

PLASTIC AND INJUSTICE IN TAX INCENTIVE



Plastic and Injustice in Tax Incentive

Herni Ramdlaningrum
Bintang Aulia Luthfi
Eka Afrina Djamhari
Samira Hanim
Farhan Medio Yudantyo
Nindhita Proboretno
Yuyun Ismawati
Victoria Fanggidae



P R A K A R S A
Welfare Initiative for Better Societies

2024

Plastic and Injustice in Tax Incentive

Citation:

Perkumpulan PRAKARSA. (2024). Plastic and Injustice in Tax Incentive. Perkumpulan PRAKARSA: Jakarta.

Authors:

Herni Ramdlaningrum, Bintang Aulia Lutfi, Eka Afrina Djamhari, Farhan Medio Yudiantyo, Samira Hanim, Nindhita Proboretno, Yuyun Ismawati, Victoria Fanggidae

Layout and Design:

Bambang Nurjaman, Faisal Rachmansyah

Publisher:

Perkumpulan PRAKARSA
Komplek Rawa Bambu 1
Jl. A No. 8E Kel. Pasar Minggu, Kec. Pasar Minggu
Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12520, Indonesia

Keywords:

Plastic, impact, pollution, incentive

Disclaimer:

This document is prepared as part of efforts to promote sustainable development, one of which is by providing an evidence base that can be used as a foundation for sustainable policy advocacy. This research is the result of a collaboration between The PRAKARSA and Nexus3 Foundation. The contents of this report are entirely the responsibility of the authors. If there is any information that seems inaccurate, readers may submit rebuttals or further questions to the publisher.

Other Information:

The exchange rate used when this report was prepared is 1 USD = IDR 15,000



Table of Contents

Table of Contents	iii
List of Images	iv
List of Tables	iv
List of Case Box	iv
List of Abbreviation	v
Foreword	vi
Executive Summary	vii
Section 1. Plastics and Inequality in Tax Incentives	1
1.1 Plastic Around Us	1
1.2 Plastics impact on the environment	3
1.3 Plastic Impact on Public Health	5
Section 2. Plastic Management Policies in Indonesia	7
2.1 Landscape of Plastic Management Policies	7
2.2 Implementation and challenges in policy application	9
2.3 Growth of the plastic industry: between economic opportunities and environmental risks	10
Section 3. Tax Incentive in Plastic Industry	13
3.1 Tax Incentive Scheme for Plastic Raw Material Manufacturers	13
3.2 The impact of incentives on inequality and sustainable development	16
3.3 Environmental Responsibility: Costs Incurred by the Government and Society	20
3.4 Comparison of Plastic Industry Policies: Lessons from Other Countries	22
Section 4. Closing	25
4.1 Conclusion	25
4.2 Recommendation	26
References	29



List of Images

Figure 1. Global Plastic Production: Accumulation and Development	1
Figure 2. Chemicals Used in Plastic Production	2
Figure 3. Percentage of total losses from Indonesian ocean pollution	20

List of Tables

Table 1. Hazardous Chemicals of Concern in Plastics	3
Table 2. Regulations Related to Plastic Waste Management in Indonesia	7
Table 3. Legal Basis for the Development of the Plastic Industry in Indonesia	11
Table 4. Tax Holiday Policy Based on Duration, Investment Value, and Tax Reduction Rate	14
Table 5. An Example of Criteria for Granting Incentives in the Plastic Industry	15
Table 6. Profit/Loss of PT CAP with income tax payments (2017 – 2023) (in USD 000)	19
Table 7. Latest Policies in the 15 Countries with the Highest GDP	22

List of Case Box

Case Box 1 Tax Incentives for the Largest Petrochemical Company in Indonesia	18
--	----

List of Abbreviation

BMDTP	: Import Duty Paid by the Government
DPR	: People's Representative Council
EPR	: Extended Producer Responsibility
FMCG	: Fast Moving Consumer Goods
INAPLAS	: Indonesian Plastic Industry Association
INC	: Intergovernmental Negotiating Committee
KLHK	: Ministry of Environment and Forestry
KLH	: Ministry of Environment
NPAP	: National Plastic Action Partnership
PDB	: Gross Domestic Product (GDP)
PE	: Polyethylene
PET	: Polyethylene Terephthalate
PFAS	: Per- and Polyfluoroalkyl Substances
PPh	: Income Tax
POPs	: Persistent Organic Pollutants
PP	: Polypropylene
PPN	: Value Added Tax (VAT)
SUPs	: Single-Use Plastics
UNEP	: United Nations Environment Programme



Foreword

Indonesia is currently at a crossroads in facing the serious plastic pollution crisis. This issue is not only a threat to ecosystems but also endangers public health. Plastic, which acts as a carrier of harmful chemicals, has significantly polluted our environment. Although the government has issued various policies to address plastic waste, these efforts remain limited and have not tackled the problem from upstream to downstream.

The tax incentive policies applied to the plastic industry, although intended to encourage economic growth, often create negative externalities that harm the environment and public health. This study aims to analyse the impacts of these policies and offer recommendations that could drive a shift toward more sustainable practices.

From the literature review conducted, it was found that tax incentives, such as tax holidays and import duty exemptions, have encouraged the dominance of the virgin plastic industry, which in turn exacerbates plastic pollution. The economic losses due to plastic pollution are significant and add to the government's budget burden. This situation highlights the misalignment between economic policies and environmental goals.

We hope that the report in your hands can provide constructive input to the government and other stakeholders. It is important for us to evaluate and reform existing policies to align with sustainable development objectives. We recommend that the relevant ministries urgently review tax incentives, expand corporate responsibility, and increase transparency in risk management.

To conclude, I would like to express my gratitude to the entire research team from PRAKARSA and Nexus3 Foundation involved in the preparation of this report. I hope this report will enrich the existing knowledge base and provide reinforcement so that all stakeholders can increasingly contribute to supporting the implementation of fair policies.

We believe that with collaboration and commitment from all parties, we can overcome the plastic pollution problem and create a cleaner and healthier environment for future generations. Thank you for your attention and support.

Jakarta, November 2024

Ah Maftuchan

Executive Director of The PRAKARSA

Executive Summary

Indonesia is facing a serious plastic pollution crisis. Plastic has been proven to damage ecosystems and endanger human health as it acts as a carrier of harmful chemicals that have already polluted the environment. The Indonesian government has issued several policies to address plastic waste, but these are still limited in addressing downstream issues and do not tackle upstream problems. Moreover, although the government has set targets for reducing plastic waste and promoting a circular economy, the current policies still provide significant tax incentives to the plastic industry. This could worsen the existing situation and place a burden on the public budget. The plastic recycling process itself also generates toxic chemicals, creating new problems.

To support sustainable development both environmentally and socially, a thorough analysis of the current policies is needed to encourage a shift towards more sustainable practices. This study aims to examine the tax incentive policies provided to plastic companies in Indonesia. The research focuses on tax incentives given to companies in the upstream plastic industry. This is because the tax incentives provided by the government for economic growth purposes create negative externalities for the environment and society. Therefore, it is crucial to seek evidence that can be used to urge the government to evaluate the current tax incentive policies.

This study employs a literature review methodology. The researcher collects data and information by reviewing written sources from scholarly journals, reference books, encyclopedias, and other reliable sources in both written and digital formats that are relevant to the subject of study. The researcher also examines various policies related to plastic waste management and the tax incentives provided to companies in Indonesia.

The study reveals that there are tax incentives given to the plastic industry, such as tax holidays of up to 20 years and import duty exemptions for raw materials. These policies have made the virgin plastic industry more dominant due to the more competitive price of virgin plastic. This policy has also indirectly contributed to the negative externalities that damage the environment and threaten public health.

Additionally, tax incentives for the plastic industry have significant financial impacts on state revenue. The potential loss of tax revenue averages USD 54 million or IDR 810 billion per year, while the economic losses from plastic pollution are estimated to reach USD 450 million or IDR 6.75 trillion per year. Sectors directly impacted, such as fisheries, transportation, and tourism, have incurred substantial losses due to plastic pollution. This burden increases the pressure on the government budget, which must be allocated for pollution mitigation efforts, while also diminishing the welfare of affected communities.

The study also reveals a misalignment between economic policies and environmental goals. While the government is trying to reduce plastic waste through a circular economy and a ban on single-use plastics, tax incentives for the plastic industry still dominate fiscal policies. This creates a conflict between promoting the growth of the plastic industry and achieving carbon emission reduction targets and sustainable development.

