



United Nations
Office on Drugs and Crime

HOW WASTE TRAFFICKING HINDERS THE DEVELOPMENT OF CIRCULAR ECONOMIES

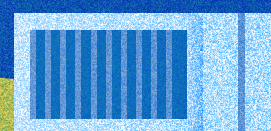
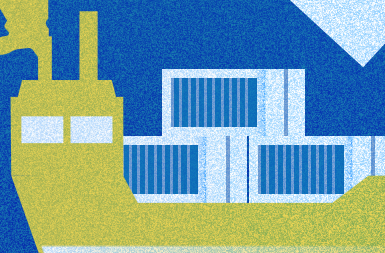
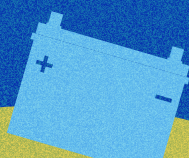
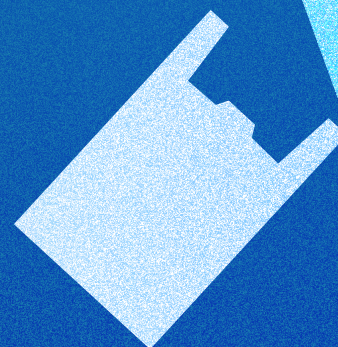
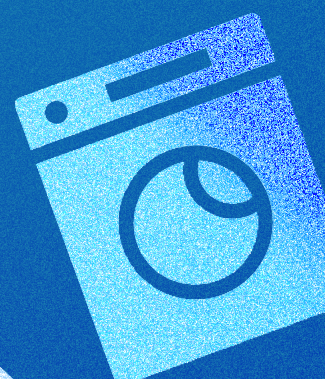
Impacts, Challenges and Solutions:
Lessons from Southeast Asia



Unwaste

Tackling waste trafficking to support a circular economy

Discussion Paper



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It builds on the extensive research on the legal and illegal trade in waste conducted by the *Unwaste* team and published in *Turning the Tide*, a report that readers are encouraged to consult for a more in-depth analysis of these issues. This paper also takes into consideration discussions held during the *Unwaste* Second Joint Regional Meeting (29–31 May 2024) and the Third Regional Technical Seminar on Waste Trafficking and Circular Economy (15–16 January 2025).

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EXECUTIVE SUMMARY

The increase in waste generation – including the emergence and reemergence of waste streams that are difficult and very expensive to manage – is the root cause of waste crime and waste trafficking. Waste trafficking can severely disrupt legal trade flows and prevent recycled materials from re-entering the production system. It is imperative, therefore, that measures aimed at tackling waste trafficking facilitate the legal trade in waste, both complementing and supporting the transition to circular and green economies. Such measures should be in place across countries and regions.

Between 2017 and 2021, ASEAN countries collectively imported more than 100 million tonnes of metal, paper and plastic waste, valued at nearly \$50 billion. This represents 17% of the global trade in plastic waste and 20% of the global trade in wastepaper. During this period, ASEAN countries reported a steady growth in waste imports, with notable spikes in 2018 and 2021. Import patterns were influenced by China's progressive ban on solid waste imports and other restrictions from 2018 onwards, measures that led to fluctuations in imports of plastic, paper and metal waste in ASEAN countries.

This discussion paper aims to support governments and stakeholders by fostering a shared understanding of the links between the waste trade, a circular economy and waste trafficking. The paper examines how waste trafficking hinders the transition to a circular economy. It explores the impacts of waste trafficking, the challenges to addressing it, and potential solutions, and showcases best practices from Southeast Asia.

To ensure clarity and consistency, this paper uses the following definition of a circular economy:

*"The circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources."*²

ASEAN as an organization has taken a strong position on the transboundary movement of waste. In 2017, ASEAN issued a Joint Declaration on Hazardous Chemicals and Wastes Management, which calls on Member States to strengthen their cooperation and coordination towards the establishment of environmentally sound systems for managing hazardous chemicals and waste.

To support ASEAN member states in the practical implementation of these declarations and goals, this paper provides several recommendations. These include establishing a comprehensive legal framework and addressing loopholes; promoting sustainable practices by encouraging the 9Rs; implementing Extended Producer Responsibility (EPR); and fostering collaborative ASEAN efforts to create joint action plans and harmonize policies. In addition, it recommends supporting capacity building by developing and delivering training, augmenting resources, and raising public awareness.



SECTION 1

Background

The increase in waste generation – including the emergence and reemergence of waste streams that are difficult and very expensive to manage – is the root cause of waste crime and waste trafficking. The current linear economic model is based on the *take–make–consume–dispose* pattern and relies heavily on the use of large quantities of materials and energy, mainly for short-lived products.³ This pattern has resulted in the generation of massive amounts of waste worldwide in recent decades – with no decrease in sight. According to the World Bank, global waste will increase by 70% from current levels, to 3.4 billion tonnes per year by 2050, driven by rapid urbanization, population growth and consumption habits.⁴

The international waste trade has become a thriving global business. The sharp rise in the cost of waste treatment and disposal in high-income countries in the 1980s meant that sending waste to lower and middle-income countries was a cost-effective solution. Some of these countries were in the process of embracing the industrial revolution and had a flourishing secondary materials industry. However, the influx of waste caused a range of problems, as many of the recipient countries were not equipped to handle the shipments. In addition, transnational organized criminal groups moved waste across borders illegally, taking advantage of loopholes in environmental regulations and gaps in law enforcement capacity. As a result, hazardous, highly contaminated and non-recyclable waste was shipped to countries that lacked the capacity to manage it. This waste ended up in illegal landfills or dumpsites – or was burnt in the open – causing significant health, environmental and economic impacts in the receiving countries.⁵

The take–make–consume–dispose model covers neither the true costs of the resources used in production, nor the true costs of waste management. Waste trafficking is rising exponentially under this model. The legal waste trade, which is driven by competitive advantage, is vital for the global economy, as long as it is carried out in adherence with the Basel and other relevant conventions. By contrast, the illegal waste trade – also known as waste trafficking – can severely disrupt legal trade flows and prevent recycled materials from re-entering the production system. This constitutes a significant threat to the circular economy model. Some countries have already chosen to ban the import of certain types of waste, to avoid importing the waste problems of others. Other countries are introducing strict measures to allow only imports of waste that can feed their own industrial production systems. Measures aimed at tackling waste trafficking in many countries and regions should support the legal waste trade, in order to facilitate the transition to circular and green economies.⁶



SECTION 2

Aim and methodology

This discussion paper was developed to help governments and stakeholders promote a shared understanding of the links between the waste trade, a circular economy and waste trafficking. The paper examines how waste trafficking hinders the transition to a circular economy. It explores the impacts of waste trafficking, the challenges to addressing it, and potential solutions, showcasing best practices from Southeast Asia.

