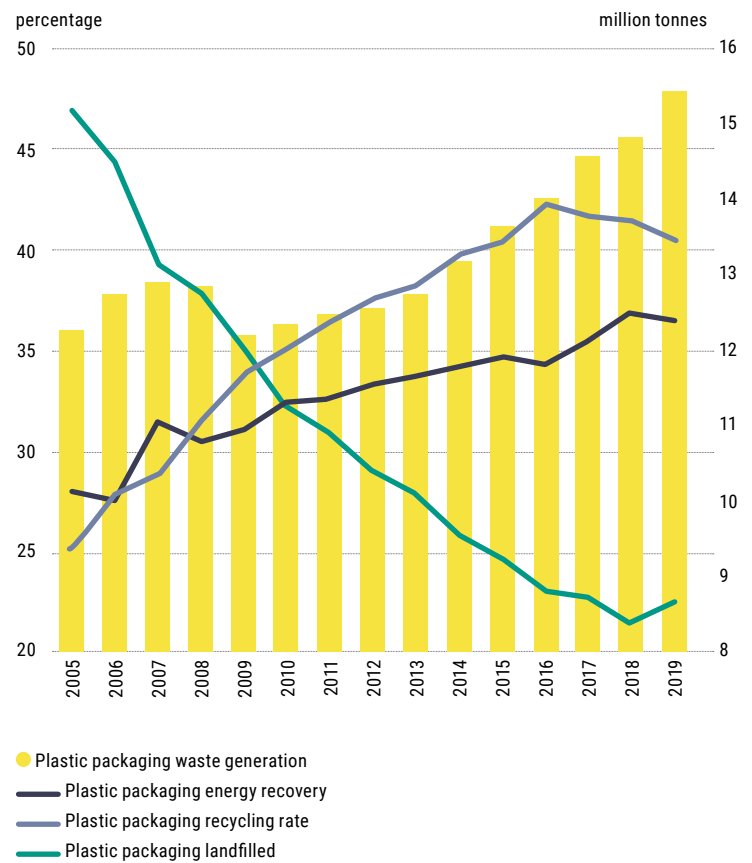
The circular economy is defined as an alternative to the linear “produce-consume-throw away” model of economic organisation. One of the levers it employs to manage and reuse waste is extended producer responsibility (EPR).⁵⁴ This policy shifts the responsibility for plastic waste onto producers in order to reconnect the different life cycle phases of a product. These programmes are devised to ensure that producers participate in the collection, sorting, pre-treatment, rehabilitation (recycling or energy recovery) or incineration of waste. In a report,⁵⁵ the German development bank GIZ looked at the results of five programmes of this type set up in coastal areas: in Australia,

Canada (British Columbia), the European Union, South Korea, and Tunisia. The GIZ study concludes that EPR programmes are effective in avoiding marine pollution, provided that they are carefully designed, properly implemented, and constantly monitored and developed. In the United States, programmes are starting to be set up, since the first one in Maine that came into force in 2021 (SEE SIGNALS). In France, a building EPR will come into force on 1 January, 2023⁵⁶ (SEE SIGNALS).

FIGURE 3

EVOLUTION OF PLASTIC PACKAGING WASTE GENERATION (MT) AND TREATMENT IN THE EU-27

Source: Eurostat data in IFRI, 2022



In 2021, the EU definitively adopted a tax on non-recycled plastic waste (making it a new source of revenue for the EU). Every kilo of non-recycled plastic packaging waste costs the country involved 80 cents of a euro, or €800 per metric tonne. States can pay the tax directly via their national budget or finance it through taxes on the private sector. For the moment, France, Germany, Ireland, Luxembourg and Slovakia have opted for the first alternative, although in the long term they intend to shift the cost to companies to encourage recycling.⁵⁷ In 2021, France paid the EU €1.2 billion.⁵⁸ Spain and Italy have chosen to set up a new tax (€0.45 per kilo) on single-use plastic packaging collected and not recycled, due to enter into force on 1 January, 2023.⁵⁹ The tax established by the United Kingdom on 1 April, 2022 is different and applies to plastic packaging that contains less than 30% recycled plastic and to imported plastic packaging.⁶⁰ Belgium intends to integrate the cost of the tax into the extended producer responsibility mechanism.