This study provides several recommendations to various stakeholders. The main recommendations proposed are:

1. The Ministry of Finance should conduct a comprehensive review of tax incentive policies, including VAT and income tax, for the virgin plastic industry, covering both imports and the production of plastic precursors. This review should take into account negative externalities, such as environmental pollution, and the costs of plastic pollution rehabilitation and remediation, which ultimately burden the general public.
2. The Ministry of Environment (MoE) needs to establish a clear transition plan for implementing plastic reduction policies gradually, with achievable deadlines. A phase-out ban can be applied to single-use plastics (SUPs) in critical sectors such as restaurants, retail stores, and markets.
3. MoE, together with the Ministry of Finance and the Ministry of Trade, should issue regulations promoting the implementation of an Extended Producer Responsibility (EPR) system to ensure that recyclable products and packaging are reclaimed by producers for further processing in environmentally responsible ways.
4. The Ministry of Industry and KLH should issue regulations banning the use of hazardous and toxic chemicals in plastic production and replacing them with safer materials or alternative technical approaches.
5. Plastic manufacturers must conduct environmental risk assessments, mitigate and manage any environmental and social risks arising from their production processes and products, to prevent or reduce externalities.
6. Industries involved in olefins, aromatics, and ammonia production for plastics should enhance transparency in pollution control and increase public access to emission and discharge reports.



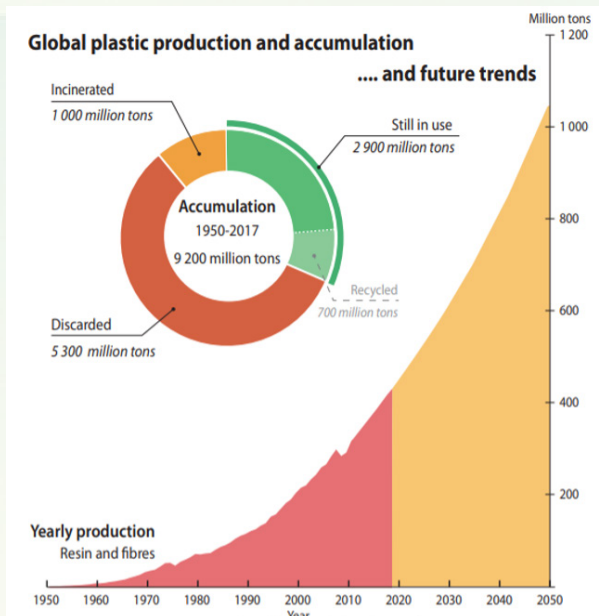
Section 1.

Plastics and Inequality in Tax Incentives

1.1 Plastic Around Us

Since 1950, humans have produced more than 8 billion tons of plastic. Unfortunately, more than half of it has ended up in landfills, and only about 10% has been successfully recycled (Geyer, 2020). The impact of plastic pollution is significant, seriously affecting human health and biodiversity. Plastic, made from a mixture of carbon (from petroleum or gas) and chemicals, has the potential to continue increasing in production until 2050.

Figure 1. Global Plastic Production: Accumulation and Development



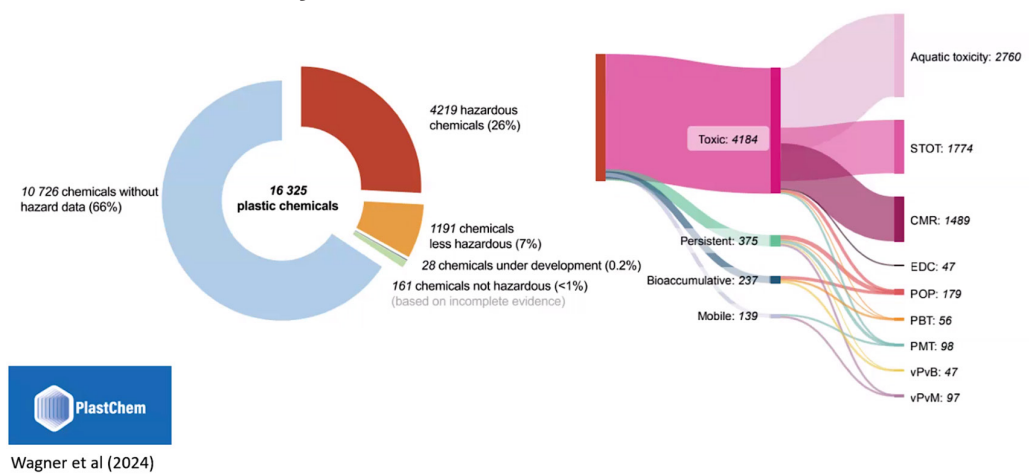
Source: GRID-Arendal, 2021



Furthermore, plastic pollution has become an urgent global concern. At the United Nations Environment Assembly (UNEA-5.2), a resolution was agreed upon by 175 countries to end plastic pollution throughout its lifecycle, from extraction to disposal. As a follow-up, the United Nations Environment Programme (UNEP) was mandated to establish an Intergovernmental Negotiating Committee (INC) to develop a legally binding international instrument on plastic pollution, to be completed in five rounds. This UNEP/EA.5/14 resolution aims to have an agreement in place by 2025 to address plastic pollution (UNEP, 2022). This initiative aligns with the commitment to Sustainable Development Goal (SDG) Target 12, which emphasises responsible consumption and production, with plastic as a key focus.

The chemicals used in plastics, including monomers, polymers, and additives, some are toxic, some are unknown. Currently the industry uses around 16,000 chemicals to make plastics. About 30% of these have been identified as hazardous and toxic to humans and the environment, while data on 66% remain unknown. Wagner et al. (2024) also identified that around <1% of plastic chemicals are considered non-hazardous, although this is due to limited data.

Figure 2. Chemicals Used in Plastic Production



Source: Wagner et al. (2024)

Various studies show that chemicals in plastics are persistent, taking a long time to break down, and are also bioaccumulative, meaning they can accumulate in the bodies of living organisms and be passed onto future generations. There are 15 groups of hazardous and toxic plastic chemicals that need attention and should have their circulation and usage controlled.



Table 1. Hazardous Chemicals of Concern in Plastics

Aromatic amines	Bisphenols	Azodyes
Aralkyl aldehydes	Phthalates	Aceto/benzophenones
Alkylphenols	Benzothiazoles	Chlorinated paraffin
Salicylate esters	Organometallics	Per- and polyfluoroalkyl substances (PFAS)
Aromatic ethers	Parabens	

Source: Wagner et al. (2024)

Indonesia is one of the world’s second-largest contributors to plastic pollution in the oceans, both from poorly managed waste (Jambeck et al., 2015) and from rivers (Lebreton et al., 2017). Currently, waste management in Indonesia still relies on collection, transportation, and disposal systems, as well as downstream solutions such as thermal plastic processing and downcycling. The waste management service rate and the available infrastructure are very minimal, especially concentrated in large cities and Java Island. The low government budget to improve the waste management system further exacerbates the ongoing plastic pollution issue. Therefore, this challenge will not be resolved if the production of single-use plastic packaging continues on a massive scale.

Plastic production in Indonesia heavily depends on imported virgin plastic raw materials, around 3.6 million tons per year, compared to domestic supply in 2019 (Ministry of Industry, 2019). This industry is dominated by major players such as Chandra Asri, Pertamina, and Lotte Chemicals, which focus on upstream products like ethylene and propylene. The petrochemical industry sector also benefits from government incentives, including tax exemptions, particularly in income tax reductions.

This research aims to show the significant impact of government incentives on the plastic petrochemical industry, as well as their effects on the environment and public health. This report also presents data on the impact of plastic on the environment and health, and analyzes the government’s response to these risks through the policies implemented.

1.2 Plastics impact on the environment

Planetary boundaries are limits that define a safe space for humans to operate without damaging Earth’s systems (Rockstrom et al., 2009). Recently, researchers categorised plastics and chemicals as novel entities that have exceeded these safe boundaries, causing pollution that is more difficult to control (Villarrubia-Gomes et al., 2024). Increased plastic production worsens this condition, leading to more pollution and heightened risks to ecosystems and sustainability.



Plastic is one of the materials that is most difficult to degrade naturally, taking hundreds of years to break down. This process produces microplastics and nanoplastics that accumulate in the environment. According to Laurent et al. (2017), each year, between 1.15 million and 2.41 million tons of plastic waste flow from rivers worldwide into the oceans. The research shows that the 20 most polluted rivers, mostly in Asia, contribute 67% of total global plastic pollution. Of the plastic waste that ends up in the oceans, about 914 species are affected, as marine life often mistakes plastic for food or becomes entangled in discarded fishing gear (Kühn and Franeker, 2020).

On land, plastic degrades more slowly, around 4 to 23 times slower, compared to degradation taking place in rivers and seas (Chamas et al., 2020). Plastic pollution and the release of plastic-related chemicals negatively impact soil organisms, such as invertebrates and fungi, which are crucial for maintaining ecosystem balance. Plastics also contain hazardous chemicals like Persistent Organic Pollutants (POPs) and dioxins, which can transfer into soil and plants, eventually entering the food chain through animals in contaminated land (Petrlik et al., 2022). The high levels of micro and nano plastic pollution on land not only affect soil organisms but also have serious implications for ecosystem sustainability.

The pollution caused by plastic production, from extraction to waste, not only damages ecosystems and endangers health but also affects the reproductive sustainability of all living beings (Levine et al., 2022). The extraction process of raw materials for plastics originates from petroleum and gas. The refining techniques for plastic raw materials, such as olefins, aromatics, and ammonia, involve complex processes and the use of various hazardous and toxic chemicals (Lopez et al., 2023). These hazardous and toxic chemicals are used to produce various types of plastic with the properties and characteristics required to meet consumer needs. In addition to CO₂, emissions and releases of plastic-related chemicals can also be detected in industrial refining and plastic production areas, including plastic recycling facilities (Kuribara et al., 2024; Xu et al., 2024).