This paper builds on the extensive research on the waste trade and waste trafficking undertaken by UNODC's *Unwaste* team and published in the comprehensive *Turning the Tide* report (2024). It also takes into consideration inputs from the *Unwaste* project's Second Joint Regional Meeting (29–31 May 2024)⁷ and Third Regional Technical Seminar (15–16 January 2025).⁸

A qualitative approach, grounded in the following assumptions, was used in the development of this paper:

- » Waste traffickers often use similar methods (*modi operandi*) for different types of waste (e.g. misdeclaration).
- » Several cross-cutting issues affect different waste streams, making recycling more difficult. For example, waste may be contaminated with dirt, oil or hazardous substances, or mixed with other waste types. In addition, waste streams such as textiles and electronics are often misdeclared as “used goods”.
- » Waste trafficking can hinder circular economic development, as it risks contaminating the quality of the product (waste) and the material value chain.
- » A circular economy may help reduce waste by reducing demand and keeping products and materials within the economic cycle, ultimately reducing the opportunities for waste trafficking.
- » Robust national regulations, enforcement of non-compliance and trade agreements are essential for creating strong links between a circular economy and waste management.

SECTION 3

Overview of the global legal and illegal trade in waste

Waste trafficking is highly profitable, generating billions of dollars per year. The high-profit potential of this crime, coupled with the complexity of the waste trade supply chain and limited enforcement, makes the waste sector vulnerable to illegal activity. Global concern is increasing over the **connection between organized crime, corruption and money laundering, and waste trafficking**. The perpetrators of waste trafficking include bad actors in legitimate waste management companies and organized criminal groups.⁹ These groups use sophisticated methods, such as money laundering to disguise the proceeds of their criminal activities, making it difficult for authorities to trace the illicit funds back to their source. There is also evidence to show that the waste sector is highly vulnerable to corruption, as criminals see opportunities to bribe officials to issue permits, falsify documents, overlook violations and obstruct inspections.¹⁰ The perpetrators carry out their activities using the various layers of the internet and regular social media or e-commerce platforms.¹¹

There is little data on the scale of waste trafficking. Illegal cases have been detected and seized during inspections as part of enforcement operations (e.g. NOXIA and Demeter) and projects (e.g. IMPEL SWEAP).¹² Recording such cases is essential for highlighting trends over time and informing decisions for the countries involved. The Basel Convention national reports provide data but are limited by various factors: they only include closed cases, the reporting rate is low (under 50%), and most of the national reports come from European countries. As these data are not comprehensive, it is difficult to estimate the exact scale of waste trafficking.¹³ According to recent reports, waste trafficking is regarded as one of the most significant crimes that affect the environment,^{14,15} impacting human health and well-being, ecosystem integrity, and economic development. It also undermines the achievement of the SDGs and – as is the focus of this report – the transition to a circular economy.

*Trends in the ASEAN region*¹⁶

Between 2017 and 2021, ASEAN countries collectively imported more than 100 million tonnes of metal, paper and plastic waste, valued at nearly \$50 billion. These imports accounted for 17% of the global trade in plastic waste and 20% of the global trade in wastepaper. During this period, ASEAN countries reported a steady growth in waste imports, with notable increases in 2018 and 2021.

Import patterns were influenced by China's progressive ban on solid waste and other restrictions from 2018 onwards.¹⁷ These measures led to an influx of imports – both legal and illegal – of plastic, paper and metal waste into the ASEAN region, notably to Indonesia, Malaysia, Thailand and Viet Nam. These four countries responded by enacting stringent requirements and regulations to control the influx of waste streams, including partial and complete bans on the import of certain types of waste, to protect the environment and human health.

However, despite bans and restrictions on waste trade in the region, problematic waste continues to reach these and other Southeast Asian countries.¹⁸ Challenges faced by waste-exporting and waste-importing countries include a lack of waste traceability, insufficient enforcement capacity and inadequate use of available penalties for illegal waste trade activities.

According to the results of various enforcement operations,¹⁹ Southeast Asia remains a targeted destination for illegal waste shipments, as indicated by data from the aforementioned SWEAP project, Operations Demeter and NOXIA, and information shared by some Southeast Asian countries. According to the information provided by the four Southeast Asian countries surveyed under the *Unwaste* project, Europe, North America and East Asia are consistently identified as the primary regions of origin for illegal waste shipments to Southeast Asia.²⁰

SECTION 4

Striving towards a circular economy

The circular economy is an innovative economic model that challenges the current –linear – pattern of extracting (taking), producing (making), consuming and discarding.

Defining a circular economy

In this discussion paper, we use the following definition for a circular economy:

