

# PLASTIC WASTE FUELS

**SERIOUS IMPLICATIONS ACROSS  
SOUTH EAST ASIA, AS AUSTRALIA  
KICKS THE 'WASTE' CAN  
DOWN THE ROAD**



*Executive Summary*  
March 2022



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**IPEN** is a network of over 600 non-governmental organizations working in more than 120 countries to reduce and eliminate the harm to human health and the environment from toxic chemicals. IPEN's campaign on Toxic Chemicals in Plastics seeks to eliminate harm from chemicals in plastics when plastics are produced, used, recycled, and discarded.

[ipen.org](http://ipen.org)



**National Toxics Network (NTN)** is a not for profit civil society network striving for pollution reduction, protection of environmental health and environmental justice for all. NTN is committed to a toxics free future.

[ntn.org.au](http://ntn.org.au)



**Nexus3** or Nexus for Health, Environment, and Development (formerly known as BaliFokus Foundation) is an organization in Indonesia that works to safeguard the public, especially vulnerable populations, from the impact of development to health and the environment, towards a just, toxics-free, and sustainable future.

[www.nexus3foundation.org](http://www.nexus3foundation.org)



**Consumers' Association of Penang (CAP)** focuses on independent testing and corporate advocacy to provide detoxification of public, daily consumer goods, as well as mainstreaming chemical management issues by fostering and developing civil corporation networks, all to achieve a "non-toxic national" vision.

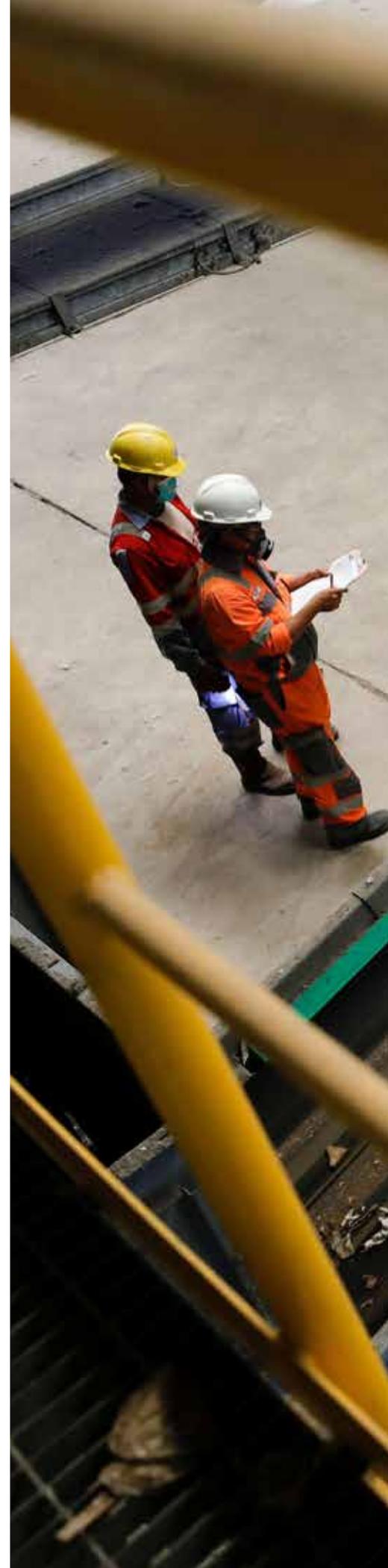
[www.toxicsfree.org.cn](http://www.toxicsfree.org.cn)