Regarding this matter, the ocean has the capacity to absorb significant amounts of carbon dioxide (CO₂). However, pollution from industrial waste and garbage in the ocean has reduced its ability to absorb CO₂. Poorly managed plastic waste can harm marine and terrestrial ecosystems, contaminate soil, fisheries, and livestock, and ultimately threaten food security. The poorest and most vulnerable communities face the greatest risks as they often live near areas where plastic is regularly burned and are exposed to poor environmental conditions, such as clogged waterways that lead to flooding (World Bank, 2024). Hazardous and toxic chemicals have also been detected in high concentrations in derivative products made from recycled plastics, such as children's toys (Aurisano et al., 2021; Behnisch et al., 2023). A circular economy that does not consider banning and eliminating hazardous and toxic plastic chemicals is not recommended.

Plastic also significantly contributes to climate change throughout its lifecycle, from production to disposal. This entire process generates substantial carbon emissions, which,



in turn, contribute to global warming (Wei et al., 2024; Molfetas, M., 2024). The higher the carbon emissions, the greater the concentration of greenhouse gases in the atmosphere. The processes of extracting, refining, and producing plastic pellets require massive amounts of energy, resulting in approximately 1,781 million metric tons of CO₂ emissions. Additionally, the high-temperature processes involved in molding plastic, often reliant on coal combustion, can generate an additional 535 million metric tons of CO₂ emissions (Zero Waste Indonesia, 2024). GRID-Arendal (2024) also found that greenhouse gas emissions from the lifecycle of plastics are estimated to account for 3.8% to 4.5% of total global emissions. Around 85% of these emissions originate from the plastic production process, which heavily depends on fossil fuels such as coal and petroleum.

Downstream, most single-use plastics end up in landfills, are recycled, or incinerated. While recycling has a lower environmental impact, not all plastics can be recycled, particularly low-quality ones. Moreover, the recycling process itself requires substantial energy, resulting in significant carbon emissions. Plastic incineration has an even greater environmental impact compared to recycling, producing as much as 5.9 million metric tons of CO₂ emissions (Zero Waste Indonesia, 2024).

The concentration of CO₂ in the ocean has even caused conditions to become more acidic, damaging marine ecosystems, particularly coral reefs. Coral reefs play a vital role as habitats for small fish and plankton within the food chain. The destruction of coral reefs ultimately disrupts the balance of marine ecosystems (Zero Waste Indonesia, 2024).

1.3 Plastic Impact on Public Health

The health impacts of plastic occur at every stage of its lifecycle: extraction, production, consumption, and disposal. The complex chemical composition of plastics, including monomers, polymers, and additives, poses risks to human health and well-being. Chemicals found in plastics, such as phthalates, bisphenol A (BPA), and per- and polyfluoroalkyl substances (PFAS), are known hazardous substances that can disrupt the endocrine system, increase the risk of cancer, obesity, cardiovascular diseases, and reproductive issues such as infertility (Karthi et al., 2020; Flaws et al., 2020).

During production, workers in fossil fuel extraction industries, such as coal mines and oil refineries, are vulnerable to respiratory illnesses, cancer, and cardiovascular diseases. In plastic manufacturing plants, workers face high risks of developing cancer, liver disease, and neurological disorders. Communities living near these factories often experience conditions such as asthma, cancer, and heart disease due to continuous exposure to harmful emissions (The Minderoo-Monaco Commission, 2023).

In January 2024, a suspected benzene vapor leak occurred at the petrochemical plant PT Chandra Asri in Cilegon (Kompas TV, 2024). The strong odor from this incident caused



health issues for hundreds of residents within a 15-kilometer radius of the factory. They suffered from respiratory problems, eye irritation, nausea, and vomiting, leading many to seek medical attention at local health facilities and hospitals.

Scientific data reveals that of approximately 7,000 substances associated with plastics, over 3,200 exhibit one or more hazardous properties of concern. At the waste management stage, UNEP(2021) highlights risks arising from open burning of plastic waste, consumption of seafood contaminated with plastics, exposure to pathogenic bacteria carried on plastics, and the release of harmful substances into coastal waters. As plastics degrade, they release microplastics, synthetic and cellulose microfibers, toxic chemicals, metals, and micro-pollutants into water, sediments, and eventually the marine food chain. Microplastics can also enter the human body through inhalation and skin absorption, accumulating in organs, including the placenta. Human consumption of microplastics via seafood poses a serious threat, particularly to coastal and Indigenous communities that rely on marine species as a primary food source. For humans, this can lead to hormonal disruptions, developmental disorders, reproductive abnormalities, and cancer (UNEP, 2021).

Women and children are especially vulnerable to these toxic chemicals. Exposure can result in severe or long-term adverse effects during critical stages of a woman's life, potentially affecting subsequent generations. Exposure during fetus development and childhood, for instance, may cause neurological developmental disorders or reproductive health issues. Men are also affected, with recent studies documenting significant adverse impacts on male fertility due to combined exposure to hazardous chemicals, many of which are linked to plastics (Levine et al., 2022).





Section 2.

Plastic Management Policies in Indonesia

2.1 Landscape of Plastic Management Policies

In Indonesia, plastic waste management has become a significant concern due to the increasing volume of plastic waste polluting the environment. The government has issued various regulations to address this issue, including Law No. 18 of 2008 on Waste Management and Government Regulation No. 81 of 2012, which regulates domestic waste management. Table 2 below presents the current regulations related to plastic waste management in Indonesia.

Table 2. Regulations Related to Plastic Waste Management in Indonesia

No.	Policy Regulation	Description
1	Law No. 18 of 2008 on Waste Management	Article 19: Regulates the responsibility of local governments in waste management, including plastic waste. Local governments must manage waste from upstream to downstream, starting from reduction to final disposal.
2	Government Regulation No. 81 of 2012 on Household and Similar Waste Management	Emphasises the importance of waste reduction at the source and promotes the reuse and recycling of waste, including plastics. The government and communities are expected to collaborate in reducing the use of single-use plastics.



3	Presidential Regulation No. 97 of 2017 on National Waste Management Policies and Strategies (Jakstranas)	This regulation sets a national strategy for waste management, including a target to reduce plastic waste by 30% by 2025. It emphasises plastic waste reduction at the source and promoting the reuse of plastic waste.
4	Presidential Regulation No. 83 of 2018 on Marine Waste Management	Aims to reduce plastic waste in the ocean by 70% by 2025. This regulation involves various ministries, local governments, and the private sector in managing plastic waste that pollutes the seas.
5	Ministerial Regulation No. P.75/MENLHK/SETJEN/KUM.1/10/2019 on Roadmap for Waste Reduction by Producers	Requires producers to reduce the use of single-use plastics in their products and promote responsible waste management systems. Producers are required to create a roadmap for plastic waste reduction.
6	Ministerial Regulation No. 56/Menlhk-Setjen/2019 on Plastic Waste Management in the Ocean	This regulation addresses plastic waste problems in the ocean. The government is committed to reducing 70% of ocean plastic waste by 2025.
7	Regional Regulations (Perda) on Reducing Single-Use Plastics	Around 101 cities/regencies/provinces, including DKI Jakarta, Bali, and Surabaya, have issued regional regulations specifically related to plastic waste management. For example, DKI Jakarta has Perda No. 3 of 2013 on Waste Management, which includes a ban on the use of single-use plastic bags.
8	Ministerial Circular Letter No. SE.2/MENLHK/PSLB3/PLB.3/7/2020	Regulates plastic waste management during the COVID-19 pandemic, requiring enhanced management of plastic waste, including masks and PPE that may become hazardous medical waste.

Source: Data processed by researchers from various policy sources.

One of the crucial steps is the implementation of a system to reduce single-use plastic consumption, promoted through plastic bag bans in several regions. Additionally, the government encourages recycling practices and waste segregation at the household level to enhance plastic waste management.

Various initiatives, such as educational campaigns and partnerships with the private sector, have also been introduced to raise public awareness about the importance of sustainable plastic waste management. While challenges remain, these measures are expected to

reduce the negative impact of plastic waste on the environment and public health.

To support the existence and capacity-building of the plastic recycling industry in Indonesia, the government, through the Ministry of Industry (Kemenperin), has issued several policies targeting the national plastic recycling sector. These policies include:

- Developing a Roadmap for the Plastic Recycling Industry. This involves mapping supply and demand, including raw material potential, production capacity, and marketing of products both domestically and for export.
- Business Matching Programs. These programs aim to establish collaboration between the plastic recycling industry and Fast-Moving Consumer Goods (FMCGs) companies for managing post-consumer packaging waste.
- Drafting a Regulation on Guidelines for Recycled PET Production for Food Packaging. The Ministry of Industry is finalising regulations to establish best practices for producing recycled PET (Polyethylene Terephthalate) for safe use in food packaging.
- Issuing SNI 8424:2023 for Recycled PET Resin. This Indonesian National Standard is expected to support the implementation of minimum recycled content in Indonesia, fostering the use of recycled materials

2.2 Implementation and challenges in policy application

The Indonesian government has taken progressive steps by issuing several regulations, including Presidential Regulation No. 83/2018, which targets a 70% reduction in marine plastic waste by 2025 (World Bank, 2020). This initiative is translated into the National Plastic Action Partnership (NPAP) program, serving as a collaborative platform that brings together various stakeholders to promote coordinated waste management. Several major cities, including Jakarta and Bali, have implemented bans on single-use plastic bags, which have proven effective in reducing plastic waste from daily community activities (Portal Informasi Indonesia, 2022).