“The circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.”²¹

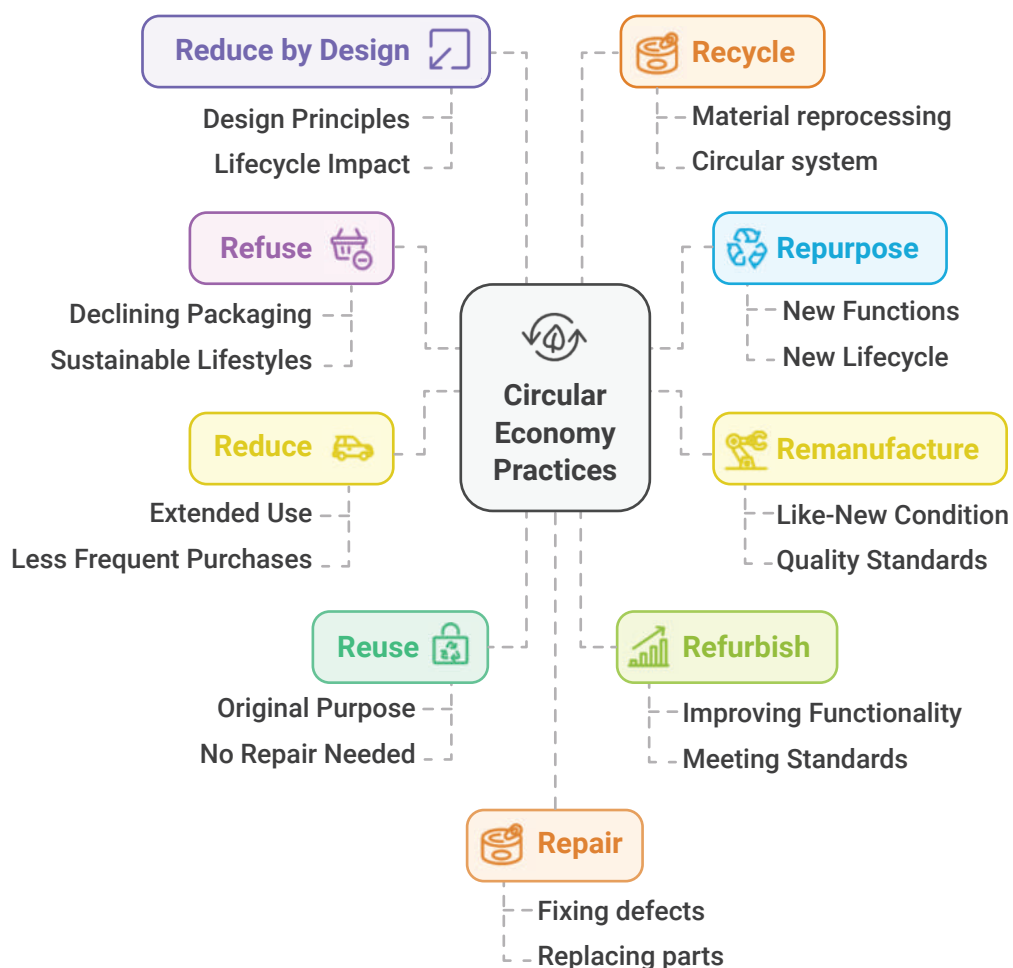


Circularity can be achieved through the operation or combination of the following processes:²²

- 1. Reduce by design.** Reducing the amount of material used, particularly raw material, should be applied as an overall guiding principle from the earliest design stages of any product or service. Reducing by design influences every stage of a product or service's life cycle, as fewer raw materials are extracted in the first place, and production is optimized to use fewer resources.
- 2. Refuse.** Refusal involves consciously declining unnecessary purchases. This choice promotes a shift towards more sustainable lifestyles, such as declining the option of packaging, shopping bags, or other non-essential products and services. Refuse can also apply to specific product components, such as refusing the use of hazardous substances in design.
- 3. Reduce** encourages people to reconsider how to meet their needs and achieve their goals with minimal impact on the environment and society. This involves choosing to use items and services for longer, and making purchases less often.
- 4. Reuse,** according to the Basel Convention, is the practice of using a product, object or material for its original purpose without the need for repair or refurbishment. This places the item outside the category of waste.

5. **Repair** involves addressing a specific defect in an item, whether waste or product, by fixing the fault or replacing faulty parts, thereby restoring its original intended function.
6. **Refurbish** means modifying a waste item or product to restore or improve functionality and meet technical standards or regulations, enabling its use for at least its original purpose. This process extends the product's service life without increasing its value and may occur during maintenance activities.
7. **Remanufacture** refers to an industrial process in which used products or parts are restored to like-new or better condition, meeting strict engineering and quality standards. This process typically results in fully warranted products, and companies that perform remanufacturing are recognized as producers of remanufactured goods.
8. **Repurpose**. Repurposing involves adapting discarded goods or components for a different function, thereby extending their life cycle (e.g. using plastics in handbags). Transforming old or discarded items into useful products allows them to re-enter the economy, preserving some, or even all, of their original value.
9. **Recycle**. Recycling encompasses operations that divert waste from disposal, allowing materials to re-enter the circular system. Recycling generally involves reprocessing waste into new products, materials or substances, although these may not serve their original purpose. It excludes processes that solely recover energy from waste, such as municipal waste incineration.²³

Figure 1: The nine processes of a circular economy, sometimes referred to as 9R. Image: Generated by Napkin AI



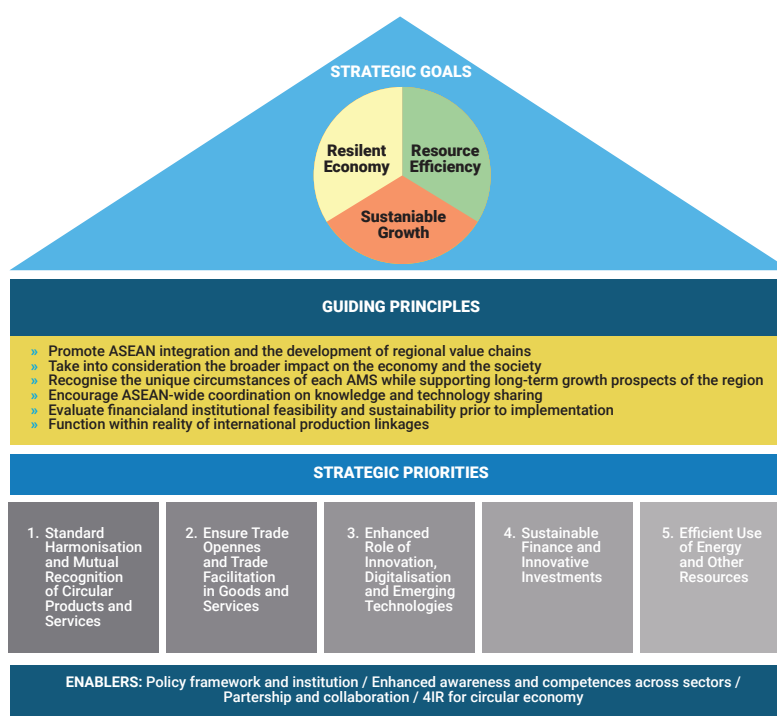
ASEAN Circular Economy Framework

In 2021, ASEAN adopted the *Framework for Circular Economy for the ASEAN Economic Community*. Adopted at the 20th AEC Council Meeting, the framework supports ASEAN's long-term objectives of economic resilience, resource efficiency, and sustainable, inclusive growth.