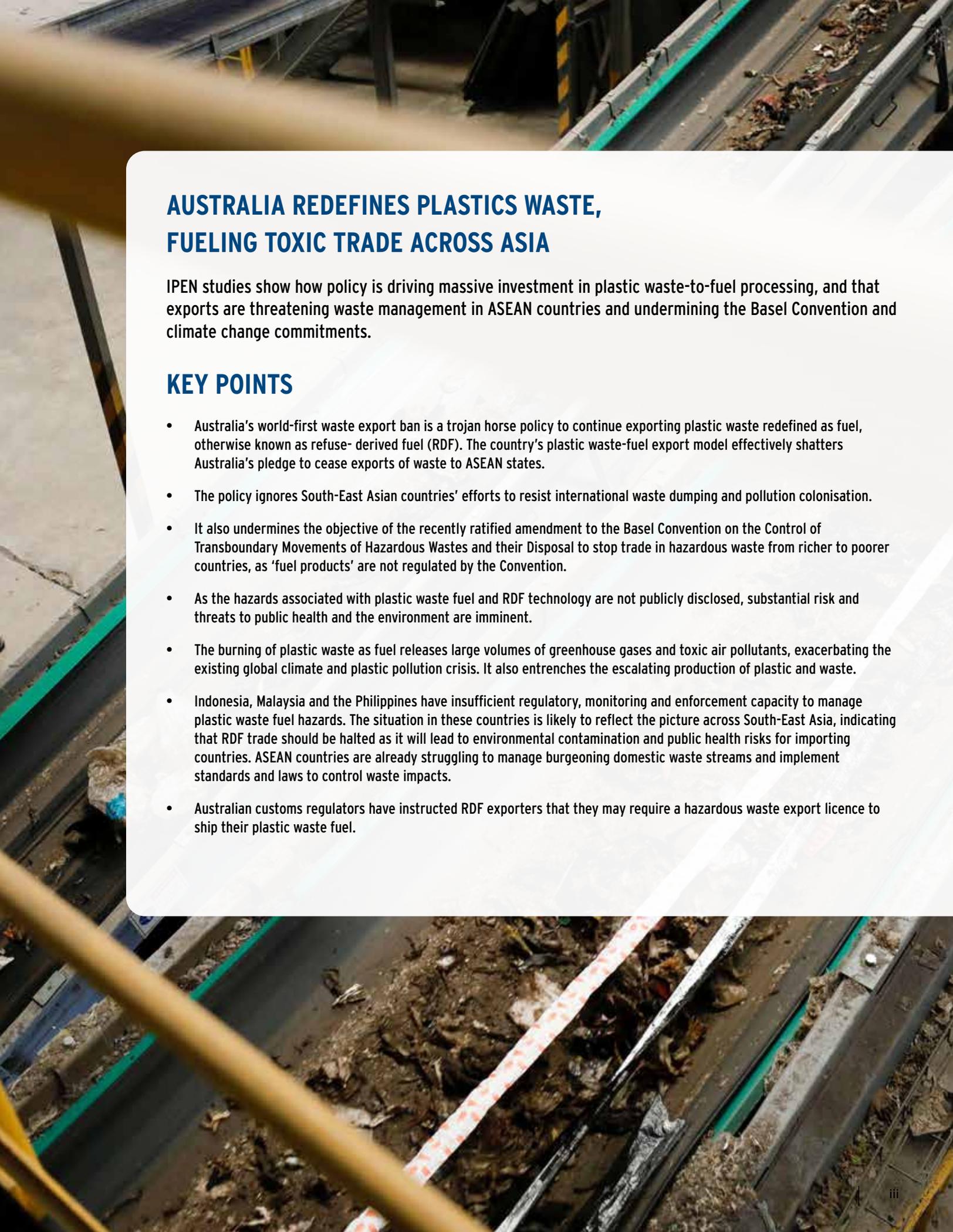


**EcoWaste Coalition** is a non-profit network, founded in 2000, of over 140 public interest groups in the Philippines that have coalesced to advance "a zero waste and toxics-free society where communities enjoy a safe and healthy environment."

[ecowastecoalition.blogspot.com](http://ecowastecoalition.blogspot.com)

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## AUSTRALIA REDEFINES PLASTICS WASTE, FUELING TOXIC TRADE ACROSS ASIA

IPEN studies show how policy is driving massive investment in plastic waste-to-fuel processing, and that exports are threatening waste management in ASEAN countries and undermining the Basel Convention and climate change commitments.

### KEY POINTS

- Australia's world-first waste export ban is a trojan horse policy to continue exporting plastic waste redefined as fuel, otherwise known as refuse- derived fuel (RDF). The country's plastic waste-fuel export model effectively shatters Australia's pledge to cease exports of waste to ASEAN states.
- The policy ignores South-East Asian countries' efforts to resist international waste dumping and pollution colonisation.
- It also undermines the objective of the recently ratified amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal to stop trade in hazardous waste from richer to poorer countries, as 'fuel products' are not regulated by the Convention.
- As the hazards associated with plastic waste fuel and RDF technology are not publicly disclosed, substantial risk and threats to public health and the environment are imminent.
- The burning of plastic waste as fuel releases large volumes of greenhouse gases and toxic air pollutants, exacerbating the existing global climate and plastic pollution crisis. It also entrenches the escalating production of plastic and waste.
- Indonesia, Malaysia and the Philippines have insufficient regulatory, monitoring and enforcement capacity to manage plastic waste fuel hazards. The situation in these countries is likely to reflect the picture across South-East Asia, indicating that RDF trade should be halted as it will lead to environmental contamination and public health risks for importing countries. ASEAN countries are already struggling to manage burgeoning domestic waste streams and implement standards and laws to control waste impacts.
- Australian customs regulators have instructed RDF exporters that they may require a hazardous waste export licence to ship their plastic waste fuel.

