Exporting Pollution, Colonizing Health

The True Costs of Plastic Waste Exports to Malaysia

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Introduction: Plastic Waste Trade in Malaysia

Walking along a jetty with a plastic recycler one afternoon, we spotted the ubiquitous polyethylene terephthalate (PET) bottles littering the river shoreline. We were in Selangor, the most industrialized state in the federation of Malaysia, where infrastructure development is more advance than anywhere else in the country. The recycler shook his head, gave an exasperated laughed, and said, "We need those bottles as our raw materials, but people keep throwing them away." PET, used to make soda and water bottles, is the easiest and most common plastics to recycle due to its low melting temperature and single-layer, mono-material composition. Yet, throughout Malaysia, PET bottles frequently top the list of trash collected in cleanups.

Mobilik, Ling, Mohd Lokman, and Ruhana Hassan (2014) found that clear and colored plastic bottles represented 46.15% of the total common source debris, collected from both marine and terrestrial environments, at four public beaches in the state of Sarawak. 90.7% of the total objects collected was plastic. In 2022, Reef Check Malaysia, a local marine conservation organization that holds annual nationwide beach cleanups, found that out of 300,183 items (24,301 kg) collected across 394km of coastlines, the most common items found were cigarette butts at 55,100 pieces, followed by plastic bottles at 44,706 bottles.[1]

In Malaysia, the *Solid Waste and Public Cleansing Management Act 2007* mandates waste separation at source. Failure to comply can lead to a fine not exceeding

[1] Reef Check Malaysia. (2022, October 11). *Malayians picked up 24,301kg of trash from our beaches*. https://www.reefcheck.org.my/press/malaysians-picked-up-24301kg-of-trash-from-our-beaches

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1000 Malaysian ringgit (approximately 220 US dollars). This Act was established to standardize solid waste management (household, commercial, construction, industry, etc.) and public cleansing across all local authorities regardless of revenue levels. The government announced the implementation of waste separation at source in 2015 under this Act,[2] but until today, there is still no enforcement of this practice (Razali et al., 2020).

This Act also does not cover all 13 states in Malaysia. Some state governments, including in Selangor, have opted not to surrender their power over waste management to the federal government. This have hindered efforts to institute nationwide reforms for waste management.

Aside from enacting legal reforms, the Malaysian government has consistently run public campaigns on recycling. Decades of being subjected to songs about recycling on public service announcements and in schools have not convinced the general Malaysian public to practice waste reduction, separation, and recycling. In addition, many rural areas and islands do not even have waste collection services.

Amid these domestic waste management and public apathy challenges, Malaysia became the world's top destination for plastic waste exports in 2018, receiving more than 800,000 tons of plastic waste that year, including unrecyclable municipal waste. The country which, together with its Asian neighbors, had been blamed by Western scholars and media for plastic leakage into the ocean (Jambeck et al., 2015), became the largest garbage dump of the developed world.

In 2018, China's National Sword Policy came into effect with a ban on 24 types of solid waste imports to the country, including plastic waste, unsorted waste paper, waste textiles, and waste from the manufacture of iron or steel. This disrupted global networks for recyclable material and redirected plastic waste to new markets in Southeast Asia and other developing countries with weaker regulatory frameworks and less technical capacity to deal with the massive amounts of waste. The influx of waste to Malaysia led to a sharp rise in illegal recycling facilities as well as illegal dumpsites, causing land, water, and air pollution that affected communities' health, food systems, and natural environments nationwide.

This chapter highlights how the plastic waste trade impacted the lives of Malaysians, with a focus on the time period from 2018 to 2021. This study aims to unpack the concept of "waste colonialism" by examining the externalities where plastic waste supply chains touch the ground in a waste recipient country, with an emphasis on social, cultural, and political implications. The study explores three key questions: What were the impacts of plastic waste imports on people and their environments? How did the people respond? How did waste colonialism cause harm socially, culturally, and politically?

In-depth interviews were conducted with 40 stakeholders, including politicians, government officials, businesspeople in the private sector, civil society activists, and community group representatives, who were affected by the importing, processing,

[2] New Straits Times. (2015, September 1). ***S****eparation of solid waste from source launched.* https://www.nst.com.my/news/2015/09/separation-solid-waste-source-launched

smuggling, burning, and dumping of foreign plastic waste. The interviews were conducted across field visits to Sungai Petani and Alor Setar (in the state of Kedah), Bukit Mertajam and Georgetown (in the state of Penang), Putrajaya (a federal territory), and Klang and Kuala Langat (in the state of Selangor). Primary data collected was supplemented by secondary data from news articles or other research reports.[3]

Plastic Waste Trade and Colonialism

Waste trade is the international buying and selling of waste or scrap materials, or the offering of waste management, as commodities or service between countries for treatment, disposal, or recycling. The wastes include plastics, papers, textiles, tires, electronics, metals, chemicals, and many more. On the surface, the trade appears to be just another economic transaction where there are willing buyers and willing sellers and profits to be made. However, the export of wastes occurs mostly from economically developed, wealthy, industrialized countries in the Global North to less wealthy and less industrialized countries in the Global South, and takes place to exploit weaker economies through cost externalization. This occurs as the "commodities" are undeniably waste materials and often contain hazardous or difficult-to-recycle compounds. They may end up being dumped or burned, resulting in harmful emissions in the recipient country. The wastes are also often mixed with no-value residual waste that the exporter would have had to dispose of in the country of origin otherwise.

This characteristic of this trade, where waste importers, processers, and workers might welcome the materials and the processing activity despite the risks involved and negative impacts on human and environmental health, indicates some level of control and dependency in the relationships, and has evoked the term "toxic or waste colonialism." It is reminiscent of the colonial area where lands and natural resources were exploited for the profit of colonial masters. In this case, the clean air, water, land, labor, and health of recipient countries are "conquered" and used to process waste from the "colonial masters," a form of "territorial expansion" by more powerful actors, so that wealthier societies can continue to enjoy a certain type of lifestyle, one of wasteful production and consumption, while exporting the true costs of those lifestyles to other territories.

The pollution haven hypothesis predicts a trend of developed countries exporting polluting industries to less developed countries to avoid the costs of stringent environmental regulations (Davis et al., 2019; Puckett & Smith, 2002). While most studies had been focused on electronic waste or e-waste, plastic waste has also been shown to flow from high-income to low-income countries. In the past, cargo vessels had carried China-made consumer goods to developed countries, and instead of returning empty, the liners offered favorable shipping rates to transport low-value

[3] No interviews were secured with parties involved in illegal plastic recycling.

products, including plastic waste and used paper, back to China using (backhaul) empty containers (Tran et al., 2021).[4] Coupled with low labor costs, low environmental standards, and high demand for recycling materials, China was subjected to waste colonization by the more industrialized economies (including the USA, UK, Germany, and Japan) for decades.

China has since grown into an industrialized economic powerhouse, and it similarly became a "colonial master," outsourcing the pollution to weaker economies. The "flying geese" paradigm of economic development had been used to explain the sequential catching-up process of industrialization of latecomer economies, seen as "geese" flying in the wake of a "lead goose" and benefiting from its updraft. However, instead of developing better technologies to deal with waste once it has accumulated more resources, the "lead goose" tends to export waste and pollution to the flock of "geese" following it, while continuing to enjoy the benefits of industrial expansion.

China started regulating solid waste imports through Operation Green Fence (OGF) in 2013, with stricter inspections to stop the illegal trade of hazardous waste and improve the quality of imported waste.[5] In July 2017, China announced the National Sword Policy and implemented a 0.5% contamination limit (down from 1.5% for OGF) for all solid waste imports, in attempts to halt the continued contamination of the country by soiled imported waste which were overwhelming facilities. This was followed by a new waste import inspection program aimed at eradicating trading rings and smuggling channels called Blue Sky 2018. Then, in April 2020, China approved a further revision to its pollution importation crackdown policies, increasing the import ban to cover a total of 32 types of solid waste, with a zero contamination limit imposed (Tran et al., 2021).