ASEAN's shift toward a circular economy is based on five strategic priorities:

1. Harmonizing standards and mutual recognition for circular products and services
2. Promoting trade openness and facilitation for circular goods and services
3. Strengthening innovation, digitalization and green technology
4. Advancing competitive sustainable finance and innovative ESG investments
5. Ensuring efficient use of energy and other resources

Figure 2: Framework for Circular Economy for the ASEAN Economic Community. Source: ASEAN Secretariat



ASEAN's circular economy approach includes an Implementation Plan and a Work Program. The Implementation Plan, which covers 2023–2030, addresses sectors such as agriculture, energy and transport, outlining 67 initiatives categorized into standards, trade facilitation, access to financing, and capacity building. The Work Program, with a targeted implementation period of five years, focuses on capacity building across all sectors.

SECTION 5

Mapping the nexus between waste trafficking and circular economy

The European Union estimates that up to 30% of its waste shipments may be illegal.²⁴ Such illegal shipments constitute waste trafficking, and from a circular economy perspective, they introduce hazardous and non-recyclable materials into the recycling stream. This contamination compromises the recyclability of waste, often leading to its disposal in landfills or through illegal burning. This, in turn, causes an array of negative social, economic and environmental impacts in the destination countries.

Perpetrators of waste trafficking exploit legal and enforcement gaps as well as inadequately or inconsistently implemented policies to illegally move waste across borders and dispose of it. They mainly target types of waste that are expensive to process or dispose of in the countries of origin. This situation discourages proper waste management practices in both source and destination countries, disrupting the flow of clean waste to the recycling industry. Exporting countries have thus been able to offload their waste problems onto other countries cheaply, undermining domestic circular economy efforts. And while importing countries intend to use the imported waste as raw material for new products, when waste is trafficked, they end up with illegal waste requiring costly decontamination or disposal. Also, importing waste (and, in some cases, circumventing regulations and exceeding import quotas) results in a decrease in demand from the local recycling plants for domestic waste. This in turn discourages the establishment of robust domestic and industrial waste segregation systems, and hinders the collection of waste materials generated locally.

Waste management and the informal sector

The informal waste sector is where workers and economic units are involved in solid waste collection, recovery and recycling activities that are not, or not sufficiently, covered by formal arrangements in law or in practice.²⁵ In countries with gaps in waste collection and segregation systems, workers from the informal sector play an important role in waste management by recovering valuable materials.

The informal waste sector provides a livelihood to about 1% of the urban population in low and middle-income countries. Worldwide, therefore, some 15 million people survive by working with waste and recovering materials from streets and landfills.²⁶ They often lack legal protection, labour rights, and access to medical care or retirement benefits.^{27, 28}

While the global recycling industry is largely male-dominated,²⁹ women, girls and children play an important role in the informal waste sector. In some countries, women working in the waste management sector face significant exposure to harmful substances like dioxins and furans, released during the burning of waste. These toxic chemicals can affect the hormonal system, causing severe health problems for women, such as endometriosis or prolonged and heavy menstrual bleeding.³⁰

Low-income neighbourhoods and informal sector workers tend to bear the brunt of the negative impacts of waste trafficking. Highly polluting recycling methods, such as burning plastic waste and recovering metals from e-waste, harm human health and the environment, directly affecting waste pickers and the communities living near dumpsites. Not only are these communities continuously exposed to hazardous substances and fumes, they also face the risk of fatal accidents. For example, 114 people died in a landslide at a dumpsite in Ethiopia in 2017. Similarly, 26 people died and a further 39 were declared missing after a landslide at a landfill in Uganda in 2024.^{31, 32}

Waste traffickers tend to target countries with weaker or poorly enforced waste import regulations and inadequate waste management systems.³³ In such countries, the people working in the informal waste sector may perceive any imported waste as a possible source of income, regardless of whether the waste is illegal. This is partly because the environmental externalities generated by informal

practices, notably impacts on natural resources and health, are not accounted for.³⁴ Working with actors from the informal sector, where the pay is generally low, can allow businesses or individuals involved in the illegal waste trade to extract the valuable parts of waste cheaply, and generate profits. While recovering such materials from metals and plastics can contribute to resource recovery and reduce the need for virgin materials, the practices used to do so are often unsafe.

Informal waste pickers play a crucial role in reducing plastic pollution. Their work helps bridge a gap in waste management, especially in underserved and marginalized urban areas where local governments provide limited services. This trend is also evident in countries such as Pakistan and the Philippines, where informal waste collectors contribute to nearly half of the total plastic waste collection.³⁵

Summary of challenges related to waste trafficking and the informal sector

Environmental damage

Pollution and health risks: Illegal waste disposal often causes severe environmental harm. Toxic substances from improperly managed waste can contaminate soil and water sources, posing significant health risks to local populations. The informal sector frequently fails to implement adequate safety measures, leading to hazardous working conditions and unsafe exposure to toxic materials. This can lead to long-term public health crises that strain local healthcare systems.

Regulatory evasion and crime

Exploitation of loopholes: The illegal trade thrives on weak enforcement of environmental laws. Traffickers exploit gaps in regulations to operate with minimal risk of prosecution. This undermines legitimate businesses that comply with environmental standards.

Involvement of organized criminal groups:³⁶ Waste trafficking is often linked to organized crime networks that also engage in other criminal activities such as money laundering and tax fraud. The presence of crime groups can cause or result in violence, insecurity and competition. It can also exacerbate social issues such as inequality and limited access to employment, and it can complicate law enforcement efforts.

Impact on local communities

Social inequality: While the informal sector may provide jobs, it often perpetuates cycles of poverty and exploitation. Workers in these sectors typically lack rights and protection, and they face dangerous working conditions without adequate compensation or support.