At the regional level, local regulations (Perda) prohibiting the use of single-use plastics have been effectively implemented in several major cities such as Jakarta, Bali, and Surabaya. In these cities, the use of single-use plastics in shopping centers and public places has significantly decreased. However, according to the World Bank (2022), in other regions without similar local regulations, the use of single-use plastics remains high. Uneven implementation and weak enforcement in some areas reduce the impact of these policies, highlighting the critical role of local governments in enhancing their effectiveness.

The implementation of a circular economy concept through Ministry of Environment and Forestry Regulation No. 75/2019 has also begun to show positive results. Under this

regulation, producers are required to reduce plastic usage in their products and facilitate recycling and reuse systems. The World Bank (2020) noted that the private sector is now actively participating in waste management through investments in recycling systems and reducing single-use plastic consumption.

In 2019, the House of Representatives (DPR) through Commission XI approved the imposition of an excise tax on plastic. The implementation of this plastic excise tax was initially planned for 2020, with a revenue allocation prepared in the 2019 state budget (APBN). The projected revenue from the plastic excise tax was set at IDR 500 billion. However, the global Covid-19 pandemic that occurred in the same year delayed its implementation.

In the 2024 Macro Economic Framework and Fiscal Policy document, it is mentioned that the government plans to extend excise objects by introducing new items, including plastic products (Ministry of Finance, 2024). However, the imposition of a plastic excise tax needs to be precisely targeted, focusing on the upstream plastic industry, which is the main producer of plastics as well as the importer of raw materials. If the excise tax is applied to the downstream industry, it could burden the recycling industry, which plays a crucial role in reducing plastic waste.

2.3 Growth of the plastic industry: between economic opportunities and environmental risks

The conflict between plastic waste reduction policies and the growth of the plastic industry in Indonesia reflects a clash between economic and environmental interests.

On one hand, the government and private sector are striving to encourage the growth of the plastic industry as an integral part of the economy. On the other hand, policies to reduce plastic waste urge the reduction of single-use plastics and promote the adoption of more environmentally friendly materials.

The plastic industry is projected to become a key sector in Indonesia during the 2025–2035 period, as outlined in the National Industrial Development Master Plan (RIPIN) 2015 (Ministry of Industry, 2015). Along with increasing demand from the food and beverage packaging, automotive, construction, and electronics sectors, RIPIN focuses on increasing domestic production capacity to reduce raw material imports, developing Indonesia's recycling industry, and advancing research and technology in the plastic sector.

The policy foundation supporting the growth of the plastic industry in Indonesia includes various regulations that provide support to this sector. Below are some regulations underlying these policies:

Table 3. Legal Basis for the Development of the Plastic Industry in Indonesia

No.	Policy and Regulations	Description
1	Law No. 3 of 2014 on Industry	This law establishes a general framework for industry development in Indonesia, including the plastic industry, by providing support such as facilities, fiscal incentives, and investment ease for strategic industries.
2	Minister of Finance Regulation No. 159 of 2015	Provides facilities for Income Tax Reduction – One of the plastic companies currently falls under the pioneer industry category and receives incentives, such as tax exemptions for up to 20 years.
3	Minister of Finance Regulation No. 130/PMK.010/2020 on tax incentives for innovation-based industries	This regulation provides tax holidays and tax allowances to innovation-based industries, including the plastic industry, to stimulate the growth and development of new technologies in plastic production. It aims to support the competitiveness of Indonesia's industry in the global market. <i>*Tax holiday is a tax exemption given to newly established companies for a specific period, while tax allowance is a tax reduction calculated based on the amount of investment made.</i>

Source: Data processed by the researcher from various policy sources

The plastic industry in Indonesia is considered to contribute to the national economic growth. According to data from the Indonesian Plastic Industry Association (INAPLAS), this sector contributes to GDP and creates jobs. Based on BPS (2022), the number of workers in the rubber and plastic sector reached 443,000, or about 7% of the total workforce across all sectors. Employment in this sector ranks 4th among 25 other commodities. Plastic consumption growth continues to rise in line with population growth and urbanisation (World Bank, 2022).

The increasing demand for plastic also comes from various sectors such as food, beverages, textiles, and automotive, further supporting the expansion of the plastic industry. Several government policies for this sector, including subsidies for raw materials and support for production capacity increases, have contributed to the development of the plastic industry. On the other hand, the government has also implemented policies to reduce plastic waste,

such as bans on single-use plastics in several regions and requiring producers to manage their products from production to end-of-life. According to information from the Indonesian Information Portal (2022), the government targets a 70% reduction in marine plastic waste by 2025.

The growth of the plastic industry, driven by demand from various sectors, often conflicts with plastic waste reduction policies. WRI Indonesia (2023) notes that the increase in plastic production contributes to environmental problems, especially when the produced plastics cannot be effectively recycled.

While the plastic industry seeks to continue growing and meet market demand, environmental policies emphasise the importance of recycling and reducing the use of single-use plastics. The World Bank (2022) states that recycling infrastructure in Indonesia is still limited, resulting in much plastic that is not properly managed, ending up in landfills or the ocean.

The conflict between economic and environmental motives in plastic waste management policies reflects a significant challenge faced by Indonesia. On one hand, the plastic industry significantly contributes to economic growth; on the other, the environmental impact of poorly managed plastic production and consumption calls for more sustainable solutions. Approaches such as a circular economy and a reevaluation of incentives for the plastic industry could be key in addressing this conflict and achieving a balance between economic growth and environmental preservation.



Section 3.

Tax Incentive in Plastic Industry

3.1 Tax Incentive Scheme for Plastic Raw Material Manufacturers

Tax facilities are one of the main strategies of the Indonesian government to encourage the industrialization of plastics domestically. The plastic industry plays a crucial role in various downstream sectors such as packaging, automotive, electronics, healthcare, and consumer goods. To increase production capacity, attract investment, and reduce dependence on raw material imports, the government offers various tax incentives to plastic industry players.

One of the incentives provided is the Government-Borne Import Duty (BMDTP) facility for the plastic industry that imports raw materials such as polyethylene (PE) and polypropylene (PP). With this facility, the plastic industry is exempt from paying import duties, significantly reducing production costs.

Table 4. Tax Holiday Policy Based on Duration, Investment Value, and Tax Reduction Rate

Time frame	Investmen value(in IDR)	Investment value (in USD)*	Tax holiday
5 Years	IDR 500 Million - Rp. 1 Trillion	\$33,3 Million - \$66,7 Million	50% for investment value of IDR 100 Billion - IDR 500 Billion.
7 Years	IDR 1 Trillion - Rp. 5 Trillion	\$66,7 Juta - \$333,3 Million	
10 Years	IDR 5 Trillion - Rp 15 Trillion	\$333,3 Juta - \$1 Million	100% for investment value above IDR 500 Billion
15 Years	IDR 15 Trillion - Rp 20 Trillion	\$1 Million - \$1,33 Million	
20 Years	> IDR 20 Trillion	> \$1,33 Million	

Source: Regulation of the Minister of Finance No. 130 of 2020 | *1 USD = Rp 15.000

As an effort to attract large investments in the manufacturing sector, the government also offers a tax holiday policy, which is included in the incentive program for the plastic industry. Tax holiday is a tax exemption given to newly established companies for a certain period. This tax holiday is given to pioneer industries in the form of a reduction in Corporate Income Tax (PPH) for new investment. Income tax or PPh is a tax imposed on each additional value of economic capacity received by Taxpayers. Both those obtained from within and from abroad, which can increase the wealth of each Taxpayers. Taxpayers can be individuals or business entities. The amount of this reduction can reach 50% to 100% for a period of 5 to 20 years, depending on the value of the investment made. To qualify for a tax holiday, the minimum investment value required is IDR 100 billion.

In 2024, the Ministry of Finance made adjustments to PMK No. 130 of 2020 through the Minister of Finance Regulation No. 69 of 2024. A significant adjustment in this document is the insertion of Article 15A, which introduces the imposition of taxes on multinational companies, referred to as the global minimum tax. Tax beneficiaries in multinational companies will be subject to additional domestic minimum tax in accordance with the prevailing legislation. This regulation applies to companies that have already received tax benefits as well as those that will receive them in the future.

The upstream plastic industry is entitled to tax holiday benefits because it is classified as a pioneer industry that meets the required criteria. This group includes basic organic chemical industries based on petroleum, natural gas, or coal, along with their integrated derivatives. These incentives are also relevant for the petrochemical industry, which produces essential raw materials in the plastic industry supply chain, such as olefins and polyolefins, used to manufacture polyethylene and polypropylene.