The Chinese government had faced difficulties monitoring waste imports, facing smuggling or illegal trading of foreign waste, improper handling of trash, and serious pollution of air, land, and water.[6] In a formal notification to the World Trade Organization (WTO) Committee on Technical Barriers to Trade dated July 18, 2017, regarding the ban of 24 types of waste materials (under the National Sword Policy), the Chinese government provided the following objective and rationale for the urgent measures:

> According to the Special Actions of Strengthening the Supervision and Strictly Striking of Illegal "Foreign Garbage" by the General Administration of Customs of China, Ministry of Environmental Protection of China, Ministry of Public

[4] Penang Port authorities, interview, Butterworth, November 12, 2019.

[5] Investigations by PTASKL around Klang revealed that recycling facilities set up by Chinese businessmen had been in the area since 2013, an indication that the facilities were set up after China's OGF led Chinese waste-related businesses to move to Southeast Asia.

[6] Yen Nee Lee. (2018, April 16). *The world is scrambling now that China is refusing to be a trash dumping ground*. CNBC. https://www.cnbc.com/2018/04/16/climate-change-china-bans-import-of-foreign-waste-to-stop-pollution.html#:~:text=It%20grew%20a%20whole%20waste,country%20into%20a%20major%20polluter.&text=China's%20ban%2C%20they%20said%2C%20would,better%20manage%20their%20own%20trash

> Security of China and General Administration of Quality Supervision, Inspection and Quarantine of China, as well as the Special Actions of Striking of the Illegal Actions of Imported Solid Waste Processing and Utilizing Sectors by Ministry of Environmental Protection of China, we found that *large amounts of dirty wastes or even hazardous wastes are mixed in the solid waste that can be used as raw materials. This polluted China's environment seriously* [emphasis added]. To protect China's environmental interests and people's health, we urgently adjust the imported solid wastes list, and forbid the import of solid wastes that are highly polluted.[7]

China's National Sword ban exposed Western "recycling" programs as being highly suspect and dependent on exports to Asia for partial, and often polluting, recycling. Brooks, Wang, and Jambeck (2018) found that a cumulation of 45% of all plastic waste was imported by China since 1992, and they estimated that 111 million tons of plastic waste will be displaced by the ban by 2030. Even before the ban, only 9% of total discarded plastics globally were recycled. 12% were burned while 79% were sent to landfills or illegally dumped (Geyer et al., 2017).

The National Sword ban had the effect of redirecting plastic waste to Southeast Asia and other developing countries which have even lower capacity to process the massive amounts of plastic waste coupled with lax regulatory frameworks to protect the environment (Wang et al., 2020). In 2015, a study examined countries' annual tons of mismanaged plastic waste and the total amount which ended up in the ocean. Researchers found that, out of the top eight countries globally, five were in Southeast Asia – Indonesia (2nd), the Philippines (3rd), Vietnam (4th), Thailand (7th), and Malaysia (8th) (Jambeck et al., 2015). Yet, these are the very same countries bearing the burden of processing foreign plastic and other wastes following China's refusal to continue that role. After the China ban, Chinese recyclers moved their operations to other countries to receive wastes largely from the West, process the profitable fractions, dump or burn the rest, and then send the recyclables back to China to be fed into their manufacturing processes. These developing economies, like China in the past, are hungry for economic opportunities, regardless of the negative externalities that come with them.[8]

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[7] WTO. Catalogue of Solid Wastes Forbidden to Import into China by the End of 2017 (4 Classes, 24 Kinds). Notification No. G/TBT/N/CHN/1211. 2017. Retrieved from http://tbtims.wto.org/en/RegularNotifications/View/137356, archived at https://perma.cc/3CUT-LEM9. The 24 types of materials were listed at https://members.wto.org/crnattachments/2017/TBT/CHN/17_3218_00_x.pdf, archived at https://perma.cc/35G9-FGNL

[8] Fuller, Ngata, Borrelle, and Farrelly (2022) argued that waste colonialism is not only inherent in the trade of plastic waste but also in the plastic pollution problem, as a form of ecological imperialism rooted in Western industrial capitalist modes of production and consumption.

Plastic Waste Exports to Malaysia

As a result of the tsunami of Western wastes redirected from China, communities in Malaysia, Thailand, Indonesia, and the Philippines have been found living close to mountains of plastic waste or open burning grounds, subjected to toxic fumes and contaminated groundwater.[9] Between January and November 2018, Malaysia received 15.7% of the total plastic waste exports from the top exporting countries: the USA, Japan, Germany, UK, and Belgium.[10] Malaysia has relatively good ports, roads, and industrial infrastructure and a Mandarin-speaking business community ready to form partnerships with businesses from China.

The import of plastic scrap into Malaysia continued to increase in 2020. While most major export markets for scrap plastic saw moderate to significant declines for the first half of 2020 compared to 2019, Malaysia nearly tripled its imports despite enacting stringent scrap plastic import rules.[11] Greenpeace's *Unearthed* analysis released in October 2020 showed that Malaysia was the second largest market for plastic waste from the UK, with exports increasing 81% from January to July 2020 compared to the same period in 2019.[12] Overall, in 2020, UK plastic waste exports to Malaysia increased by 63% from 40,007 tons to 65,316 tons, but the volume remained lower than in 2016, 2017, and 2018.[13]

As a whole, more than 1.206 million tons of HS 3915 plastic scrap were imported by Malaysia in 2018 and 2019 (according to UN COMTRADE data), while data from Malaysia's Department of Solid Waste Management (JPSPN) showed that 2020 saw imports of 478,092 tons, an increase of 43% compared to the year before. This sum only accounts for legal transactions (see Fig. 1). Data on the amount of plastic scrap that has been recycled into resins, for domestic use or export, as well as the amount of unrecyclable or contaminated waste stranded in Malaysia, has not been made available.

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[9] See Petrlik, Ismawati, Arisandi, and Bell (2019), Bueta (2020), Global Alliance for Incinerator Alternatives (2019), Akenji et al. (2019), and Sembiring (2019) for country case studies.

[10] Greenpeace. (2019, April 23). *Data from the global plastics waste trade 2016-2018 and the offshore impact of China's foreign waste import ban, An analysis of import-export data from the top 21 exporters and 21 importers*. https://www.greenpeace.org/static/planet4-eastasia-stateless/2020/06/9858a41c-gpea-plastic-waste-trade-research-briefing-v2.pdf

[11] Staub, C. (2020, August 12). *Plastic exports drop 18% in first half of 2020.* Resource Recycling. publication. https://resource-recycling.com/plastics/2020/08/12/plastic-exports-drop-18-in-first-half-of-2020/

[12] Clarke, J. S. (2020, October 9). *UK still shipping plastic waste to poorer countries despite Conservative pledge*. Greenpeace. https://unearthed.greenpeace.org/2020/10/09/plastic-waste-uk-boris-johnson-malaysia/

[13] Moore, D. (2021, February 17). *'Enormous' increase in UK plastic waste exports to Turkey and Malaysia – Greenpeace.* Circular. https://www.circularonline.co.uk/news/enormous-increase-in-uk-plastic-waste-exports-to-turkey-and-malaysia-greenpeace/. For a response by Malaysian plastic industry players, see Free Malaysia Today. (2021, February 25). *Claims on plastic waste imports rubbished.* https://www.freemalaysiatoday.com/category/nation/2021/02/25/claims-on-plastic-waste-imports-rubbished/

Fig. 1 Import of HS Code 3915 plastic waste to Malaysia, 1997–2020. The quantity of imports in net weight for 2020 was provided by JPSPN. The trade value was not available. (Source: UN COMTRADE data (1997–2019) and Department of Solid Waste Management (JPSPN), 2020)

Exporting the Plastic Waste Burden

Forced into Activism to Protect Their Homes

The export of plastic waste brings with it a host of problems. Since 2017, illegal plastic waste processing facilities had mushroomed in Malaysia's most industrialized state of Selangor, due to its easy access from the largest port in the country, Port Klang. The facilities are considered illegal if they were operating with no prior approval from the federal, state, and local authorities. In addition, to process imported plastic waste categorized as HS Code 3915 plastic scrap, companies are required to hold import licenses called Approved Permits (AP) issued by the then Ministry of Housing and Local Government (KPKT, now known as the Ministry of Local Government Development).