In the United States, according to a report⁶¹ by the American branch of Greenpeace, the recycling rate of polyethylene terephthalate (PET) bottles and pots is only 21%, and 10% for high-density polyethylene (HDPE).⁶² However, only bottles and pots made from PET and HDPE and bearing the numbers 1 and 2 respect the government's recyclable characteristics in the United States. Most recycling plants refuse plastics numbered 3 to 7, which are harder to process or contain too many toxic substances. The report therefore observes the limits of recycling plastic products and underlines the low rate of recycling of products that can be recycled. The difficulty of recycling plastic waste due to the toxic substances it contains and the high probability of being mixed with toxic waste makes recycling more expensive than purchasing new plastics. The NGO therefore calls on companies to reduce their plastic packaging by 50% in 2030 rather than double their recycling rate. Yet action to combat plastic production comes up against significant obstacles in the United States: in July 2022 the General Services Administration submitted a bill to ban single-use plastics,⁶³ which triggered massive campaigns against the proposal driven by the plastics industry giants.⁶⁴

In the Balkans,⁶⁵ planned policies mostly focus on setting up infrastructures to use waste combustion to produce energy:ⁱ an incineration plant is due to start operating for this purpose in late 2022 in Serbia. In this region, the little that is recycled is thanks to informal ragpickers who sell the waste on to recycling companies on site or for export. More than recycling, political concerns focus on stopping illegal dumping. Investments in other types of treatment plants have nevertheless begun in several countries. In Kosovo, a pilot project to treat organic waste was launched in the city of Pristina in 2020⁶⁶ as part of a municipal action plan⁶⁷ to direct investments towards recycling and composting plants.

In Asia, programmes are in place for managing and recycling waste, in particular marine plastic pollution in the sea. Plastic waste makes up almost 80% of the debris present in the oceans, and Southeast Asia is responsible for almost 70% of it. Countries in the region, which are the first victims of this pollution, have set up regional plans to avoid and treat the problem. Two years after the 2019 Bangkok Declaration on Combating Marine Debris, a regional action plan was launched featuring fourteen priority policies to be implemented by ASEAN member states, financed by a \$20 M loan from the World Bank.⁶⁸ Moreover, since last year, the Indian Ocean Commission has implemented a programme called EXPLOI (Indian Ocean Plastic Expedition). With a budget of €6.5 M, the programme has an objective to analyse this pollution over five years and produce recommendations.⁶⁹

In developing countries, citizens and local entrepreneurs are developing their own initiatives to reuse or recycle plastic waste, such as for infrastructures and buildings. In Nairobi, a female entrepreneur launched a company to transform plastic waste into bricks to replace concrete in building pro-

jects: "The bricks, which are made from a combination of plastic and sand, have a melting point of over 350 °C and are more durable than their concrete alternative."⁷⁰ The company Gjenge Makers has therefore recycled over 20 tonnes of discarded plastics, producing from 1,000 to 1,500 bricks a day, and created 150 local jobs. Several projects to build roads from plastic waste have seen the day in India, where 60,000 miles of "plastic roads" have been built since 2018. For example, a 703 km-long highway⁷¹ was constructed in New Delhi using this type of waste in 2021. Other countries in Africa and the West have followed this trend since 2018.⁷²



KEY TAKEAWAYS

The bans on imports of plastic waste established by China in 2018, followed by some of its neighbours, have underlined the insufficient local capacities for recycling in industrialized countries that export their waste. The urgent relocation of recycling for millions of tonnes of plastic has also illustrated the precarious conditions of their recycling practices. In parallel with this process, and as part of the Basel Convention, the labelling and control of waste represents a key issue to avoid the bypassing of international rules and bilateral agreements. In fact, illegal trafficking of waste is managed by highly organized environmental crime networks and, while exports of plastic waste to Southeast Asia have officially decreased, illegal transfers have sometimes replaced formerly legal trade, leading to non-official, more dangerous recycling practices. Europe has made some progress in recycling polymers but has come up against the limits of this type of treatment to truly reduce the sector's emissions and make the move to a circular economy, which primarily involves preventing the production of plastics and the reuse and recovery of these resources.

ⁱ According to the ranking of waste treatment methods by the NGO Zero Waste, energy recovery only comes fourth out of the five solutions proposed: the environment code rates waste prevention as the priority to avoid production, followed by re-use, which considers waste as a resource. The last three solutions should only be employed when the first two are impossible: recycling, energy recovery, and elimination.



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