Additionally, the plastic raw material industry has opportunities to obtain tax allowances in accordance with Presidential Regulation No. 78 of 2015 and its derivative regulations

under Minister of Industry Regulation No. 48 of 2015. A tax allowance refers to a tax reduction calculated based on the amount of investment made. Corporate Income Tax (CIT) reductions are part of the tax allowance policy.

Table 5. An Example of Criteria for Granting Incentives in the Plastic Industry

Business Sector	KBLI* (2017)	Product Coverage	Criteria
Synthetic Resin and Plastic Raw Material Industry	20131	Polycarbonate, Polybutene, Polyacetol, Nylon filament yarn, Nylon tire cord, Polyethylene, Polypropylene, Polyvinyl chloride, Polyurethane, Super absorbent polymer, Polyester chip (PET resin)	<ul style="list-style-type: none"> Investment of at least Rp 100,000,000,000 (one hundred billion rupiah) or more; Employing 50 workers or more; Local content of 20% or more.

Source: Processed by researchers from Presidential Regulation No. 18/2015 and Minister of Industry Regulation No. 48/2015

*KBLI: Klasifikasi Baku Lapangan Usaha Indonesia or Indonesian Standard Classification of Business Fields

The Indonesian government provides Value-Added Tax (VAT) exemptions for plastic industries that meet specific criteria to support the expansion of production capacity and new investments. VAT is a tax imposed on transactions involving taxable goods (BKP) and/or taxable services (JKP) by individual taxpayers, corporate taxpayers, and the government registered as Taxable Entrepreneurs (PKP). This exemption applies to the import of capital goods, such as machinery and equipment used in the production process. The facility aims to reduce initial investment costs, accelerate factory modernization, and improve operational efficiency.

In the trade sector, the domestic sale of plastic products is subject to an 11% VAT, collected as output tax by sellers and used as input tax by buyers. Conversely, the export of plastic products benefits from a zero-rate tariff exemption, though it must still be documented in export records. This facility is designed to encourage export activities by providing tax incentives that reduce costs, making domestic plastic products more competitive in the international market.

Plastic is primarily made from raw materials such as crude oil and natural gas, both of which are non-renewable resources. The use of crude oil for plastic production has increased significantly, rising from 8% of global oil consumption in 2009 to 10% in 2019, and is projected to reach 20% by 2050 if the current trends in plastic use continue (World Economic Forum, 2016; Jefferson, 2019).

Plastic production has become extremely inexpensive due to substantial subsidies for oil, the primary raw material, in many countries, coupled with tax incentives provided to the plastic industry. These subsidies lower the production costs of virgin plastic (plastic made from new raw materials), making it cheaper than recycled plastic. This policy also enables the plastic industry to secure long-term contracts for oil at discounted prices, further strengthening economies of scale in plastic production.

However, the environmental costs associated with plastics, such as resource degradation and pollution, are often not reflected in market prices. A report by Dalberg Advisors & WWF (2021) estimates that the hidden environmental costs of plastic production are at least ten times higher than the market price of plastic itself. These costs include the negative environmental impacts of greenhouse gas emissions during the extraction, transportation, and production processes, as well as pollution caused by plastic waste.

3.2 The impact of incentives on inequality and sustainable development

One of the main challenges of plastic pollution in developing countries, including Indonesia, is the lack of waste management facilities and systems. To achieve its ambitious targets, Indonesia requires an investment of approximately \$18 billion for waste management and recycling between 2017 and 2040, as well as an increase in operational funding of \$1 billion per year until 2040 (NPAP Indonesia, 2020).

According to NPAP Indonesia (2020) estimates, there is potential for new sources of growth in Indonesia's circular economy sector. Investment opportunities in this sector are projected to reach \$10 billion per year by 2040. This growth is driven by the increased sales of recycled plastics, the use of environmentally friendly substitute materials, and the emergence of new business models supporting the circular economy concept. In addition to providing environmental benefits, this growth also opens new economic opportunities for various industries in Indonesia.

Currently, Indonesia does not have policies that significantly support the growth of the plastic recycling industry. Although plastic consumption is projected to continue increasing, the Ministry of Industry has not set specific targets for the use of recycled materials or "recycled content" in plastic production (KLHK, 2020). Without policies encouraging the use of recycled materials, the demand for new plastics will continue to rise, offering no long-term solution to the plastic pollution problem.

Initiatives such as the Extended Producer Responsibility (EPR) scheme, where producers are held accountable for the lifecycle of their products, have proven effective in various countries and present a potential option for Indonesia. This policy often includes financial

incentives to encourage producers to use recycled content in their products, thereby reducing the use of virgin plastics. However, a significant challenge faced by developing countries is the lack of adequate waste management infrastructure and systems. The informal sector often plays a crucial role in collecting and recycling plastic waste, albeit with minimal policy support (Climate Action Accelerator, 2023).

The Indonesian government can help mitigate investment risks in the circular economy by creating fiscal policies that support plastic recycling and the reduction of virgin plastics. This can be achieved through taxes or by reducing subsidies for fossil fuels used in plastic production. Such policies can also promote the use of recycled materials and enhance the competitiveness of secondary materials. Furthermore, the government can accelerate the transition to a plastic circular economy by implementing taxes on virgin plastics or banning the free distribution of single-use plastics. For instance, in the UK, a tax on plastic packaging with less than 30% recycled content has effectively driven the use of recycled plastics. Similarly, in countries like Portugal and Ireland, plastic bag taxes have successfully reduced usage by up to 70%.

To strengthen these efforts, Indonesia needs to adopt fiscal reforms such as imposing taxes on virgin plastics and providing subsidies for developing recycling infrastructure. By reducing subsidies for environmentally harmful practices, such as virgin plastic production, and redirecting resources toward the circular economy, the government can send the right market signals for companies to invest in the recycling sector (UNEP, 2021). This approach would support more sustainable waste management and reduce reliance on virgin plastics.





Case Box 1

Tax Incentives for the Largest Petrochemical Company in Indonesia

PT Chandra Asri Petrochemical Tbk (PT CAP) is the largest petrochemical company in Indonesia, focused on the production of polymers, olefins, and other derivative chemicals. The company plays a vital role in supplying raw materials for the plastic industry in Indonesia.

With an investment value of approximately USD 380 million or IDR 5.51 trillion (based on the average exchange rate of 14,500 in 2020), PT CAP has shown a significant commitment to developing this sector and has the potential to become a pioneer in the petrochemical industry. As a leader in its field, Chandra Asri promises to make a major contribution to the national economy through job creation and the development of the industrial supply chain. On January 21, 2020, PT CAP issued a press release stating that the company received a 100% Tax Holiday benefit for 20 years and 50% for the following two years (Chandra Asri, 2020).

In this context, there are provisions for granting tax incentives to pioneering companies with tax exemption periods of up to 20 years, as outlined in Article 3, Paragraph 4. PT Chandra Asri Petrochemical (PT CAP) benefits from this incentive as it falls within the category of pioneering industries in the petrochemical field, according to the Indonesian Standard Classification of Business Fields (KBLI) 2013¹, which includes the industry for producing synthetic resins and plastic raw materials. In addition to recognizing its status as a pioneering industry, this incentive is expected to reduce the amount of imported petrochemical products, especially olefins and polyolefins, which currently account for 50%.

However, according to the financial report, PT CAP has recorded a declining income trend over the past seven years. The company's losses have resulted

in it not being obligated to pay taxes, allowing it to continue benefiting from the tax incentives provided.

Table 6. Profit/Loss of PT CAP with income tax payments (2017 – 2023)
(in USD 000)

Year	Profit/ Loss for the Current Year	Current Tax Expense	Tax Benefit	Taxes Payable	Total Taxes Payable
2017	319.154	91.053	0	10.853	101.906
2018	182.316	58.804	0	4.163	62.967
2019	23.403	3988	0	3.988	7.976
2020	-25.123	0	0	2.125	2.125
2021	-149.399	0	27.076	3.988	3.988
2022	-149.538	0	27.076	1.683	1.683
2023	-31.547	0	23.017	8.049	8.049

Source: CAP Financial Reports 2017 – 2023 processed by the researcher

*Potential loss of state revenue based on the definition of Tax Holiday in the Minister of Finance Regulation No.130/PMK.010/2020

Based on the table above, PT Chandra Asri Petrochemical (CAP) experienced significant business losses during the period from 2021 to 2023, with a growing loss trend that peaked in 2022. During this period, PT CAP benefited from tax advantages ranging from 23 to 27 million USD. These benefits arose due to the losses recorded by the company, allowing them to offset fiscal losses with future profits through deferred tax mechanisms. As a result, the company was not only exempt from income tax obligations in the current year but also received tax refunds or reductions due to the losses incurred.

On the other hand, during the previous period (2017-2019), PT CAP recorded profits that contributed significantly to state tax revenue, with total tax payments reaching 91 million USD. This demonstrates the positive impact of the company's profitability on state income. However, if PT CAP were to receive a 20-year tax holiday, the state could potentially lose an average of 54 million USD in tax revenue per year. This situation could negatively

affect state finances in the long term, especially if the company returns to profitability in the future without the obligation to pay taxes.