Various terms including "clean, homogenous plastic," "plastic scrap," and "plastic waste" have been used to describe what is allowable under the HS Code 3915. The import of nonrecyclable household waste, municipal waste, or mixed waste is completely banned in Malaysia. Despite the Customs prohibitions, at one point, more than 17,000 tons or 17 million kilograms of unrecyclable plastic trash entered Malaysia and were dumped openly in Jenjarom, a small town in the municipality of

Kuala Langat in the state of Selangor.[14] Greenpeace Malaysia (2018) documented discarded plastic packaging from 106 different brands of consumer household products from at least 19 countries found in four different locations: Pulau Indah (Klang), Telok Panglima Garang (Kuala Langat), Jenjarom (Kuala Langat), and Tasek (Ipoh, in another state of Perak).

In early 2018, a group of residents-turned-volunteer activists from the Sungai Jarom New Village's Village Development and Security Committee (JKKK KBSJ) began mounting an opposition to the increasing levels of pollution surrounding their homes. Plagued by the toxic fumes of burning plastic, community members had been falling ill. Urged on by a chemical engineer, Lay Peng Pua, who has knowledge of toxic compounds and their health impacts, JKKK KBSJ began their own investigations, documenting the locations of illegal factories and GPS coordinates, as the illegal facilities had no signboards nor addresses. They submitted letter after letter, complaining to the local authority, but they were met with lackluster response. Officers from the local authority berated them for being "too free" and having "nothing better to do."[15]

The group soon found mountains of foreign municipal waste hidden within oil palm estates around their homes. They set up the Kuala Langat Environmental Action Association (PTASKL) to consolidate efforts in opposing the illegal plastic waste factories. In the nearby town of Klang, illegal factories were also in operation, but the facilities were more dispersed and less conspicuous. Residents similarly set up the Klang Environmental Action Association (PTASK), and like PTASKL, they traced factories which had stockpiled jumbo bags full of plastic waste, had no signboards, and were emitting noxious fumes. The residents in Klang similarly noted down GPS coordinates and addresses, and took photographs. They lamented that the local authority or local council would not commence investigations unless they furnished sufficient evidence.[16]

Anecdotes in media articles presented hints on how these illegal factories came about. The *Los Angeles Times* reported a consultant for the plastic recycling industry saying, "The previous government was very supportive of China, so some companies found their way in outside the proper channels." [17] Operations were spread out across various small facilities; one facility purchases, dismantles, and crushes large plastic debris into tiny shards, to be packed and trucked to another facility, processed into pellets, and exported to China.

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[14] Tan, Y. (2019, February 13). *Plastic pollution: One town smothered by 17,000 tonnes of rubbish*. BBC News. https://www.bbc.com/news/world-asia-46518747

[15] PTASKL member, several interviews, 2020.

[16] The terms local council, local government, or local authority tend to be used interchangeably, but for this chapter, the term local council (comprising politically appointed local councilors) is used to refer to the policymaking arm of the local government, while local authority is used to refer to the bureaucratic arm.

[17] B.Shashank. (2018, December 29). *How heaps of U.S. plastic waste landed in Malaysia, broken down by workers earning $10 a day*. Los Angeles Times. https://www.latimes.com/world/asia/la-fg-malaysia-plastic-2018-story.html

The government remained unresponsive in the first half of 2018. That same year, Malaysia experienced a watershed moment in its political history. For the first time since the formation of the country in 1963, a new political coalition Pakatan Harapan (PH) was voted into federal power on May 9, 2018, during the 14th General Election (GE14). PH took over from the Barisan Nasional (BN) coalition which had governed the country since independence.

After GE14, complaints by the groups in Jenjarom and Klang finally received attention from the federal government and the newly appointed environment minister Bee Yin Yeo.[18] Local news daily *Kosmo!* broke an award-winning exposé on the illegal factories in Kuala Langat,[19] supported by environmental groups Malaysian Natural Heritage Protectors Society (PEKA) and Greenpeace Malaysia. International media soon took notice. The PH administration sprung into action in July 2018, sealing illegal factories and stopping containers at ports. As the authorities began cracking down on operators in Kuala Langat and Klang, plastic recycling spread to other areas in Selangor. Illegal factories were soon discovered in almost every state in Peninsular Malaysia, and containers of waste were found at the ports in Butterworth, Penang, and in East Malaysia in Kuching, Sarawak.[20]

Up north, when the Penang government began clamping down on these operations in early 2019, factories then appeared in Sungai Petani, Kulim, and Gurun in the neighboring state of Kedah, all of which were relatively close to the Butterworth port.[21] What PTASKL experienced in 2018 began to affect the residents in Sungai Petani in 2019. Air pollution in Sungai Petani intensified, and this caught the attention of former political representative Lydia Ong, medical doctor Sunny Tneoh, and other affected residents, who subsequently established the Sungai Petani Environmental Action Association (PTASSP).

PTASSP organized protests, signed petitions, and made police reports. They banded together and patrolled the factory areas to find evidence of illegal burning and conducted tests on soil samples for pollutants. They plotted GPS coordinates of illegal facilities and submitted memorandums to the Kedah chief minister, the member of parliament for Sungai Petani, and the prime minister. Association members were residents living in affected areas, sacrificing their time in a fight to protect their homes and their health.

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[18] The lack of response from the bureaucracy to public complaints between January to July 2018, and the failure of regulatory oversight which allowed the influx of foreign waste have yet to be addressed.

[19] Bernama. (2019, April 27). *Two Kosmo! journalists bag prestigious Kajai award*. Malay Mail. https://www.malaymail.com/news/malaysia/2019/04/27/two-kosmo-journalists-bag-prestigious-kajai-award/1747448

[20] Chan, D. (2019, February 24). *Illegal plastic recycling plants – 'Operators shifted to other states'*. New Straits Times. https://www.nst.com.my/news/nation/2019/02/463130/illegal-plastic-recycling-plants-operators-shifted-other-states; and information provided by the DOE in July 2020.

[21] Chern, L. T. (2019, July 29). *It's just about moving here to there*. The Star. https://www.thestar.com.my/news/nation/2019/06/12/its-just-about-moving-here-to-thereplastic-waste-factories-relocated-from-penang-to-kedah

Deteriorating Environmental and Human Health

A large portion of pollution stem from illegality surrounding the waste trade. Illicit businesses shipped recyclable plastic, contaminated mixed plastics, and dirty household waste into Malaysia, most notably in 2018. Clean plastic would be processed into pellets or resins, while plastic scrap that was unsuitable for recycling was stockpiled around factories in the open, or illegally dumped and burned in oil palm plantations or former sandmining pits, releasing toxic chemicals into the air, water, and soil. In Klang, secluded industrial parks were laden with abandoned bales and jumbo bags of plastic waste, now overgrown with weeds. Journalists from a Danish television station found municipal waste from Denmark at these sites in September 2019, although their country ostensibly sends its waste to Germany for processing.[22]

Across Peninsular Malaysia, the incineration of plastic waste mostly happened at night to conceal the thick, dark smoke. Residents in the affected areas complained about the smell and reported increasing health issues such as coughing, breathing difficulties, nose bleeds, eye irritation, and skin itchiness. Investigations by PTASKL around Klang revealed that recycling facilities set up by Chinese businessmen had been established indiscriminately in the area since 2013. This ties in with China's OGF which began in 2013.[23] The community in Sungai Jarom New Village, Jenjarom, reportedly noticed a spike in cancer cases among their neighbors since the illegal recycling facilities had been set up.

In Sungai Petani, Kedah, PTASSP noted an increase of up to 30% in reports of respiratory diseases in Sungai Petani from 2018 to 2019.[24] The community resorted to purchasing handheld Air Pollutant Index (API) monitors to get readings on the air pollution.[25] When questioned, a government officer responded that the data given by the community was not valid, as they had not made official reports to the district health office.[26] Dangerous levels of air pollution indicated in their personal API monitors were also dismissed as the official DOE API reading from a station in Sungai Petani did not capture similar data about air pollution.

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[22] Herschend, S. S. (2019, September 29). *TV 2 finder dansk plastaffald på dumpingsite i Malaysia*. https://nyheder.tv2.dk/samfund/2019-09-29-tv-2-finder-dansk-plastaffald-paa-dumpingsite-i-malaysia

[23] Early, C. (2017, July 31). *China renews clampdown on waste imports.* China Dialogue. https://chinadialogue.net/en/pollution/9954-china-renews-clampdown-on-waste-imports/.

[24] PTASSP member, interview, Sungai Petani, January 29, 2020.