It is therefore important to take into account the informal sector and integrate it into the circular economy. This can be done through measures such as the following:³⁷

1. Encouraging cooperation and dialogue between the informal sector, waste re-sellers, recycling facilities and the government
2. Raising awareness about the benefits of a circular economy and the informal sector's participation within its processes
3. Providing incentives to all stakeholders to integrate the activities of the informal sector into the circular economy
4. Enhancing and harmonizing the legal framework to regulate the informal sector with regard to registration, permits, and compliance with guidelines and standards
5. Providing guidelines or regulations on biosafety, biosecurity and sanitary practices
6. Ensuring minimum standards of health and safety, prices, social security, and other safeguards for waste collectors in the informal sector, for example by setting up waste collectors' associations
7. Providing technical training in waste management, covering recyclable waste types, waste segregation practices and material extraction methods
8. Setting up government-managed or licensed waste processing facilities to purchase and manage waste collected by the informal sector
9. Strengthening prevention, detection and enforcement activities to combat the import of illegal waste

Impact of waste trafficking on circular economy transition efforts

The circular economy processes mentioned in Section 4 may unfold differently depending on context as well as on the social, economic, technological and policy situation in a country. Waste streams such as plastics, e-waste and hazardous waste are often more costly to manage and more likely to be shipped or disposed of illegally.^{38,39}

Plastic waste

Among circular economy processes, recycling was singled out as particularly vulnerable to the consequences of waste trafficking. This is because the contents of illegal plastic waste imports often contain mixed, contaminated or hazardous waste. This can:

- » result in low-quality recycled products, requiring additional processing to meet safety and quality standards;
- » pose significant environmental and health risks due to the presence of toxic substances; and
- » disrupt domestic recycling efforts by introducing low-quality, often contaminated waste streams.

E-waste and metal waste

The influx of illegally imported low-quality waste reduces the economic viability of domestic recycling operations. Hazardous materials introduced into the recycling stream pose environmental and health risks.

- » A lack of consumer responsibility leads to careless and uncontrolled waste disposal.
- » Illegal imports of some types of waste, such as e-waste, contain precious metals but are often improperly recycled. While producers are theoretically responsible for collecting e-waste, their actual recovery efforts are limited and enforcement is inconsistent.
- » Many countries lack the technology and regulatory frameworks for efficient e-waste recycling. Exporting e-waste to countries with weaker standards exacerbates environmental harm.
- » Waste shipments are often mislabelled, making it difficult or impossible to recycle them. For example, waste labelled as “recyclable scrap” may contain contaminated metal waste. And waste falsely declared as “metal” may in fact be e-waste whose valuable components have already been removed in the country of origin, leaving the destination to manage the remaining, hazardous materials.

Paper waste

Often, waste labelled as “paper” is actually household waste. Household waste is subject to the PIC procedure, as the Basel Convention classifies this type of waste as requiring “special consideration” (Annex II, Y46)⁴⁰ because of the potential for contamination with hazardous substances. Such mislabelling undermines the credibility of such shipments and may trigger import restrictions, preventing recycling.

Waste trafficking affects some circular economy processes more strongly than others. The following six processes are particularly affected:

1. Reduce by Design

Sending waste to other countries – and thus externalizing the costs of waste generation – weakens the “Reduce by Design” principle. Easy and cheap disposal and the lack of accountability for the whole product life cycle can reduce incentives for manufacturers to design low-waste or recyclable products. When illegal disposal options are on offer, businesses may prioritize short-term cost savings over long-term sustainability strategies such as Extended Producer Responsibility (EPR). This hinders progress toward designing products for a circular economy.

2. Reuse

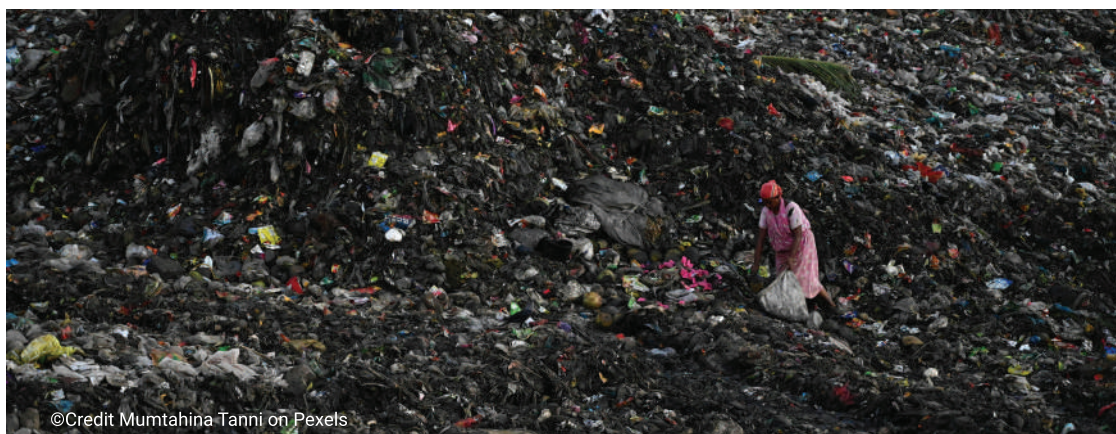
Waste trafficking disrupts reuse systems by labelling contaminated or end-of-life electronic waste products as “second hand”, “for reuse” or “for repair”. The deliberate mislabelling of items that are unfit for reuse undermines public trust in second-hand goods. This diminishes the viability of “reuse” as a cornerstone of circular economy efforts and reduces consumer confidence in reused, repaired or refurbished products.

3. Repair

Repair systems are similarly affected, as waste trafficking diverts potentially repairable items into informal or unregulated disposal markets. Instead of being repaired and reintroduced into the economy, many items are dismantled unsafely, often for the high-value components they contain, while the rest is discarded or burned. This prevents the full use of repairable goods and harms the environment.

4. Remanufacture

Remanufacturing relies heavily on the availability of intact and high-quality components, which are frequently lost due to waste trafficking. Traffickers often prioritize the extraction of valuable raw materials, such as rare metals, through crude and environmentally harmful methods such as open burning. Burning destroys components that could otherwise be used in remanufacturing, undermining the potential for extending the life cycle of products.