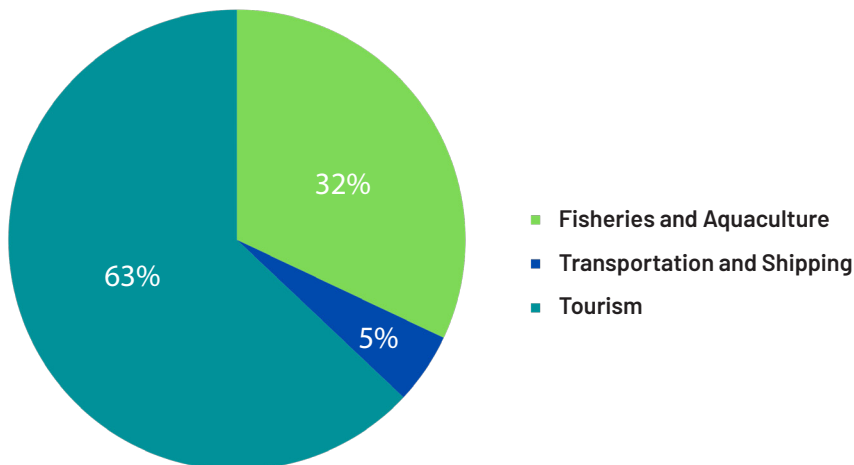
Note:

PT CAP was selected due to the availability of open data accessible to the public. Information related to the company was obtained from public information sources.

3.3 Environmental Responsibility: Costs Incurred by the Government and Society

Plastic pollution contaminating Indonesia's oceans poses a serious threat to the marine economy. The impact of this pollution is highly significant on the fishing and tourism industries, which together contribute about USD 48 billion to Indonesia's GDP (World Bank, 2021). An APEC report (2020) provides a detailed explanation of how marine debris, mostly composed of plastics, directly affects various sectors of Indonesia's marine economy. Marine litter not only pollutes ecosystems but also causes substantial economic losses in vital sectors such as fisheries, aquaculture, transportation, and marine tourism.

Figure 3. Percentage of total losses from Indonesian ocean pollution



Source: APEC (2020) Processed by the researcher



The fisheries and aquaculture sectors suffer losses of up to USD 147,025,200 per year due to plastic pollution that damages fish habitats, fishing equipment, and reduces catch yields. Plastics entangled in nets or covering coral reefs contribute to the decline in productivity in this sector, which is crucial for the livelihoods of many coastal communities in Indonesia.

Plastic pollution also impacts the transportation and shipping sectors, causing losses of around USD 22,000,000. Floating plastic waste can block ship engines or damage propellers, increasing repair costs and resulting in lost operational time.

The sector most affected by marine litter in Indonesia is tourism, with losses amounting to USD 289,560,600 per year. Polluted beaches and damaged marine ecosystems reduce the appeal of tourist destinations, leading to a decrease in visitors and a decline in revenue from tourism and related services.

Overall, plastic pollution results in more than USD 450 million in annual losses to Indonesia's marine economy. Marine litter not only harms the environment but also reduces economic opportunities in key sectors dependent on the sea.

As previously explained, plastic use has a significant impact on public health. One of the main issues is seafood contamination by microplastics, which can potentially harm human health. Unuofin and Igwaran (2023) in their study found that while seafood is an important source of nutrition for humans, it can also contribute to the well-being of individuals and populations. This is due to the potential of seafood as a route for the spread of metabolic disorders, foodborne diseases, and even the risk of death.

Additionally, the burning of plastic waste, which produces carcinogenic substances, can increase the risk of cancer and other health problems. According to a report from the World Health Organization (WHO), exposure to pollutants generated from plastic burning can contribute to various health disorders. For example, burning plastic in inadequate facilities, such as using plastic as fuel in tofu factories in Tropodo, releases high levels of dioxins. Research using chicken eggs around the factory showed dioxin levels exceeding safe limits for public health (Petrilk et al., 2019).

A study in the United States estimated that the healthcare costs caused by exposure to chemicals in plastics amount to \$249 billion, or approximately 1.22% of GDP. These costs are primarily driven by exposure to polybrominated diphenyl ethers (PBDEs) at about \$159 billion, followed by exposure to phthalates at \$66.7 billion and PFAS at \$22.4 billion (Trasande et al., 2024). The study was conducted by measuring plastic-related exposure for each chemical and linking it to specific disease outcomes.



3.4 Comparison of Plastic Industry Policies: Lessons from Other Countries

In the implementation of policies to address plastic pollution, several high GDP countries have adopted various approaches. Some countries have implemented bans on single-use plastics, while others have implemented pricing mechanisms as market interventions. These approaches can be seen in the table below.

Table 7. Latest Policies in the 15 Countries with the Highest GDP

Country Name	PDB	Continent	PDB Rank	Year	Policy
China	13.057,39	Asia	2	2022	General plan to ban the production of microplastics after December 31, 2020, and their sale after December 31, 2022.
Germany	54.298,97	Europe	3	2019	Packaging Law in Germany
India	2.713,428	Asia	5	2022	Ban on certain single-use plastics
United Kingdom	50.554,69	Europe	6	2018	A Green Future: Our 25-Year Plan to Improve the Environment
France	47.033,5	Europe	7	2016	Banning the provision of single-use plastic bags to consumers
Canada	56.417,79	North Amerika	10	2016	Regulating the use of microbeads in Personal Care Products Regulations
South Korea	34.049,34	Asia	14	2018	Cosmetics Law: Banning 'scrubbing beads' in cosmetics
Spain	34.378,88	Europe	15	2018	Royal Decree No. 293/2018 – Reducing plastic bag consumption and creating a Producer List; Pricing mechanism
Indonesia	5.205,477	Asia	16	2016	Pricing mechanism

Source: World Population Review (2023) & Knoblauch, Doris et al (2021), processed by researcher



Unfortunately, during the pandemic, some countries postponed the implementation of plastic reduction policies due to health, hygiene, and economic reasons (Loges & Jakobi, 2019). In the United States, several states suspended fees or bans on single-use plastics (SUPs) and even banned the use of reusable bags. The UK also postponed the ban on plastic straws, cotton buds, and drink stirrers for six months and cancelled the charge for plastic bags for online deliveries. Canada and South Australia also delayed the implementation of SUP bans. Meanwhile, Italy postponed the imposition of taxes on virgin plastic until 2021. Many countries used the pandemic as an excuse to delay plastic-related regulations.

This page intentionally left blank.





Section 4.

Closing

4.1 Conclusion

This research reveals the tax incentive policies provided to the plastic industry, such as tax holidays of up to 20 years and the exemption of import duties on raw materials. The main goal of these policies is to stimulate industrial growth and enhance its competitiveness in the global market. These policies have led to cheaper production of virgin plastic compared to recycled plastic. With these incentives, the virgin plastic industry has become more dominant because virgin plastic is priced more competitively. This situation has the potential to worsen plastic pollution and hinder efforts toward sustainable waste management.

The policies provided also contribute to negative externalities. One major issue in the plastic industry is the negative externalities generated, namely the social costs caused by plastic pollution, ecosystem damage, and impacts on human health. For example, marine pollution caused by non-biodegradable plastics can destroy marine ecosystems, while plastic waste accumulating on land requires significant costs for cleaning and rehabilitation processes. Additionally, plastic pollution also contributes to public health issues and air pollution. Thus, policies that do not consider environmental and public health impacts exacerbate the injustices borne by vulnerable groups.

Furthermore, tax incentives for the plastic industry create significant financial impacts on state revenues. The potential loss in tax revenue averages USD 54 million or IDR 810 billion per year, while the economic loss due to plastic pollution is estimated to be USD 450 million or IDR 6.75 trillion per year. Directly impacted sectors such as fisheries, transportation,



and tourism suffer huge losses due to plastic pollution. This burden adds pressure to the government budget, which must be allocated for mitigating the impacts of pollution, and reduces the welfare of affected communities.

These costs are often not reflected in the selling price of plastic products, thus becoming a burden for society and the state. In this context, tax incentives for the virgin plastic industry that do not account for these externalities can be considered unjust, as they encourage the continuation of a business model that harms the environment and increases the social costs that must be borne by the public.

Countries such as the UK, France, and India have successfully reduced virgin plastic consumption through plastic tax policies and bans on single-use plastics. The UK, for example, has implemented a tax on plastic packaging with low recycled content, which has been effective in increasing the use of recycled plastics. Several developed countries have also adopted the concept of Extended Producer Responsibility (EPR) to enhance producers' responsibility for plastic waste, successfully reducing the negative impact of plastics on the environment. This approach provides important reference points for Indonesia in aligning incentive policies with environmental sustainability goals.

This research also reveals a misalignment between economic policies and environmental objectives. While the government seeks to reduce plastic waste through a circular economy and bans on single-use plastics, tax incentives for the plastic industry continue to dominate fiscal policy. This creates a conflict between the drive for growth in the plastic industry and the targets for carbon emission reduction and sustainable development.