[25] Nambiar, P. (2019, July 1). *Sungai Petani residents lodge 10 police reports over air pollution*. Free Malaysia Today. https://www.freemalaysiatoday.com/category/nation/2019/07/01/sungai-petani-residents-lodge-10-police-reports-over-air-pollution/

[26] Air pollution and its direct consequences on public health has been well documented (Mazrura Sahani et al., 2016; National Research Council, 2000; Wong et al., 2008), but the intangible nature of air pollution and changing wind directions also cause air pollution to be extremely difficult to prove.

Table 1 Fires at plastic recycling factories, 2019–2021

No.	Date	Factory
1	April 18, 2019	Plastic recycling factory of Green Mark Technology Sungai Petani, Kedah
2	May 14, 2019	Plastic manufacturing factory in Setapak, Selangor
3	July 5, 2019	Three factories in Pulau Indah Industrial Zone, Selangor
4	July 28, 2019	Recycling factory in Jalan Ayer Hitam, close to Batu 24, Kulai, Johor
5	October 25, 2019	Plastic processing factory in Kampung Permatang Berangan, Sungai Petani, Kedah
6	January 21, 2020	Factory in Bakar Arang Light Industrial Area, Sungai Petani, Kedah
7	March 1, 2020	Recycling factories in Pasir Gudang, Johor
8	March 26, 2020	Two plastic processing factories in Kundang, Selangor
9	April 3, 2020	Plastic processing factory in Ijok, Selangor
10	June 5, 2020	Plastic recycling factory in Taman Ria Jaya, Sungai Petani, Kedah
11	October 31, 2020	Plastic processing factory in Jalan Kampung Orang Asli Kuang contaminated Sungai Kuang in Rawang, Selangor
12	November 21, 2020	Plastic recycling factory in Taman Ria Jaya, Sungai Petani, Kedah
13	February 26, 2021	Paper and plastic recycling factory in a light industrial area in Kampung Jawa, Selangor

Source: Author compilation from media and social media reports

Fires at plastic waste processing facilities became a common occurrence with several fires occurring in plastic factories, as reported in the media throughout 2019 and 2020 (see Table 1 and Fig. 2). According to the Selangor Fire and Rescue Department, there were 14 fires at plastic recycling plants in Selangor alone from March to June 2020.[27]

Plastic is easily combustible. Material recovery facilities, recycling operations, and dumpsites can end up in massive fires, releasing toxic fumes and greenhouse gasses (Hamilton et al., 2019). While the fire department noted that the main causes of fires were due to wiring and equipment failures, arson could not be ruled out – particularly when much of the imported waste was too contaminated to be properly recycled. Within their communities, PTASKL and PTASSP reported insider allegations of trade wars and unscrupulous factory owners trying to dispose waste stockpiles (Fig. 3).

This list in Table 1 does not include the multiple illegal dumpsites that had been set on fire throughout the country, which may have contained foreign plastic waste. Local communities in Sungai Petani and Jenjarom alleged that shredded e-waste was also being dumped and burned, similar to the piles shown in Fig. 4. While it is difficult to ascertain the exact compounds in the shredded material and whether it

[27] Ayamany.K. (2020, June 19). *Incidence of fire at recycling plants spikes during MCO, causing health hazards from toxic fumes*. theSundaily. https://www.thesundaily.my/local/incidence-of-fire-at-recycling-plants-spikes-during-mco-causing-health-hazards-from-toxic-fumes-AY2607057

Fig. 2 Plastic waste facility on fire – Sungai Rambai, Jenjarom, Selangor, January 12, 2019. (Photo credit: Lay Peng Pua)

contained electronic wastes, tests conducted by Greenpeace on samples of similar shredded material from a dumpsite in Seri Cheeding, Kuala Langat, Selangor, revealed relatively high concentrations of metals and metalloids such as copper, lead, zinc, and cadmium, as well as other persistent organic compounds such as brominated flame retardants and phthalates or plasticizers, which could impact the health of flora and fauna negatively or cause secondary pollution to nearby water sources (Greenpeace Malaysia, 2020, p. 12).[28]

Investigators from Greenpeace Italy also found high levels of dangerous chemicals including heavy metals such as cadmium and lead and benzo(a)pyrene, a carcinogen to humans, in plastic, water, and soil samples from various other dumping sites in Malaysia. A prawn farm owner close to Port Klang claimed that his prawns started dying when plastic waste recycling facilities had been set up nearby.[29] However, there has been no official acknowledgment of the toxic pollution caused by plastic waste the authorities. Continuous contestations over data related to air, water, and land pollution have caused much dismay to residents in Kedah, Penang, and Selangor.

Illegal dumpsites expanded in size quickly once large volumes of foreign waste began entering the country. Three major dumpsites were found in Kedah – Pinang Tunggal with hundreds of tons of plastic waste, Kampung Kemumbung with a 6-acre dumpsite on the banks of the Muda River, and Kampung Belida with a 3-acre mining pool full of waste, meters away from the Muda River and surrounded by

[28] More information on toxic additives leached from plastics and the impacts on human health can be found at Azoulay et al. (2019) and Petrlik et al. (2019).

[29] Prawn farm owner, Jenjarom, May 3, 2022.

Fig. 3 Upper left: plastic waste facility on fire – Telok Panglima Garang, Selangor, October 17, 2019. Upper right: plastic waste facility on fire – Sungai Petani, Kedah, November 21, 2020. Lower: shredded waste dumped and set on fire – Sungai Petani, Kedah, January 31, 2020. (Photo credit: Lay Peng Pua, Sunny Tneoh, Pui Yi Wong/C4 Center)

Fig. 4 (**a** and **b**) Illegal dumpsite in a former sand-mining site – Kampung Belida, Kedah, beside the Muda River, January 31, 2020. (**c** and **d**) Illegally dumped shredded waste – Telok Panglima Garang, Selangor, January 12, 2020 and Seri Cheeding, Selangor, September 5, 2020. (**e**) "Cleared" illegal dumpsite still emitting toxic fumes under the sun – Kampung Seri Cheeding, Banting, Selangor, September 5, 2020. (Photo credit: Pui Yi Wong/C4 Center)

agricultural land and a village (see Fig. 4(a, b)).[30] The Muda River supplies drinking water to millions in the states of Kedah and Penang. By 2022, the open dumps in Pinang Tunggal and Kampung Kemumbung have been partly cleared and partly buried, while the one at Kampung Belida had been left uncleared, with weeds reclaiming the space.

Research into marine plastic pollution has shown that plastic can leach toxic substances into the environment and impair the growth of microorganisms.[31] Another study found increasing evidence that black plastics in consumer products contain recycled plastic housings of waste electronic and electrical equipment. These have the potential to contaminate household or food-related items with hazardous substances such as brominated flame retardants and heavy metals (Turner, 2018). Other research has indicated that workers in the plastics industry suffer higher rates of respiratory and cardiovascular disease and cancers, while plastic waste treatment facilities (collection, sorting, processing, recycling, incineration, and landfill) also lead to negative health outcomes (Alabi et al., 2019; Dematteo et al., 2013).

In addition, research showed that the most common plastics, including polyethylene used in shopping bags, produce greenhouse gases such as methane and ethylene when exposed to sunlight (Royer et al., 2018). This is precisely the condition in which much plastic waste was and is kept in Malaysia, exposed to solar radiation within factory grounds, at illegal dumpsites, or in landfills (see Fig. 4(c, d, e)).

Governance Loopholes and Allegations of Graft

When queried about the dumpsites beside the Muda River, a government officers in Kedah denied that the dumpsites were toxic, claiming that most of the wastes were construction waste and that the Department of Environment's (DOE) Water Quality Monitoring Stations show that the Muda River was not polluted.[32] The same government officers also challenged the toxicity of plastic waste, as plastic is seen as a stable and recyclable substance. While scraps of plastic packaging with foreign labels were sighted in visits to the dumpsites, the officers responded that "they could have been blown over from elsewhere." They also repeated industry narratives that

[30] Nambiar, P. (2019, May 10). *Now, world's rubbish fouling up Sungai Petani*. Free Malaysia Today. https://www.freemalaysiatoday.com/category/nation/2019/05/10/now-worlds-rubbish-fouling-up-sungai-petani/; Nambiar, P. (2019, July 28). *Kedah govt seals off huge illegal dumpsite along Sungai Muda*. Free Malaysia Today.