5. Repurpose

Repurposing materials requires creativity and innovation, both of which are made more difficult by waste trafficking. Materials that could have been repurposed—such as plastics, textiles or tyres—are often improperly handled, rendering them unusable for alternative applications. For instance, trafficked waste is frequently burnt or dumped, preventing opportunities to find new uses for these materials in other sectors.

6. Recycle

Recycling systems are perhaps the most obviously affected by waste trafficking. Illegally trafficked waste often arrives at its destination contaminated, poorly sorted or in excessive volumes, overwhelming legitimate recycling facilities. This leads to unsafe or environmentally harmful recycling practices in unregulated facilities. Furthermore, the presence of trafficked waste creates unfair competition for compliant businesses, discouraging investment in legal, sustainable recycling infrastructure.

Broader implications and cross-cutting issues

Economic, environmental and public health consequences

Importing waste, especially non-hazardous waste, can be economically advantageous for some countries as a source of raw materials for production. However, when hazardous and/or non-recyclable waste is found to be illegally imported, it is often either abandoned at port or illegally dumped. These consequences of waste trafficking lead to significant environmental harm and public health risks, as well as substantial economic costs for addressing and remedying this damage. In addition, an influx of imported waste affects domestic waste management systems: small waste collectors may lose income, and improvements to domestic waste management services may be neglected, causing further economic and environmental strain.

Resource availability and use

Recycling facilities rely on a steady supply of specific waste materials. Waste trafficking disrupts this supply chain by diverting materials from legitimate recycling facilities, leading to shortages of recyclable raw materials. This shortage impacts domestic industries that rely on these resources. Repeated instances of trafficking can trigger bans and restrictions, disrupting trade flows and creating shortages of scrap materials used in production. When waste imports exceed the legal quota, the waste becomes illegal and can overwhelm the recycling capacity of destination countries. Excessive waste imports also affect the collection and use of domestic waste, which could otherwise serve as substitute resources for industries. Waste trafficking compromises the integrity of recyclable materials and introduces uncertainty as to their quality.

Impact of bans and restrictions on a circular economy

Economic consequences:

In the event of waste trade bans, it is important to provide recycling companies in destination countries with an adequate grace period before implementation, to allow them to secure domestic supply. While compelling a recycling company to undergo technological improvements can be challenging, economic pressures often drive factories to embrace technological adaptation. Such technological shifts often necessitate a substantial volume of raw materials. While some of the supply can be procured through waste trade, it is crucial to recognize the inherent risk of waste trafficking associated with such trade.

Impact on domestic industries of destination country:

Exporting countries may promote waste exports as investment opportunities for recycling facilities, effectively offloading their waste abroad. To counter this, domestic industries should be informed of local waste resources. Additionally, policies could be implemented to mitigate competition from imported waste and increase local supply for domestic recycling facilities. However, it is important to recognize that bans on waste imports can significantly impact the supply and availability of materials needed for domestic manufacturing. A balanced approach is therefore necessary, carefully weighing environmental considerations against the needs of domestic industries and maximizing the use of local waste.

Waste trafficking disproportionately affects low- and middle-income countries, and marginalized communities. Some countries lack the capacity to implement – let alone enforce – robust regulations to prevent the influx of illegal waste. Waste trafficking erodes trust in circular economy processes by allowing illegal operators to benefit while responsible businesses face higher costs for compliance.

By addressing waste trafficking, governments and stakeholders can significantly strengthen the integrity and effectiveness of circular economy processes. Strengthening enforcement mechanisms, improving international cooperation, and promoting environmentally sound waste management practices are essential to mitigating these impacts and fostering sustainable material flows.

SECTION 6

Policy implications and best practices

The following best practices have been identified to advance towards a circular economy while curbing waste trafficking:

Strengthening regulatory frameworks on waste imports and exports

- » **Introduce a comprehensive legal framework.** By enacting and enforcing robust national laws that align with international standards, countries in the ASEAN region can better regulate waste imports and exports. This includes harmonizing import rules in the region to establish a shared understanding of acceptable waste imports suitable for a circular economy, with clear definitions and consistent standards. Examples for an ASEAN-wide approach may include:
 - » establishing common definitions of waste categories (e.g. defining what constitutes clean waste and homogenous waste);
 - » establishing consistent contamination thresholds; and
 - » differentiating between waste, non-waste materials and second-hand goods intended for reuse, repair or refurbishing.
- » **Introduce efficient certification and digital processes** to help identify acceptable versus unacceptable waste.
- » **Update roadmaps for waste management and the transition to a circular economy.** The plans should include measures **to combat waste trafficking**. They should also align with ASEAN and international standards, to ensure that processes such as recycling are environmentally sound.
- » **Address legal loopholes.** It is crucial to identify and close gaps within existing legal frameworks. This includes closing loopholes that enable waste trafficking.⁴¹

Assessing the pros and cons of bans

Waste import bans can protect national interests, accelerate circular economy strategies and incentivize better domestic waste management. Temporary bans can provide time to assess and adjust to new realities. However, excessively stringent regulations may inadvertently fuel an increase in illegal activities. For example, a ban may lead to an increase in illegal waste imports and put pressure on frontline border control officers. A ban may result in illegal shipments being displaced to countries with insufficient regulations or capacity. And a ban may disrupt implementation of some of the 9Rs, such as repair, refurbishing, reuse of second-hand goods or recycling of valuable materials.

Balanced regulations are key. This means prioritizing conditional imports over total bans. A total ban for a specific waste or for all types of waste should only be considered if absolutely necessary, if a country lacks waste processing capacity that meets environmentally sound management standards,⁴² or for specific types of waste that cannot be used as production material.

Promoting sustainable practices

- » **Implement Extended Producer Responsibility (EPR) schemes:** By holding manufacturers accountable for the entire life cycle of their products, including post-consumer waste management, EPR policies encourage companies to design products for reduced material use, reuse, repair, recycling or sustainable disposal.
- » **Encourage 9R:** Legal frameworks can incentivize businesses to adopt practices that prioritize reduction along with recycling and reuse of materials. For instance, regulations can mandate the use of recycled materials in production processes, reducing reliance on virgin resources and minimizing waste.
- » **Transform the informal sector** to support the development of a circular economy and address waste trafficking. Recognize the role and value of the informal sector, rather than excluding or denying access to it, and develop and implement a mechanism to transform it into a properly regulated sector. This transition should involve regulations on licensing, registration, training and certification. Ensuring accessibility to small-scale waste collectors, in terms of cost, process and time, is essential for the success of such an initiative.
- » **Create economic incentives for recycling activities** and proper waste management, to reduce the financial attractiveness of waste trafficking. Incentives may include promoting the development of local recycling industries and providing financial support for circular economy initiatives.