# IPEN STUDIES HOW AUSTRALIA'S PLASTIC WASTE FUELS POLICY THREATENS HUMAN HEALTH AND THE ENVIRONMENT ACROSS SOUTHEAST ASIA

The International Pollutants Elimination Network (IPEN) has conducted a series of investigations tracking developments after a number of Southeast Asian countries banned plastic waste imports — following China's lead in 2018. Since those bans were announced, IPEN member organisations in the region have become increasingly concerned by the growth of trade in plastic waste fuels, known as Refuse-Derived Fuel (RDF) — notably from Australia. IPEN says Australia's RDF exports are the same plastic waste trade rebranded as fuel products.



RDF is generally comprised of 30% - 40% plastic waste with the remainder a mix of timber, paper and textile waste that is uneconomic to recycle, but has high calorific value so that it burns. In Australia there are currently no standards or specifications for RDF, other than a minimum calorific value to ensure it can be burned by

end users, which are usually cement kilns, pulp and paper mills, co-combustion and co-fired incinerators and coal-fired power plants.

To investigate the problem, IPEN and National Toxics Network examined Australia's policy on waste management and exports, in a study called *Australian Refuse-Derived Fuel: Fuel product or plastic waste export in disguise?*

It found that Australia generates more single-use plastics waste, per capita, than virtually any other country. It also has low recycling rates compared to other OECD countries. The study describes new waste laws introduced in Australia, and the country's waste infrastructure, and highlights a number of concerns — namely plans to fund and promote, exports of RDF to burn in countries throughout Southeast Asia, perversely as clean and renewable energy. An assessment of the toxicity and health and environmental impacts of RDF are also provided.

In addition, IPEN's partners in Indonesia, Malaysia and the Philippines have produced reports assessing each country's capacity to manage residual waste, including imports and the associated regulatory frameworks and legislation governing RDF use. These reports show that the burden of RDF imports disproportionately and adversely impacts local communities, their environment and health.

Australia appeared to be taking a global policy lead when it banned the export of unprocessed waste in 2020 and subsequently developed a raft of new policies and introduced the Waste and Recycling Act 2021.

However, IPEN's study found that the country's waste policies, action and investment plans and partnerships are clear on one thing — massive

financial support for plastic waste reprocessing including chemical recycling (primarily for fuels), waste incineration and RDF manufacture. This equates to a national policy trajectory shift from exporting mixed plastic waste to burning mixed plastic wastes in Australia and exporting more mixed plastic waste to burn in Southeast Asia as ‘fuels’.

In addition, IPEN points out that Australia’s Hazardous Waste Amendment Bill, passed in June 2021, failed to reference the new Basel Ban Amendment. The Australian government wants to

retain the domestic legal right to dump wastes on poorer neighbouring countries.

The studies show significant potential, but as yet unquantifiable, risks related to using RDF in Indonesia, Malaysia and the Philippines. The mixed plastic waste in RDF has been shown to contain a range of toxic chemical additives including persistent organic pollutants, heavy metals and endocrine-disrupting chemicals. When burned as fuel RDF can generate highly toxic dioxins and furans that can contaminate local food chains.

## IPEN’S CONCLUSIONS AND RECOMMENDATIONS

IPEN says its reports show how Australia, and its waste management industry, are funding and promoting RDF as the next big sink for plastic waste, and how exports of RDF threaten communities across the Asia-Pacific region, despite government attempts to ban plastic waste imports. Further, the group says Australia’s waste policy framework incentivises waste burning ahead of recycling, which has a negative impact on both aspirations for a circular economy and climate change commitments.

IPEN’s recommendations to tackle plastic waste fuel/RDF trade:

- A ban on waste imports, including waste derivatives such as RDF (this could include renegotiation of trade deals that facilitate the movement of waste products — this should be done on a pan-ASEAN basis).
- National export bans of plastic waste fuels and other RDF trade.
- Listing RDF and similar plastic waste fuels as hazardous substances in the Basel Convention.
- An immediate suspension of the use of RDF in all facilities across the ASEAN region.

- The high potential of RDF to generate chlorinated and brominated dioxins requires a thorough and transparent scientific assessment of the health and environmental impacts of burning RDF.
- Cement kilns, industrial boilers and other high energy use industries should leapfrog the entire waste burning paradigm and move swiftly to substitute clean fuels, such as green hydrogen to replace fossil fuels.





## BACKGROUND: AUSTRALIAN POLICY EXACERBATES WASTE MANAGEMENT CRISIS ACROSS ASEAN REGION

Trade data shows that global plastic waste export and imports are a multi-billion dollar business. Countries in the Association of Southeast Asian Nations (ASEAN) were primary destinations of traded waste. Implementation by China of its Green Fence policy in 2018, when the country effectively closed its borders to waste imports, saw a mass scramble for alternative waste export destinations. However, in 2019, many Southeast Asian countries also restricted waste imports from wealthy countries, due to the environmental harm and human health risks caused by spiralling waste importation volumes — particularly plastic waste.