[31] Studies have been conducted on the impact of plastics on photosynthetic bacteria at the bottom of the marine food web, crustaceans, barnacle larvae, and mussel embryos, among others. See Bejgarn et al. (2015), Lithner et al. (2011), Silva et al. (2016), and Tetu et al. (2019).

[32] Government officers, interview, Alor Setar, February 11, 2020, and information retrieved from Chern, L. T., & Sekaran, R. (2019, July 31). *Water in Sg Muda declared safe*. The Star. https://www.thestar.com.my/news/nation/2019/07/31/water-in-sg-muda-declared-safe.

"every piece of plastic can be recycled." Since the government crackdown on imported waste, operators have taken to shredding waste before dumping them, complicating the identification of the type and origin of the waste.

There were serious allegations of graft by the communities and businesses in relation to illegal recycling before the federal government clamped down on the operations. The key potential areas for graft and illegality are at the ports, where smuggling and the false declaration of containers can take place; during the transportation of smuggled goods should the trucks be stopped by law enforcement officers; at the site of the factories, where lax enforcement enables illicit activity in the absence of permits; and at illegal waste dumping sites. On more than one occasion, business owners contacted PTASKL and PTASK after complaints were made in confidence by whistleblowers to the authorities regarding the polluting factories, indicating that the identities of the whistleblowers had been leaked.

Greenpeace Malaysia reported "illicit flows of money to people in key positions and difficulties to get necessary AP without paying higher prices," citing an anonymous and disgruntled solid waste sales manager (Greenpeace Malaysia, 2018, p. 20). In reality, there are no charges for the applications for APs according to a KPKT officer in Putrajaya, unless brokers were hired to prepare the relevant documentation and to submit hard copies to KPKT for approval.[33]

Implicating another politician and furnishing photographic evidence, PTASSP alleged that the CEO of a major plastic recycling company is the corporate advisor of the then Sungai Petani Member of Parliament (MP). This company also provided in-kind donations such as school bags for the MP's community outreach program. When queried about his relationship with the CEO, the then MP said that he accepts advice and in-kind donations from all parties, declaring that "if anyone has evidence of me being involved in corruption, they can take me to court."[34]

The CEO and the company have had their fair share of controversy. PTASSP alleged that this company is part of a syndicate of plastic recyclers with ties to businessmen from China. In 2017, the CEO was charged for harboring undocumented migrant workers.[35] In 2019, a Canadian journalist from CBC Marketplace went undercover in Sungai Petani as plastic waste exporters with a fake company.[36] Their footage captured workers processing plastic with no protective equipment. The said CEO offered to buy dirty plastics from the undercover journalists, encouraging them to lie on shipping labels. He admitted to receiving kickbacks for helping other companies to import the materials, as his company held an AP. No action has been taken against him thus far.

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[33] KPKT officer, interview, Putrajaya, July 1, 2020.

[34] Then MP for Sungai Petani, interview, Sungai Petani, February 17, 2020.

[35] Ahmad, M. R. (2017, October 25). *Recycling company manager fined RM70,000 for harbouring 14 illegal immigrants*. New Straits Times. https://www.nst.com.my/news/nation/2017/10/294989/recycling-company-manager-fined-rm70000-harbouring-14-illegal-immigrants

[36] Szeto,E., Pedersen,K., Common,D. & Denne,L. (2019, September 27) 'Canadians would be highly shocked': Marketplace poses as fake company to expose illegal overseas recyclers. CBC News. https://www.cbc.ca/news/world/plastics-recycling-waste-overseas-marketplace-1.5292512

The issues faced by the residents amid the flood of plastic waste imports are common grouses of petty corruption against local governments and law enforcement agencies. Petty or administrative corruption refers to everyday corruption or the abuse of power by public officials when interacting with citizens, such as bribery linked to law enforcement.[37] A state assembly representative shared that small businesses often opt not to legalize their operations due to high costs, simply because it was cheaper to pay off enforcement officers whenever they conducted inspections.[38]

While PTASKL accused local authorities of malfeasance and abuse of power, particularly in licensing and enforcement, PTASSP offered examples of graft whereby runners from factories would collect payments for various law enforcement agencies. Law enforcement agencies and political representatives have strongly denounced corruption among their ranks, but institutionalized corruption of this sort is not uncommon in Malaysia. Past investigations had revealed the prevalence of corruption within different government agencies, including the Kedah police station.[39]

In addition, PTASSP shared that several raids by authorities found factories devoid of activity, indicating that the operators could have been tipped off in advance. In February 2020, a raid was conducted on an illegal recycling plant deep inside an oil palm plantation in Bedong, a town close to Sungai Petani. Authorities had been gathering evidence on this factory since 2019. However, the place was found empty, with only some laundry that was hung out to dry.[40] Another similar

[37] U4 Anti-Corruption Resource Centre. (n.d.). What is corruption? https://www.u4.no/topics/anti-corruption-basics/basics

[38] State Assembly representative, interview, Bukit Mertajam, 11 February 2020.

[39] The practice of businesses, legal or illegal, paying "fees" to enforcement officers has been reported by the local press. *Malaysiakini* had ran reports on Road Transport Department officers soliciting bribes from transport companies (see Lu Wei Hoong. (2020, February 13). *Institutionalized corruption in RTD grips logistics industry, turns clean firms dirty.* Malaysiakini. https://www.malaysiakini.com/news/510634). In August 2020, a whistleblower complained about police and local council protection for illegal online gambling dens, leading to arrests of enforcement officers (see Anis, M. N. (2020, August 14). *MACC arrests MBSA director over alleged bribery*. The Star. https://www.thestar.com.my/news/nation/2020/08/14/macc-arrests-mbsa-director-over-alleged-bribery). Prior to that, *The Star* exposed corruption among border officers and policemen involved in wildlife smuggling (see Yee, E., Shah, A., & Koonlachoti, C. (2019, September 25). *EXCLUSIVE: R.AGE undercover investigations expose international smuggling ring for endangered pangolins*. The Star. https://www.thestar.com.my/news/nation/2019/09/25/corruption-at-the-border). In addition, they revealed that since 2012, three Malaysian policemen have been arrested for smuggling pangolins across the Malaysia-Thailand border including one officer who was arrested twice. Incidentally, all three policemen arrested had worked, or are still working, at the same police station, the Kedah state police headquarters, where illegal plastic recycling operations have taken root (see Trafficked to Extinction. (n.d.). https://globalstory.pangolinreports.com/#malaysia-thai-border).

[40] Sin Chew Daily. (2020, July 2). Cang you zong yuan nei an zhong cao zuo, fei fa yang la ji chang bei cha feng [Secret operations in oil palm estate, illegal foreign waste factory closed down]. https://www.sinchew.com.my/?p=3010734

case was reported in Klang in 2019.[41] In another incident, a member of PTASKL alleged that foreign workers believed to be working in the plastic recycling factories were found playing basketball in her village on the day of a joint operation by the government. The workers said that they were told not to go to work.

A local news daily, *Malay Mail*, cited industry sources who alleged that illegal plant operators had bribed Malaysian officials at all levels of government (Malay Mail, 26 July 2018).[42] The then Minister of Water, Land and Natural Resources also admitted to the possibility of corruption by the previous administration which led to lax enforcement. He said that he had ordered an investigation. A former local councilor shared that it is common for businesses to offer money in exchange for favors from the local councilors or the local government.[43]

There have been few publicly reported investigations by the Malaysian Anti-Corruption Commission into how unlicensed operators set up their recycling facilities with ease.[44] The only tell-tale sign that may indicate the government's awareness of petty corruption was the change of DOE directors at state and local branches across the country in 2019.[45]

Thus far, no government officer or business owner has been held accountable for the devastating pollution and irreparable damage to environmental and human health caused by the high volume of imported plastics into the country. Corruption, with the exchange of money, is extremely difficult to prove without the assistance of informants or whistleblowers, and in this section, we have only compiled allegations and anecdotal evidence. There remains an urgent need for legal reforms to effectuate whistleblower protection in Malaysia, if institutionalized corruption is to be seriously addressed. This must be a priority of the current federal government, voted into power in November 2022.