Best practice examples

Promote the green economy by involving local businesses. Raise awareness of waste-related matters and the benefits of a working towards a circular economy and harmonizing standards.

Introduce measures to encourage compliance. This could involve offering tax exemptions to companies that reuse or recycle raw materials, while applying stringent punitive sanctions to non-compliant companies. For example, Cambodia offers tariff-free importation of recycling machinery and a 5–10% tax exemption on recycling business revenue. In Thailand, the Board of Investment (BOI) provides tax incentives for activities that foster a circular economy, such as environmentally friendly production, imports of recycling machinery, and businesses that use domestic plastic scrap.

Create economic incentives that focus on green financing. Make it easier for small businesses to access finance, enabling them to adapt their models and improve their technologies for a circular economy. For example, Viet Nam has included the promotion of projects related to green financing and circular economy in the draft national plan of the Ministry of Natural Resources and Environment.

Promoting cooperation

At the national level

At the national level, it is vital for **relevant ministries to collaborate**, in order to **monitor the implementation** of policies, identify gaps, and **harmonize the application of penalties and fines**.

Importantly, **cross-ministerial cooperation** must also involve ministries outside the **waste sector**. For example, the Science, Technology and Innovation sector could drive technological innovation and provide R&D funding, while the Ministry of Finance could provide financial incentives for innovation in waste management. The Ministry of Education could engage educational institutions in awareness programmes and competitions. In this way, each ministry can target its specific audience, in line with its mandate. Through the 9Rs, they can collectively promote waste innovation, supporting the circular economy and combatting waste trafficking.

Suggested cooperation structure

To ensure consistency, one lead agency should be designated to coordinate the management of the waste trade, from licensing to enforcement. Oversight could be given to the Prime Minister's Office or Customs. This dedicated workgroup on waste trafficking should include anti-corruption agencies. Similarly, to ensure transparency and prevent corruption in the waste sector, waste-trafficking related measures should be integrated into National Anti-Corruption Plans.⁴³

At the regional level

- » **Enhance collaboration among ASEAN countries.** A collaborative approach is vital for creating a cohesive strategy to manage waste effectively across borders and support a circular economy.
- » **To promote a circular economy and combat waste trafficking,** countries in the ASEAN region need to establish waste-related multilateral or **regional agreements, action plans, and initiatives** that recognize and address both issues. This could include initiatives to facilitate knowledge sharing and best practices amongst countries.
- » **Expand joint declarations and policies.** Initiatives such as the ASEAN Joint Declaration on Hazardous Chemicals and Wastes Management, which emphasizes cooperation among member states for responsible hazardous waste management, can serve as a platform to expand national activities. This expansion could include collaboration with other sectors and the development of joint action plans to strengthen regional inter-agency cooperation.

At the international level

Collaboration and cooperation efforts should involve all countries, including those involved in export, transit and import. It is important to:

- » **Organize knowledge-sharing sessions on waste trade rules and regulations,** and learn from countries that are successfully **implementing circular economy principles.**
- » **Encourage technology transfer** between manufacturers in the waste exporting countries and recycling companies in the destination country.
- » **Make it easier for low- and middle-income countries to access green financing schemes.** Encourage exporting countries to improve accountability through green financing for circular economy initiatives and international financing rules.
- » Place the responsibility for **compliance certification** on the exporting country, requiring it to ensure that the exported waste meets the required standards and quotas of the importing country.

Best practice example from CITES

While the Basel Convention's Prior Informed Consent (PIC) procedure requires an exporting country to obtain the informed consent from importing and transit (if applicable) countries before shipping certain types of waste,⁴⁴ the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) places even greater responsibility on the exporter. Under CITES, exporting countries bear the primary responsibility for monitoring and certifying shipments. Before any export of species listed under the CITES Appendices, the Management Authority of the exporting country must issue an export permit to certify the legality of the shipment. This system ensures that compliance is verified before the specimens leave the exporting country, thereby placing the burden of monitoring and certification on the exporting countries.⁴⁵

Enhancing monitoring and enforcement

- » Set up or improve regional collaboration to establish and enforce **joint rules for controlling waste shipments**. For example, establish port control units at seaports, airports and land borders to strengthen the control of waste and other commodities, increasing cooperation and transparency between countries.
- » **Establish and enforce reporting requirements**. Before approving any shipment, require detailed reporting on the composition and quantity of imported waste, including non-hazardous waste (Annex IX) and waste not directly covered by the Basel Convention (e.g. paper and textile waste).
- » Set strict standards in the tendering process for manufacturing activities, to **verify that factories have adequate technologies and capacities prior to establishing a recycling business**.

Using technology to monitor shipments

Limited personnel for waste inspections results in low control rates in many countries. A possible solution could be to use specialized technology, such as automated tracking systems and AI-powered high-tech scanners. While their effectiveness may be restricted to specific HS codes, AI-driven systems could be trained to identify high-risk waste types. This would increase the detection rate of illegal cases.

Improving transparency and traceability

- » **Review and digitalize trade procedures** to enhance efficiency and traceability. These are key green non-tariff measures. It is also important to integrate digitalization into Basel Convention processes (such as the PIC procedure).
- » **Digitalize** the Basel PIC procedure (ePIC) and shipment notifications for all types of waste, including non-hazardous waste. Licences and approvals should also be digital and included in systems that are linked at the national, regional and global levels to optimize traceability and reporting.
- » **Implement advanced digital tools to track waste collection and treatment**. This can ensure a transparent and verifiable record of waste management, enhancing traceability of waste materials throughout the supply chain. Adequate tracking of waste can reduce opportunities for illegal traffic.
- » Explore how the ASEAN Economic Community (AEC) **platform can include a waste-tracking system**.