4.2 Recommendation

Based on the research findings that have been presented, we provide several recommendations to offer guidance or steps that can be taken by the government and the industrial world, as follows:

For the Government:

1. Ministry of Finance
 - The Ministry of Finance should immediately conduct a comprehensive review of tax incentive policies, both VAT and income tax, for the virgin plastic industry, whether from imports or the production of plastic precursors. This review should also take into account the negative externalities, such as environmental pollution, the costs of rehabilitation and remediation of plastic pollution, which ultimately must be borne by the general public.
 - The Ministry of Finance needs to review tax incentive policies for companies producing plastics, particularly the refining industry or industries that produce

olefins, aromatics, and ammonia, which manufacture precursors and single-use packaging. The review should consider sustainability aspects and corporate social responsibility. The government may consider mechanisms for imposing fairer taxes based on the “polluter pays” principle, where companies causing pollution should pay for the recovery and mitigation of those negative impacts.

- The Ministry of Finance should create policies regulating the provision of incentives for companies that develop and produce environmentally friendly alternatives to single-use plastics, such as reusable packaging, and incentives for manufacturers using recycled materials in their products.
 - The Ministry of Finance, as part of the Sustainable Finance Committee, should include extractive industries, including the plastic, olefin, and aromatic industries, as business activities that do not support the green economy.
2. Ministry of Environment (MoE)
- The Ministry of Environment (MoE) should develop a clear transition plan to implement plastic reduction policies gradually, with achievable deadlines. A phased ban on single-use plastics (SUPs) can be applied in critical sectors such as restaurants, retail stores, and markets.
 - MoE, together with the Ministry of Finance and the Ministry of Trade, should issue regulations that encourage the implementation of the Extended Producer Responsibility (EPR) system to ensure that products and packaging produced by companies that are recyclable are taken back by the producers for further processing in environmentally responsible ways.
3. The Ministry of Industry and the Ministry of Trade
- The Ministry of Industry and the Ministry of Environment (MoE) need to issue regulations banning the use of hazardous and toxic chemicals in plastic production and replace them with safer materials or other technical approaches.
 - The Ministry of Industry and the Ministry of Trade should develop and implement standards for environmentally friendly packaging, including restrictions on the use of plastics in packaging.

For Industry:

- Plastic manufacturing industries need to implement fair and responsible procurement policies that ensure raw materials for plastic production are free from environmental, social, and governance issues. The supply chains in these industries must adhere to responsible environmental and social business principles.

- Plastic manufacturing industries should review their transition plans and strategies for using raw materials derived from recyclates or recycled plastics (secondary plastics) rather than relying entirely on virgin materials.
- Plastic manufacturing industries must conduct environmental risk assessments, mitigate and address any risks arising from environmental and social aspects of their production processes and the products they manufacture, in order to prevent or reduce externalities.
- The olefin, aromatic, and ammonia industries producing plastics must improve transparency in pollution control and enhance the publication of reports related to emissions and discharges that are accessible to the public.



References

- APEC. (2020). Update of 2009 APEC Report on Economic Costs of Marine Debris to APEC Economies. APEC Oceans and Fisheries Working Group. <https://www.apec.org/Publications/2020/03/Update-of-2009-APEC-Report-on-Economic-Costs-of-Marine-Debris-to-APEC-Economies>.
- Aurisano et al. (2021). Chemicals of concern in plastic toys. <https://www.sciencedirect.com/science/article/pii/S0160412020321498>
- Badan Kebijakan Fiskal, Kementerian Keuangan. (2022). Laporan belanja perpajakan 2022 (Vol. 6). Jakarta: Badan Kebijakan Fiskal, Kementerian Keuangan. https://fiskal.kemenkeu.go.id/files/ter/file/1724298818_ter_buku-2_2022.pdf
- Behnisch et al. (2023). Global survey of dioxin- and thyroid hormone-like activities in consumer products and toys. <https://www.sciencedirect.com/science/article/pii/S0160412023003525>
- Chamas et al. (2020) ACS Sustainable Chem. Eng. 2020, 8, 9, 3494–3511 <https://doi.org/10.1021/acssuschemeng.9b06635>
- Chandra Asri. (2020). Chandra Asri Receives Tax Holiday for Second Petrochemical Complex. Retrieved from [https://www.chandra-asri.com/files/attachments/press_releases/2020/CAP%20-%20Siaran%20Pers%20-%20Tax%20Holiday%20Chandra%20Asri%20Perkasa%20\(ENG\).pdf](https://www.chandra-asri.com/files/attachments/press_releases/2020/CAP%20-%20Siaran%20Pers%20-%20Tax%20Holiday%20Chandra%20Asri%20Perkasa%20(ENG).pdf)
- Climate Action Accelerator. (2023). Recycle waste in developing countries: Challenges and solutions. Retrieved November 13, 2024, from <https://climateactionaccelerator.org/solutions/recycle-waste-developing-countries/>
- Dalberg Advisors. (2021). Plastics: The Costs to Society, the Environment and the Economy. <https://media.wwf.no/assets/attachments/Plastics-the-cost-to-society-the-environment-and-the-economy-WWF-report.pdf>
- Flaws et al. (2020). Plastics, EDCs & Health. <https://www.ipen.org/documents/plastics-edcs-health>
- Geyer, R. (2020). Production, use and fate of synthetic polymers in plastic waste and recycling. In *Plastic Waste and Recycling: Environmental Impact, Societal Issues, Prevention, and Solutions*. Letcher, T.M. (ed.). Cambridge, MA: Academic Press.13-32. <https://doi.org/10.1016/B978-0-12-817880-5.00002-5>
- GRID-Arendal (2024). Climate impacts of plastics: Global actions to stem climate change and end plastic pollution. Norway. <https://www.grida.no/resources/15041>
- Jambeck et al. (2015). Plastic waste inputs from land into the ocean. *Science*, 347 (6223), p.768-771. <https://www.science.org/doi/10.1126/science.1260352>
- Jefferson. (2019). Whither Plastics?—Petrochemicals, plastics and sustainability in a garbage-riddled world. *Energy Research & Social Science* 2019 Vol. 56 Pages 101229 DOI: <https://doi.org/10.1016/j.erss.2019.101229>



- Kartha et al. (2020). The Carbon Inequality Era: An assessment of the global distribution of consumption emissions among individuals from 1990 to 2015 and beyond. Joint Research Report. Stockholm Environment Institute and Oxfam International. <https://www.sei.org/publications/the-carbon-inequality-era/>
- Kementerian Perindustrian. (2015). Rencana Induk Pembangunan Industri Nasional (RIPIN) 2015-2035. <https://drive.google.com/file/d/18fJmmGQrQOrQfzIFDg1JOpSo4iTmauiM/view>
- Kementerian Perindustrian. (2019). Pengembangan Industri Plastik Nasional. <https://shorturl.at/mJqKV>
- Kementerian Keuangan Republik Indonesia. (2015). Peraturan Menteri Keuangan Republik Indonesia Nomor 159/PMK.010/2015 tentang Pemberian Fasilitas Pengurangan Pajak Penghasilan Badan. Kementerian Keuangan Republik Indonesia. <https://peraturan.bpk.go.id/Details/115951/pmk-no-159pmk0102015>
- KLHK. (2020). Handbook FAQ PermenLHK No. 75 Tahun 2019 tentang Peta Jalan Pengurangan Sampah oleh Produsen. KLHK - GIZ - ASEAN Secretariat 2019 https://info3r.menlhk.go.id/uploads/faq/1706772599_Handbook%20FAQ%20PermenLHK%20No.%2075%20Tahun%202019.pdf
- Kompas TV. (2024). Lebih dari 40 Orang Terdampak Bau Kebocoran Pabrik Kimia PT Chandra Asri Petrochemical! <https://www.kompas.tv/video/479279/lebih-dari-40-orang-terdampak-bau-kebocoran-pabrik-kimia-pt-chandra-asri-petrochemical>
- Kuribara et al. (2024). Atmospheric concentrations of per- and polyfluoroalkyl substances and their emissions at a waste recycling facility producing refuse-derived paper and plastics densified fuel. <https://www.sciencedirect.com/science/article/abs/pii/S0048969724066129>
- Kühn, Susanne and Franeker, Jan Andries van. (2020). Quantitative overview of marine debris ingested by marine megafauna, *Marine Pollution Bulletin*, Volume 151. <https://www.sciencedirect.com/science/article/pii/S0025326X19310148#ab0005>
- Knoblauch, D., & Mederake, L. (2021). Government policies combating plastic pollution. *Current Opinion in Toxicology*, 28, 87–96. <https://doi.org/10.1016/j.cotox.2021.10.003>.
- Laurent et al. (2017). Emisi plastik sungai ke lautan dunia. <https://shorturl.at/PzNer>
- Lebreton et al. (2017). Emisi plastik sungai ke lautan dunia. <https://www.nature.com/articles/ncomms15611>
- Levine et al. (2022). Temporal trends in sperm count: a systematic review and meta-regression analysis of samples collected globally in the 20th and 21st centuries. <https://academic.oup.com/humupd/article/29/2/157/6824414>
- Loges, B., & Jakobi, A. P. (2019). Not more than the sum of its parts: De-centered norm dynamics and the governance of plastics. *Environmental Politics*. <https://doi.org/10.1080/09644016.2019.1703385>.
- Lopez, Gabriel, D. Keiner, M. Fasihi, T. Koironen and C. Breyer. 2023. From fossil to green chemicals: sustainable pathways and new carbon feedstocks for the global chemical industry *Energy & Environmental Science* 2023 Vol. 16 Issue 7 Pages 2879-2909 <https://dx.doi.org/10.1039/d3ee00478c>