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[41] Chan, D. (2019, June 3). *MPK, DoE shut down illegal plastic waste plant in Teluk Gong [NSTTV]*. New Straits Times. https://www.nst.com.my/news/nation/2019/06/493628/mpk-doe-shut-down-illegal-plastic-waste-plant-teluk-gong-nsttv

[42] Syed Jaymal Zahiid And Ruban Anbalagan. (2018, July 26). *Graft behind Chinese firms dumping plastic waste here?*. Malay Mail. https://www.malaymail.com/amp/news/malaysia/2018/07/26/graft-behind-chinese-firms-dumping-plastic-waste-here/1656056

[43] Former local councilor in Selangor, interview, Kuala Langat, 2 July 2020.

[44] A report was lodged in 2018 on the alleged illegal operation of a plastic recycling plant at Jenjarom, Kuala Langat, but the Malaysian Anti-Corruption Commission (MACC) found no elements of corruption. Another man was arrested for receiving bribes related to the establishment of a recycling plant, but the outcome of the investigation is unknown. (Bernama. (2019, June 9). *Customs to crack down on illegal plastic waste entry at ports* (https://www.malaysiakini.com/news/478956). Both PTASSP and PTASKL shared that they attempted to lodge reports with MACC. PTASKL was rejected by the MACC officers, saying they had no case, while PTASSP went through an NGO and did not hear from them.

[45] This information was revealed when attempts were made to secure interviews with DOE officers at state and local branches and also shared by local communities.

Criminality and Intimidation of Activists

In Selangor, the community activists faced intimidation from gangsters. After the secretary of PTASKL brought journalists to investigate a factory which was believed to be processing imported plastic waste without an AP, she received death threats and had red paint splashed on her home. The perpetrators were identified as gang members and were arrested and charged in court,[46] but the person who hired the gangsters was never revealed.

PTASK also faced gangster intimidation in Klang.[47] When driving around the factories, their members were harassed by men on motorcycles. When bringing journalists around Klang, the residents-turned-activists reported that workers at a recycling facility snatched their car keys while the boss warned and threatened them not to return. The same person later resorted to offering bribes so that investigations would cease (Greenpeace Malaysia, 2019, p.19).[48]

As with in Selangor, gangsterism appears rife among recycling operators up north in Sungai Petani. The plastic recycling company CEO from Sungai Petani who was captured in *CBC Marketplace*'s footage was implicated in a massive fire which occurred at its factory in early 2019. In another tussle between local communities, plastic recycling operators, and law enforcement officers, individuals linked to PTASSP were arrested late one night over charges of arson.[49] PTASSP maintained that the individuals arrested were innocent and that the arrests made that night were forms of intimidation against the vocal group.

In another case, a factory owner in Sungai Petani was beaten up by illegal recycling plant operators after he filmed them continuing their operations after their factory was sealed by the local authorities. The same people also threatened the then president of PTASSP to stop opposing the factories.[50] Even government officers

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[46] Chan, D. (2019, December 5). *Undeterred by threat, Pua calls for continued action to protect the environment*. New Straits Times. https://www.nst.com.my/news/nation/2019/12/544970/undeterred-threat-pua-calls-continued-action-protect-environment

[47] PTASK member, interview, Kuala Lumpur, 2 January 2020.

[48] See also *Channel News Asia* (30 December 2019), (Mahmud, A. H. (2021, February 4). *Malaysia moves to reap the benefits of processing global plastic waste*. CNA News. https://www.channelnewsasia.com/news/asia/malaysia-world-plastic-waste-recycling-china-11048810)

[49] Tan, G. (2019, November 28). *Activist nabbed over alleged arson*. The Star. https://www.thestar.com.my/news/nation/2019/05/12/activist-nabbed-over-alleged-arson

[50] A factory manager and driver pleaded guilty and were fined RM1,500 by the magistrate court for causing injury to the victim. They were also ordered to pay RM1,000 each as compensation to the victim (The Sun Daily. (n.d.). *Factory manager, driver fined RM1,500 for causing injury to plant owner*. https://www.thesundaily.my/local/factory-manager-driver-fined-rm1-500-for-causing-injury-to-plant-owner-JC1105193). A third person, a security guard, was subsequently arrested (Bernama. (2019, July 16). *Another suspect detained in factory manager assault case*. New Straits Times. https://www.nst.com.my/news/crime-courts/2019/07/504710/another-suspect-detained-factory-manager-assault-case). Gangsterism and the threat of violence surrounding the plastic recycling operations were recurring problems which informants from both Selangor and Kedah experienced.

were not spared, as revealed by SWCorp, the statutory body set up under the solid waste management department to execute policies. Enforcement officers were often threatened when patrolling illegal dumpsites as the site operators are believed to be linked to gangsters and secret societies.[51]

The problems enumerated above are not new – smuggling, illegal factories, institutionalized corruption, gangsterism, political-business nexus, and a lack of public access to information. In this case of the waste trade, petty corruption, malfeasance, and illegality have direct consequences on human and environmental health.

The whole experience from 2018 to 2020 deepened the trust deficit between the affected communities and the government. While the communities were quick to accuse the government of self-gratification and collusion with businessmen and gangsters at the expense of the environment, health, and public interest, the government chastised the community groups as minority voices with political motives, accusing them of over-exaggeration and wrongful blaming of the government. Meanwhile, the government, members of the public, landowners, legitimate plastic recycling businesses, etc., had to go to great lengths and incur high costs in efforts to stem the harm caused by the massive influx of plastic waste to such a small country.

The Important Role of the Government

Malaysia is a party to the 1992 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention). The DOE under the federal ministry for environment is the competent authority of the Basel Convention. However, monitoring and regulating plastic waste imports is very complex in Malaysia, not only because of the issues outlined above. Enforcement efforts cut across several government agencies under different ministries and across various levels of government, each with varying degrees of concern for the environment and international law.

The executive arm of the Government of Malaysia is made up of three levels: federal government, state government, and local government. The important role played by the local government in protecting the right to a healthy environment was brought to the forefront in the plastic waste importation crisis. All complaints made by the communities to the Chief Minister's Office at the state level, or to JPSPN or the DOE at the federal level, were often referred back to the local government. However, while the local government deals with issues on the ground, both the local and state governments are subject to policies made by the federal government.

The government has indeed taken action to solve the problems caused by imported plastic waste. Table 2 presents major announcements made by the federal

[51] The Star Online. (2020, June 23). *SWCorp in battle against secret societies and gangsters*. https://www.thestar.com.my/news/nation/2020/06/23/swcorp-in-battle-against-secret-societies-and-gangsters

Table 2 Key policy decisions taken by the federal government

Date	Government action
July 23, 2018	KPKT (ministry for local government) revoked APs on the import of HS Code 3915 plastic waste for 114 factories for 3 months
	JPSPN (solid waste management department) would form a task force to review the procedures on the import of items under this code, chaired by the Director General and consisting the DOE, Customs, Malaysian Industrial Development Authority, and SWCorp
August 16, 2018	KPKT agreed to lift the suspension of APs for HS Code 3915 plastic waste (homogenous, clean waste) for facilities at free trade zones (FTZ) and licensed manufacturing warehouse (LMW)-status plants, with immediate effect, after appeals from importing companies
September 25, 2018	KPKT minister chaired a coordination meeting at Kuala Langat District Council on the issue of illegal factories
	AP holders were discovered to have rented out their import licenses to other parties including illegal factories that processing plastic waste without proper equipment, which was admitted by the businessmen to the government
	The government will impose a levy of MYR15 per ton on the import of plastic waste by local industry players beginning next month
	There were 54 plastic waste factories in Kuala Langat. Thirteen factories were legalized by the state government and given licenses. Seventeen were ordered to close. Among future plans was to relocate plastic waste processing factories to heavy industrial zones
October 16, 2018	Establishment of a Joint Ministerial Committee to tackle the issue – KPKT (chair), natural resources ministry (KATS), international trade ministry (MITI) and environment ministry (MESTECC)
	KPKT froze the import of plastic waste with HS Code 3915
	MESTECC froze license issuance for plastic recycling factories. The import of all nonrecyclable mixed solid waste will be banned
	The government closed more than 30 factories in Kuala Langat
	Confiscated plastic waste from illegal factories to be auctioned to legal players. Contaminated and nonrecyclable wastes to be landfilled
October 26, 2018	KPKT announced a permanent stop on the issuance of APs for contaminated plastic waste after a Joint Ministerial Committee meeting, where the Malaysian Plastic Manufacturers Association shared their views
	APs would still be approved for the import of clean, quality plastic under strict conditions. Only eight companies comply with the current eight criteria
	The local plastic industry was encouraged to stop dependency on materials from abroad. The country would phase out the import of all types of plastic including "clean" plastic within 3 years
October 17, 2018	MESTECC launched the Roadmap Towards Zero Single-Use Plastics 2018–2030. The Malaysia Plastic Pact was proposed, as an industry-driven multistakeholder initiative toward a circular plastic economy
November 1, 2018	KPKT proposed that APs for the import of plastic waste be resumed for companies that fulfil certain AP conditions, which will be increased and made more stringent