Building capacity

It is essential to have knowledgeable and well-trained staff within the waste management sector, and to raise the awareness of the public on circular economy practices. To this end, it is recommended to:

- » Develop capacities within local government and industries for effective waste management by providing **training and resources**. This includes training programmes on sustainable practices and legal compliance, enabling stakeholders to contribute to a circular economy.
- » **Provide technical assistance and resources** to low and middle-income countries to improve their waste management infrastructure and regulatory frameworks.
- » **Support initiatives aimed at increasing public awareness and education** about the importance of circular economy practices and the need to address waste trafficking. Campaigns that highlight the harmful social, environmental and health impacts of waste trafficking – and foster community engagement in circular economy practices – can increase public support for stricter regulations on waste trafficking and other waste crimes.

Best practice examples

In **Thailand**, the Bio Circular Green Model and Action Plan for Plastic Waste Management promotes awareness among consumers and producers to use eco-designs, biodegradable products and recyclable products, and to reduce their use of chemicals. As biodegradable products are more costly, discussions are underway with the Revenue Department to offer restaurants that use ecological products tax breaks of up to 25-50%.

In **Viet Nam**, local awareness-raising campaigns exist to promote waste separation at source, but they are hampered by a lack of funding. To improve domestic recycling, awareness efforts must also emphasize the transition from incineration to recycling.

In **Malaysia**, a reality TV programme called Innovathon, organized by the Ministry of Science, Technology and Innovation, encourages science, technology and innovation as a platform to raise skills and innovative ideas among the public. Including innovations on waste prevention, reduction and management in this programme would be an effective way of raising awareness of this topic.

Tackling corruption

Due to the complexity of the waste trade, which involves many actors, financial flows and different jurisdictions, the waste management sector is particularly vulnerable to corruption. Corruption can include bribing officials to issue permits, falsify documents, overlook violations, enable fraud and obstruct inspections.⁴⁶ To mitigate the risk on circular economy practices, it is recommended to:

- » **Identify and map vulnerabilities to corruption and fraud** along the various stages of the **circular economy and within extended producer responsibility EPR** schemes.
- » Integrate **anti-corruption measures into the waste sector** and apply a zero-tolerance approach to enforcing policies and practices.
- » **Digitalize trade and documents** to avoid risks of falsified information and improve transparency.
- » Conduct frequent **audits** of the waste sector at both national and local levels. Establish robust checks and balances, including beneficial ownership transparency, to ensure corporate accountability.
- » Facilitate the **reporting of corruption**, through **whistleblower protection** legislation at the national level, and increase transparency through freedom of information regulations.

Developing waste-related SOPs

Cambodia detected a money laundering case linked to waste trafficking. The suspicious transactions, identified by their high trade value, prompted the country to develop Standard Operating Procedures for identifying waste-related financial transactions that may constitute money laundering.



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SECTION 7

Conclusion

The circular economy is based on a life cycle approach and aims to reduce the input of materials, waste, leakages, pollution and related emissions. This approach enables countries to maximize the value and utility of their resources and scale up their socioeconomic activities in harmony with the environment. However, to ensure the successful transition to a circular economy, policymakers and relevant stakeholders need a greater understanding of the connections between waste trafficking and circular economy principles. It will be essential not only to strengthen national regulatory frameworks, but also to align them with circular economy principles.

Optimizing regional cooperation is key to developing a cohesive strategy that provides the infrastructure for effectively managing waste trade and supports the transition to a circular economy. This can be achieved through regional agreements, action plans and initiatives. With the ASEAN Circular Economy Framework already in place, future action plans could consider activities that address the impact of illegal waste flows on the circular economy. This would be a useful next step in supporting policy development in the ASEAN region and securing the transition to a robust circular economy in the region and beyond.

ENDNOTES

- 1 The Unwaste project aims to fight waste trafficking between the EU and Southeast Asia. Funded by the European Union and implemented by UNODC in cooperation with UNEP, Unwaste promotes enhanced partnerships between EU and ASEAN Member States in support of ongoing efforts towards a transition to a circular economy, in line with the relevant policy frameworks in the EU and partner countries.
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- 8 Regional Technical Seminar on waste trafficking and circular economy (15–16 January 2025), web story: Picking up the pace against illegal waste traffic in Southeast Asia.
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- 15 <https://www.europol.europa.eu/publication-events/main-reports/changing-dna-of-serious-and-organised-crime>.
- 16 The contents of this section are from Turning the Tide and Cash in the Trash, produced under the Unwaste project. Please refer to these publications for more in-depth analysis and discussions.
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- 19 Turning the Tide, pp. 74–93.
- 20 Turning the Tide, pp. 94–123.
- 21 <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>.
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- 23 <https://buildingcircularity.org/>
- 24 European Commission estimates: <https://www.consilium.europa.eu/en/policies/waste-trade/>
- 25 United Nations Environment Programme (2024). Global Waste Management Outlook 2024: Beyond an age of waste – Turning rubbish into a resource. Nairobi. <https://wedocs.unep.org/20.500.11822/44939>
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- Article 2(b) defines “serious crime”, for the purposes of the Convention, as “conduct constituting an offence punishable by a maximum deprivation of liberty of at least four years or a more serious penalty.”
- UNODC (n.d.) United Nations Convention Against Transnational Organized Crime and the Protocols Thereto: <https://www.unodc.org/documents/treaties/UNTOC/Publications/TOC%20Convention/TOCebook-e.pdf>
- 37 Discussed and identified during the Third Regional Technical Seminar on Waste Trafficking and Circular Economy (15–16 January 2025).
- 38 Participants at the Unwaste project’s Third Regional Technical Seminar (15–16 January 2025) discussed the potential effects and challenges of waste trafficking on circular economy processes, in particular those involving difficult waste streams such as plastics, e-waste and hazardous waste.
- 39 <https://baselgovernance.org/news/illegal-waste-trade-whats-driving-multi-billion-dollar-transnational-crime-and-what-could-stop>
- 40 <https://www.basel.int/Implementation/HouseholdWastePartnership/Overview/tabid/5082/Default.aspx>
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United Nations
Office on Drugs and Crime

Unwaste

Tackling waste trafficking to support a circular economy

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