- McIlgorm, A., Raubenheimer, K., & McIlgorm, D. E. (2020). Update of 2009 APEC report on economic costs of marine debris to APEC economies. APEC Ocean and Fisheries Working Group. University of Wollongong, Australia. <https://www.apec.org/publications/2020/03/update-of-2009-apec-report-on-economic-costs-of-marine-debris-to-apec-economies>
- Molfetas, M. (2024). A Plastics Treaty is Really About Fossil Fuels. <https://www.globalpolicyjournal.com/blog/07/05/2024/plastics-treaty-really-about-fossil-fuels>
- NPAP Indonesia. (2020). Financing System Change to Radically Reduce Plastic Pollution in Indonesia: A Financing Roadmap Developed by the Indonesia National Plastic Action Partnership. <https://pacecircular.org/sites/default/files/2021-03/NPAP-Indonesia-Financing-Roadmap%20%281%29.pdf>
- Petrik et al. (2022). Monitoring dioxins and PCBs in eggs as sensitive indicators for environmental pollution and global contaminated sites and recommendations for reducing and controlling releases and exposure. <https://www.sciencedirect.com/science/article/pii/S2405665022000166>
- Petrik et, al. (2019). Plastic waste flooding Indonesia leads to toxic chemical contamination of the food chain. POPs Monitoring in Free-Range Chicken Eggs Toxic Plastics PFAS Project. https://ipen.org/sites/default/files/documents/indonesia-egg-report-long-v1_2web-en.pdf
- Pemerintah Indonesia. (2015). Peraturan Pemerintah Republik Indonesia Nomor 18 Tahun 2015 tentang Fasilitas Pajak Penghasilan untuk Penanaman Modal di Bidang-Bidang Usaha Tertentu dan/atau di Daerah-Daerah Tertentu. <https://peraturan.bpk.go.id/Details/5582>
- PT Chandra Asri Pacific Tbk. (2023). Final report for the year ended December 31, 2023. PT Chandra Asri Pacific Tbk. <https://www.chandra-asri.com/files/attachments/reports/annual/Chandra%20Asri%20Group%20-%20Annual%20Report%202023.pdf>
- Portal Informasi Indonesia. (2022). Indonesia Menargetkan Kurangi Sampah Plastik Hingga 70 persen pada 2025?. <https://indonesia.go.id/kategori/kabar-terkini-g20/6194/indonesia-menargetkan-kurangi-sampah-plastik-hingga-70-persen-pada-2025?lang=1>
- Rockström et al. (2009) *Ecology & Society* 14(2): 32 Update post 2015: http://www.post2015hlp.org/wp-content/uploads/2013/06/Rockstroem-Sachs-OehmanSchmidt-Traub_Sustainable-Development-and-Planetary-Boundaries.pdf
- The Ocean Cleanup. (2024). Penjelasan tentang polusi plastik di laut. https://theoceancleanup.com.translate.google/ocean-plastic-pollution-explained/?_x_tr_sl=en&_x_tr_tl=id&_x_tr_hl=id&_x_tr_pto=sge
- The Minderoo-Monaco Commission on Plastics and Human Health. *Annals of Global Health*. 2023; 89(1): 23, 1–215. DOI: <https://doi.org/10.5334/aogh.4056>
- Trasande et al. (2024). Chemicals Used in Plastic Materials: An Estimate of the Attributable Disease Burden and Costs in the United States. *Journal of the Endocrine Society*, 8(2), bvad163. <https://doi.org/10.1210/jendso/bvad163>
- UNEP. (2022). End plastic pollution: Towards an international legally binding instrument. United Nations Environment Assembly of the United Nations Environment Programme. Nairobi, Kenya. <https://fctc.who.int/news-and-resources/publications/m/item/end-plastic-pollution-towards-an-international-legally-binding-instrument---global-plastics-treaty>

- UNEP. (2022). Resolution adopted by the United Nations Environment Assembly on 2 March 2022. <https://shorturl.at/nw9q7>
- UNEP. (2021). From Pollution to Solution. A global assessment of marine litter and plastic pollution Nairobi. https://malaysia.un.org/sites/default/files/2022-02/POLSOLSum_1.pdf
- UNEP. (2021). From Pollution to Solution: A global assessment of marine litter and plastic pollution. <https://www.unep.org/interactives/pollution-to-solution/>
- Unuofin, John Onolame and Igwaran, Aboi. (2023). Microplastics in seafood: Implications for food security, safety, and human health. <https://www.sciencedirect.com/science/article/pii/S1385110123000795>
- Villarrubia-Gomes, et al. (2024). Plastics pollution exacerbates the impacts of all planetary boundaries. <https://www.sciencedirect.com/science/article/pii/S2590332224005414?via%3Dihub>
- Wagner et al. (2024). State of the science on plastic chemicals - Identifying and addressing chemicals and polymers of concern. <http://dx.doi.org/10.5281/zenodo.10701706>
- Wei et al. (2024). Plastic pollution amplified by a warming climate. <https://www.nature.com/articles/s41467-024-46127-9>
- WRI Indonesia. (2023). Dukung Target Indonesia Bebas Sampah 2025, NPAP dan Enviu Dorong Sistem Guna Ulang Penanggulangan Sampah Plastik Efektif Dari Hulu. <https://wri-indonesia.org/id/berita/dukung-target-indonesia-bebas-sampah-2025-npap-dan-enviu-dorong-sistem-guna-ulang>
- World Bank. (2024). Tackling the Plastics Pollution Crisis by Channeling Private Capital to Projects that Reduce Plastic Waste. <https://www.worldbank.org/en/news/feature/2024/01/25/tackling-the-plastics-pollution-crisis-by-channeling-private-capital-to-projects-that-reduce-plastic-waste>
- World Bank. (2022). Stemming the Plastics Tide in Indonesia. <https://thedocs.worldbank.org/en/doc/e0598fed55bcf0f2d45c89634a4ca5bb-0070012022/original/Indonesia-FactSheet-Marine-Debris-APRIL-2022.pdf>
- World Bank. (2021). Laporan Iklim dan Pembangunan Negara. <https://documents1.worldbank.org/curated/en/099063023033517696/pdf/P177245084c8e70530ab190fc2ee824f502.pdf>
- World Economic Forum. (2016). Global Energy Architecture Performance Index Report 2016. https://www3.weforum.org/docs/WEF_Energy_Architecture_Performance_Index_2016.pdf
- World Population Review. (2024). GDP ranked by country 2024. <https://worldpopulationreview.com/countries/by-gdp>.
- Xu et al. (2024). Levels, Distribution and Ecological Risk Assessment of PBDEs in Soils and Plants Around the Engineering Plastics Factory. <https://link.springer.com/article/10.1007/s00128-024-03891-0>
- Zero Waste Indonesia. (2024). Yang Perlu Kamu Ketahui Mengenai Climate Change. <https://zerowaste.id/zero-waste-lifestyle/yang-perlu-diketahui-mengenai-climate-change/>
- Zero Waste Indonesia. (2024). Bagaimana Plastik Berpengaruh Pada Perubahan Iklim?. <https://zerowaste.id/zero-waste-lifestyle/bagaimana-plastik-berpengaruh-pada-perubahan-iklim/>





P R A K A R S A
Welfare Initiative for Better Societies

The PRAKARSA is a research and policy advocacy institution, a “think and do tank”, based on civil society organizations. PRAKARSA established to create a democratic, just, and prosperous society through ideas development, policy and institutional reforms, and evidence-based problem-solving innovations. The PRAKARSA focuses on fiscal policy, social policy, and sustainable development issues.

We conducts research activities, policy analysis, and training on a wide range of topics related to welfare issues. In executing its various activities, The PRAKARSA consistently adopts collaborative and engagement approaches to collaborate with varied parties: governments, parliaments, civil society organizations, universities, think tanks, international organizations, private sectors, development donor agencies, and mass media.





We believe that this multi-stakeholder approach will strengthen our works and initiatives in the knowledge production and dissemination as well as the evidence-based policymaking process. We also believe that networking will facilitate and reinforce one another. Therefore, we have received support from various donors and participated in multifarious initiatives with The PRAKARSA partners.

www.theprakarsa.org

Komplek Rawa Bambu 1
Jl. A No. 8E Kel. Pasar Minggu,
Kec. Pasar Minggu, Jakarta Selatan

 +62 21 7811 798

 perkumpulan@theprakarsa.org

    The PRAKARSA

  PRAKARSA Podcast