(continued)

Table 2 (continued)

Date	Government action
November 15, 2018	KPKT told Parliament that a committee had been set up within the ministry to check all 114 plastic recycling factories with approval to conduct plastic waste imports
	KPKT sent a circular to all local authorities to shut down illegal factories
	Applications by factories for business licenses to process plastic waste will require a consent letter from KPKT, which will only be approved once the applicants meet the new 18 conditions stipulated
January 5, 2019	KPKT had yet to approve any APs since July 2018
	114 companies held APs for plastic waste but only 54 were active. Eight complied with previous conditions stipulated. All must reapply for the AP according to the new procedures. Nineteen companies have applied
January 15, 2019	Town hall session on plastic waste with Malaysian Plastics Manufacturers Association (MPMA) and PTASKL, among others. KPKT will train customs officers to identify clean plastic from mixed plastic waste
	19 out of 114 plastic waste AP holders passed the requirements to import plastic scrap into the country
June 8, 2019	62 Malaysian companies thus far held APs to import and process plastic waste
	These companies are continuously monitored to ensure that the regulations are followed
	A company based in Johor which imported contaminated plastic waste and made a false declaration in import documentation to evade checks by the authorities had its permit suspended. JPSPN warned that subsequent offences could lead to revocation of the permit
January 4, 2020	MESTECC had shut down the operations of 170 plastic recycling factories for violating the Environmental Quality Act 1974

Source: Author compilation from media reports and Department of Environment (DOE), July 2020

government to deal with the influx of plastic waste, however, with the changing stance on APs observed between October and November 2018. Table 3 summarizes the roles of various institutions, legislation, and mechanisms adopted by the government to address the plastic waste issue across federal, state, and local levels., while Table 4 shows the number of returned containers of plastic waste to the countries of origin. The full report by C4 Center (2021) presented an in-depth discussion about the various enforcement efforts by the different government agencies.

Despite implementing one of the best efforts in the region to tackle the imported plastic waste crisis, loopholes still exist. Then KPKT minister informed Parliament in November 2018 that "the plastic that come are the homogenous and pellet types. We are controlling this (plastic waste import) very thoroughly, to ensure the plastic waste that comes is of good quality, and processed to be used by consumers."[52] In January 2019, she reiterated at a town hall that the government had never approved

[52] Chow, M. D. (2018, November 15). *Plastic waste a RM30 billion industry, Dewan Rakyat told*. https://www.freemalaysiatoday.com/category/nation/2018/11/15/plastic-waste-a-rm30-billion-industry-dewan-rakyat-told/

Table 3 Interagency cooperation to solve the plastic waste crisis

Government action	Mechanism
Ministerial-level taskforce	*Joint ministerial committee*:
	KPKT (chair), natural resources ministry (KATS), international trade ministry (MITI), and environment ministry (MESTECC)
Inter-ministry coordination (ports)	*JPSPN, KPKT (local government ministry)*:
	Grant or reject Approved Permits for HS Code 3915 plastics
	Customs, Ministry of Finance:
	Allow or stop foreign cargo from entering the country
	DOE, MESTECC (environment ministry):
	Ensure compliance with the Basel Convention. Organize government-to-government arrangements to repatriate dirty municipal plastic waste
Inter-ministry and federal-state-local governmental regulation of licensing for premises and businesses (factories)	*MIDA, MITI (international trade ministry)*:
	Standards-setting and policymaking for the whole country
	DOE, MESTECC (environment ministry):
	Ensure compliance with environmental laws and environmental impact assessments (EIA) before giving approval for the factory
	Monitoring of compliance with environmental laws
	State Executive Councils:
	Policymaking for the state. Decisions on freezing or allowing the approval of licenses to plastic recycling facilities
	Local Government Committee:
	The executive committee for local government (made up of elected state representatives) meets with the mayor or presidents of local councils in the state several times a year to enhance policy implementation and coordination
	Local Authority (bureaucracy):
	Approval of licensing for premises and businesses. Enforcement against unlicensed operators
Federal-state-local governmental committee to continuously monitor the issue	*District Development Action Committee*:
	The district officer meets monthly with members of parliament, state assembly representatives, state exco, the police, and officers from local branches of federal agencies. This is the main problem-solving body at the district level, coordinated by the National Development Action Council as part of the national policy implementation coordination mechanism
	Meeting of Environment Ministers and State Executive Councilors Responsible for the Environment (MEXCOE):
	The environment minister meets with the excos for environment from all states to heighten and facilitate enforcement activities against environmental pollution

Source: Author compilation from media reports and interviews

Table 4 Return of containers with contaminated plastic waste as of June 2020

No.	Port	Origin	No. of containers	Weight (kg)
1	Port Klang, Selangor	UK	1	22,000
		Bangladesh	1	20,710
		Spain	10	237,220
		Australia	3	68,440
		Singapore	1	22,000
		Japan	5	390,770
		USA	1	28,000
		Belgium	7	152,820
		Germany	2	45,360
		Taiwan	1	21,050
		Poland	1	18,900
		South Korea	2	30,790
		Hong Kong	14	290,788
		China	3	58,000
		Sri Lanka	1	21,284
2	Senari Port, Kuching, Sarawak	USA	31	429,760
		France	48	991,373
		Singapore	3	71,886
3	Penang Port	USA	17	334,103
		Vietnam	2	38,195
		Portugal	3	73,647
		Canada	11	189,201
		Lithuania	1	20,300
		Saudi Arabia	1	22,300
		UK	46	981,278
		Hong Kong	9	147,000
Total			225	4,727,175

Source: Department of Environment (DOE), July 2020

the import of plastic rubbish, just clean plastic scrap.[53] However, in 2019, Australian journalists easily intercepted a container full of mixed waste, as shown in Fig. 5. When queried, the factory owner receiving the container revealed that he could easily access supplies of mixed plastic waste from smugglers.

Aside from smuggling at the ports, illegal plastic recycling facilities also pose a problem. In February 2020, MESTECC launched a "National Action Plan on Enforcement on the Import of Plastic Waste" and targeted a total of 30,000 enforcement actions in 2020, compared to 18,314 enforcement actions in 2019 and 7194 in

[53] Bedi, R. S. (2019, July 29). Zuraida: *Imports of clean, recyclable plastic allowed, never plastic 'rubbish'*. The Star. https://www.thestar.com.my/news/nation/2019/01/15/zuraida-imports-of-clean-recyclable-plastic-allowed-never-plastic-rubbish

Fig. 5 Australian journalists intercepting a mixed waste container – Pulau Indah, Selangor, March 15, 2019. (Photo credit: Lay Peng Pua)

2018.[54] From January 1 to September 20, 2020, a total of 17,445 inspections on various premises had been conducted under the EQA.[55] These enforcement efforts are time-consuming and labor-intensive. Joint enforcement operations were organized across various states, involving federal agencies, state governments, and local authorities, along with much coordination among multiple agencies.

Table 5 shows enforcement action as compiled by the DOE since 2019. In mid-2019, two plastic recycling factories in Selangor were charged in court and fined a total of MYR120,000 for processing plastic waste without DOE approval, failure to install air pollution control systems, and failure to install systems to manage industrial effluents.[56] This was a slap on the wrist as processing waste without DOE approval is punishable by a maximum of MYR500,000 fine, or a maximum five-year jail term, or both, under the environmental law.