### AUSTRALIA'S WASTE POLICIES DRIVING RDF

Project experts and partners at the EcoWaste Coalition in the Philippines have been monitoring the import of contaminated waste from OECD countries for decades. Aileen Lucero, National Coordinator for EcoWaste Coalition, says:

*“The findings of this report show that RDF use is increasing in the Philippines.”*

*Import of these products, particularly from countries like Australia, have continued even during the on-going COVID-19 pandemic situation. The customs records can be analyzed to show varying shipments arriving each month.*

*The import of RDF into the Philippines contributes to the country's existing waste trade issues and challenges. Developing countries in ASEAN continue to be the dumping ground of wastes and discards for the developed and industrialized world. This not only exacerbates environmental and health risks but also amplifies the waste crisis facing countries like the Philippines.”*

In Malaysia, where Australia's largest multinational RDF company, ResourceCo, operates in Ipoh, project experts and IPEN partner Consumers' Association of Penang (CAP), has long been monitoring the illegal dumping of waste claimed to be RDF from Australia and other OECD countries. Mageswari Sangaralingam, Senior Research

Officer for Consumers' Association of Penang, Malaysia, says:

*“Malaysia allows plastic waste imports with Approved Permits given to importers for clean and homogenous plastic waste generated from industrial facilities and post-consumer wastes. Evidence on the ground shows that there is plastic waste leakage and mismanagement, illegal trade and false declaration in the bills of lading.*

*Although the Australian government announced its waste export ban in 2020, to our dismay the country continues to export its waste as a ‘fuel product’. Australia will be circumventing its waste export ban by shipping it as ‘energy-from-waste’ products to other regions.”*

Indonesia stands out as both a significant importer and exporter of RDF and yet is one of the most vulnerable countries in the Southeast Asian region facing the pollution and associated environmental health and justice impacts of RDF manufacture, use and trade.

Yuyun Ismawati, Co-Founder of Nexus 3, warns that:

*“Indonesia’s rush to invest in numerous RDF facilities signals a major pollution threat to Indonesia and the entire South-east Asian region. Dressing up the RDF burning industry as a climate pollution champion through co-firing and a key solution to our country’s waste management and energy crisis is perverse in the extreme. The burden of these political decisions will be carried by vulnerable communities already disproportionately suffering the impacts of waste colonialism. The sheer scale of the expansion for RDF burning in the coal fired powers plants, the cement industry sector, and as a fuel source for many large and small-scale industries, will cause a massive pollution spike in the entire Southeast Asia region. The fly ash and bottom ash, especially from coal-fired power plants that use RDF from mixed waste, will become the new source of toxic pollutions in Indonesia and the region.”*



## WHAT IS RDF?

Three waste streams feed into Refuse-Derived Fuel (RDF): municipal solid waste (MSW); construction and demolition waste (C&D); and Commercial and Industrial waste (C&I). Since restrictions have been placed on imports of waste by countries like China, the fraction of RDF sourced from domestic waste streams (i.e., MSW) is expected to grow rapidly.

The exact composition of RDF is rarely disclosed but studies indicate that RDF typically contains 30-40% mixed plastic waste, most of which cannot be recycled. This residual waste includes single-use plastics, plastic packaging, Styrofoam, PVC, and other plastics that contain toxic additives or are often made up of composite materials that make recycling unviable. For example, plastic packaging is often a mixture of glued together layers of paper and plastic containing chemical additives and inks. These plastic chemicals make residual waste a toxic threat when burned.

Specifications for RDF are usually defined by the importer or receiver, who need to ensure the fuel has a high calorific value to burn without corroding or damaging their infrastructure, whether a cement kiln, paper mill, or

energy plant — all have different requirements. There are no internationally recognised standards or limits on the chemical content of RDF to ensure that the generation of persistent organic pollutants (POPs) like dioxins, furans and bromines and other toxic air pollutants, such as heavy metals and acid gases, are minimised or eliminated.

A recent study by the International Energy Agency concludes that it is challenging to study the production and end-use of secondary fuels — partly because of the multitude of terms used to describe waste-derived fuels (WDF). These include solid recovered fuels (SRF), refuse, paper and plastic fuel (RPF), and process engineered fuel (PEF), among others. The report adds that there are larger uncertainties in the characterisation and the inter-comparability between different RDFs, partly because different methods are used for the characterisation.

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**ONE OF THE PROBLEMS  
WITH RDFs IS KNOWING WHAT  
THE COMPOSITION IS.**

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