At the state level, in Selangor, a special task force with monthly meetings was formed to solve the plastic waste problem, co-chaired by the Environment, Green

[54] Mestecc launches national action plan on enforcement against plastic waste imports. (2020, February 10). The Sun Daily. https://www.thesundaily.my/local/mestecc-launches-national-action-plan-on-enforcement-against-plastic-waste-imports-CA1992073#:~:text=Mestecc%20launches%20national%20action%20plan%20on%20enforcement%20against%20plastic%20waste%20imports,-10%20Feb%202020&text=The%20plan%2C%20also%20known%20as,said%20in%20a%20statement%20today

[55] Yunus, A., & Hana Naz Harun and Teh Athira Yusof. (2020, November 4). *Drop it! 61 premises charged over water pollution.* New Straits Times. https://www.nst.com.my/news/nation/2020/11/637913/drop-it-61-premises-charged-over-water-pollution

[56] Lim, I. (2019, May 17). *Court fines two Selangor factories RM120,000 for illegal plastic recycling*. Malay Mail. https://www.malaymail.com/news/malaysia/2019/05/17/court-fines-two-selangor-factories-rm120000-for-illegal-plastic-recycling/1754010

Table 5 DOE operations against illegal factories

Year	No. of Operations	Enforcement action					Overall actions
		Notice of orders	Compounds	Seizure of operating facilities	Prohibition order	Investigation papers opened	
2019	275	119	86	186	11	74	476
2020, January 1 to July 17	41	17	66	18	1	7	109
Total	316	136	152	204	12	81	585

Source: Department of Environment (DOE), July 2020

Technology and Consumer Affairs Committee chairman and the Local Government, Public Transportation and New Village Development Committee chairman, and involving representatives from local councils, the DOE, the District and Land Office, the police force, and the Immigration Department.[57] On occasion, Tenaga Nasional Berhad (power service provider, with approval from the Energy Commission of Malaysia),[58] Air Selangor (water service provider), National Water Services Commission, and Customs would join the operations where the supply of utilities to the factories would be disconnected.

From 2018 to 2020, the state government took action against 113 factories in Klang alone, with 37 shut down, and another 34 illegal factories in Jenjarom, Kuala Langat, were closed.[59] Similar actions were taken in Penang and Kedah, with the Kedah state government stopping all issuance of business licenses for plastic recycling in 2019. This left certain businesses who had invested in building new facilities in a quandary.[60] Seberang Perai in the state of Penang reportedly had as many as 404 plastic recycling facilities and factories, with 14 found to be operating without license.[61]

[57] Chan, D. (2019, February 23). *Selangor gets tough on illegal factories [NSTTV]*. New Straits Times. https://www.nst.com.my/news/nation/2019/02/462869/selangor-gets-tough-illegal-factories-nsttv

[58] Rajendra, E. (2019, November 28). *MPK cuts off electricity supply at illegal plastic waste processing plant*. The Star. https://www.thestar.com.my/metro/metro-news/2019/06/24/mpk-cuts-off-electricity-supply-at-illegal-plastic-waste-processing-plant

[59] Martin Vengadesan & Low Choon Chyuan. (2020, August 20). *The Selangor gov't and scourge of plastic waste*. https://www.malaysiakini.com/news/539196

[60] Kedah state officer, interview, Alor Setar, February 11, 2020.

[61] Chern, L. T. (2019, July 29). *Illegal plastic factories booming*. The Star. https://www.thestar.com.my/news/nation/2019/05/18/illegal-plastic-factories-booming/

Conclusion: Counting the True Costs of Plastic Waste

Waste management should not be viewed purely from an economic lens. It is a governance, human rights, and environmental justice issue. The nations exporting the most plastic waste are also the world's largest consumers of plastics (the beneficiaries of the products). They should manage their own plastic waste with an urgent focus on reducing plastic production and consumption, rather than exporting the waste, even when they are allegedly exported for recycling.

We have learned that the recycling of plastic waste is partial at best and highly hazardous to workers and surrounding communities, polluting their water and air, with a large portion dumped or burned. Wastewater from recycling facilities leave a legacy of contamination and, as scientists have proven, the effluent of microplastics (Go et al., 2022). "Economic progress" as historically defined by the Global North has led the planet into an ecological crisis – the type of progress that has existed at the expense of other global neighbors – as it necessitates the offshoring of negative externalities to others far away in order to offer luxury and convenience to a wealthier minority.

This chapter showed how the plastic waste exported to Malaysia has impacted people and their communities not only environmentally, but also socially, culturally, and politically – affecting the relationships between people, the government, and businesses; worsening the culture of graft and illegality; and sowing distrust in political leaders and conflict with bureaucrats. The costs of "waste colonialism" go beyond the toxicity of plastic pollution. Plastic is certainly not a "cheap material," if one were to consider the true costs of its production, consumption, waste, and pollution, especially on peoples and environments far from the minds of the finance executives in business offices.

Today, the Malaysian government remains reluctant to ban the import of plastic waste for economic reasons, opting to focus on enhancing enforcement efforts, as many major business interests continue to profit from the trade. Yet, there are signs that enforcement of the Basel Convention's newly adopted controls is not being realized. Affected communities remain distrustful of the government, which to them, appeared to be more concerned with the health of plastic industry players than that of the people. The plastic manufacturing industry is well established in Malaysia with the association MPMA set up in 1967. In 2018, MPMA had several engagements with the ministers overseeing environment (MESTECC), local government (KPKT), and international trade (MITI) (Malaysian Plastics Manufacturers Association, 2019, pp. 33–34), while affected communities had to struggle to get a meeting with the ministers.

An Advanced Plastic Recycling Industry for Malaysia: A White Paper by MPMA and MPRA stated that the plastics recycling industry is worth MYR4.5 billion in revenue, and it supports the MYR31 billion local plastics conversion industry (Malaysian Plastics Manufacturers Association & Malaysian Plastics Recyclers Association, 2019, p. 8). However, before one can assume even the direct economic benefits of importing foreign wastes, what needs to be clarified is how much

recycled plastics are beneficial to the midstream plastic conversion industry, and how much resins from the imported plastic waste are actually destined to be wholly exported to China, therefore providing no value to the domestic plastic industry.

When queried why China banned the import and processing of waste amid industry claims that it is lucrative, a government official opined that it was because China wanted to move up the value chain toward higher-value products.[62] This was inaccurate, as China clearly imposed the ban to rehabilitate its polluted environment. The WTO submission by the Chinese government provided strong evidence that the concerns of the local communities in Malaysia about the overall impacts of plastic waste imports on human and environmental health are valid, despite the government and businesses claiming otherwise. Another interviewee further supported this point by sharing that the Chinese government had sought international assistance to curb smuggling in the illegal waste trade.[63]

In addition to pollution, environmental degradation, and social costs, the administrative hidden costs incurred by the government in terms of enforcement, monitoring, cleaning up, and rehabilitation of polluted environments must also be considered, alongside the burden on public healthcare. Illegal businesses and smuggling activities that plague the waste trade contribute nothing to the local economy (Sembiring, 2019) and are extremely difficult to monitor. When viewed from a true cost, ecological economics perspective, it is logical that Malaysia should follow the example of China and ban the trade outright as it creates a net economic deficit for the country.

Finally, the ease of securing plastic waste via importation disincentivizes the need for local businesses and governments to enhance domestic plastic waste segregation and collection (Environmental Investigation Agency, 2023), particularly for commercial and household wastes. This is yet another serious consequence of the waste trade, leading to ever more plastic leakage and pollution.

The Malaysian government has gone to great lengths to seek solutions to the plastic waste import crisis. But while government officers in the federal and the state governments we interviewed observed that the problem has largely been addressed, ongoing complaints by the communities about dumping, open burning, and air pollution indicate that the picture remains ugly. The difficulties of monitoring and enforcement remain. In addition, more illegal recycling factories of other types of waste materials have emerged.

Meanwhile, Malaysia is worryingly accepting another form of waste colonialism from the Global North – allowing the installation of waste-to-energy incineration facilities as a "solution" to waste problems. There are serious concerns that these incinerator schemes would require more imported wastes as fuel to fill the capacity of the burners. This presents a whole new set of environment justice problems, including exacerbating the climate crisis by incinerating converted fossil fuels and introducing the carbon into the atmosphere, when our planet desperately needs to sequester it.

[62] Government officer, interview, Shah Alam, September 14, 2020.

[63] International officer, interview, teleconference, June 4, 2020.

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