Financing System Change to Radically Reduce Plastic Pollution in Indonesia:

A Financing Roadmap Developed by the Indonesia National Plastic Action Partnership

BRIEFING PAPER

NOVEMBER 2020

NPAP
INDONESIA

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Contents

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Executive summary

The goal of the Indonesia National Plastic Action Partnership (NPAP) is to achieve a 70% reduction in the nation's marine plastic debris by 2025. In April 2020, the NPAP launched an Action Plan detailing how to achieve this objective and established five task forces for its implementation: Financing, Policy, Innovation, Metrics and Behavioural Change.

This Financing Roadmap details the actions the Financing Task Force will take to achieve the Action Plan goals. In particular, the Roadmap outlines recommendations on mobilizing financing to meet the marine plastic waste reduction target: around $18 billion in capital investments between 2017 and 2040 and an estimated $1 billion per year increase in operational financing for solid waste management systems by 2040. Initially drafted in accordance with the Action Plan, the Roadmap has been reviewed, amended and endorsed by the members of the Financing Task Force. The recommendations reflect the collective views of a diverse range of organizations.

This Roadmap makes three cross-cutting recommendations (section 3.1) and details specific actions for each.

A. Incubating and scaling up innovations, ventures and project developments at all stages of the plastic system, through supportive policies, incentives and action (section 3.2)

B. Closing the operational financing gap for city-level waste collection and recycling systems and building institutional and technical capacity, starting by identifying low-hanging fruit and facilitating small pilot projects that are scalable (section 3.3)

C. Enabling capital investments in the after-use (waste and recycling system) through system changes, technology and blended finance approaches, starting with concept notes for further discussion by stakeholders (section 3.4).

To foreground these recommendations, this Roadmap provides an overview of the System Change Scenario outlined in the NPAP Action Plan, describing the urgent actions required across the plastics value chain (section 1). The Roadmap then provides an assessment of the current private and international investment landscape (section 2) and outlines the system challenges that must be overcome to achieve the recommendations.

This publication closes with a description of the Financing Task Force: a collective of 17 members first convened in July 2020 (section 5). Financing Task Force members are already working on projects across the value chain, and meet regularly to plan, coordinate and collaborate on plastics action. A programme of activities is provided in section 6.

Together, NPAP Financing Task Force members can reduce plastic pollution by building enabling conditions for financing solutions and making system change, through research, coordination, resources and direct action. The NPAP Action Plan describes what it will take to reduce Indonesia's marine plastic pollution by 70% by 2025. All NPAP members are encouraged to ask themselves what their organization can contribute towards this goal.

Introduction

The Indonesia National Plastic Action Partnership's goal is to achieve a 70% reduction in the nation's marine plastic debris by 2025.[1]

Indonesia generates 6.8 million tonnes of plastic waste each year, of which around 4.8 million tonnes are mismanaged and approximately 620,000 tonnes per year leak into waterways and the ocean. Without a major intervention, plastic pollution, including ocean leakage, will increase 30% by 2025 and more than double within a generation (i.e. by 2040).[2]

Indonesia's National Plastic Action Partnership Action Plan is the country's first comprehensive analysis of plastic solutions.

To reach the target requires capital investments of around **$18 billion** for waste management and recycling between 2017 and 2040, and an estimated **$1 billion per year** increase in operational financing for solid waste management systems by 2040.[3] The investment opportunity into circular economy sectors could grow to about **$10 billion per year** in revenue by 2040, driven by increased sales of recycled plastic, substitutable materials and revenue from new business models.

An opportunity exists to deploy new financing to solve the challenge of plastic pollution.

This Financing Roadmap describes how plastic pollution will be reduced in the country by building enabling conditions for financing and strengthening the breadth and depth of the pipeline of investible ventures. It outlines the cross-cutting efforts that provide opportunities to speed up, incubate and scale up innovations, ventures and projects; close the operational financing gap for city-level waste collection and recycling systems; and enable capital investments in the waste and recycling system through system changes, technology and blended finance approaches.

The National Plastic Action Partnership platform convenes a diverse coalition of stakeholders for plastic action.

The Indonesia National Plastic Action Partnership (NPAP) platform brings together governments, businesses and civil society representatives to translate commitments from the Action Plan into meaningful action. Led by the NPAP Steering Board, five task forces, covering policy, innovation, financing, behavioural change and metrics, are responsible for implementation. Each NPAP task force member makes a voluntary commitment to meet regularly to exchange best practices and practical knowledge, coordinate their respective actions towards reducing plastic pollution and provide resources to drive impact in Indonesia.

This Financing Roadmap charts a course to continue momentum and deliver results.

Implementation has begun. This Financing Roadmap outlines the action required to turn the Action Plan recommendations into results. Each recommended action has a clear target, and NPAP member organizations are already championing initiatives to support each recommendation (see Summary: Financing system change).

Five key actions of the NPAP Action Plan

Reduce and substitute	**Reduce or substitute (R&S) plastic usage** to prevent the consumption of around 6.5 million tonnes of plastics per year by 2040
Redesign	**Redesign 1.1 million tonnes of plastic products and packaging** to increase high-value recycling or support greater reuse
Collect	**Collect 2.6 times more waste by 2040** by boosting state-funded and informal/private-sector collection systems
Recycle	**Quadruple current recycling capacity** to process an additional 2.1 million tonnes per year of recycled plastic by 2040
Controlled disposal	**Build or expand controlled waste disposal facilities** to safely manage an additional 4.3 million tonnes of plastic waste per year by 2040

The Financing Task Force has a clear programme of action to create impact towards these goals.

Financing Task Force members have committed to collaborating on joint action towards these goals, and the task force will play a vital role in identifying complementarities between different organizations and bringing them together for implementation. The broader NPAP ecosystem is a platform to convene stakeholders, generate new insights and action roadmaps, and match solutions with financing. The roles of the Financing Task Force within the NPAP include identifying sources of financing, matching financing to projects, increasing the speed of deployment, developing new innovative financing models, and catalysing the exchange and implementation of high-potential solutions by increasing investment, technical assistance and other forms of financial support.

Now is the time for action.

Summary: Financing system change

Reduce and substitute

Recommended action

Reduce or substitute (R&S) plastic usage to prevent the consumption of around 6.5 million tonnes of plastics per year by 2040

Current financing models

- **Seed/angel/venture capital** for early-stage ventures, e.g. MUUSE/Evoware/Econesia
- **Philanthropy**, e.g. Enviu Zero Waste Living Lab
- **Corporate social responsibility and sustainability initiatives,**, e.g. reusable water gallon; voluntary phase-out of straws

Proposed financing mechanisms

- **Incubator** for Indonesian ventures and technology transfer from overseas
- **Seed/angel/venture capital** funding for early-stage ventures, likely patient impact capital
- **Industry** funding and in-house innovation and scale-up of solutions
- **Shared industry funding** for innovation and system building

Key challenges

- **Adopting enabling policies and actions** from government and corporates
- **Ensuring boundary conditions** for acceptable substitute materials and alternative delivery models to avoid unintended consequences

Redesign

Recommended action

Redesign 1.1 million tonnes of plastic products and packaging to increase high-value recycling or support greater reuse

Current financing models

– **Industry** funding and in-house innovation and scale-up of solutions; typically, a global approach for multinationals

Proposed financing mechanisms

– **Industry** funding and in-house innovation and scale-up of solutions; typically, a global approach for multinationals

– **PULL Fund mechanisms**, e.g. awards, scholarships, competitions, performance-based financing

Key challenges

– **Adopting enabling policies and incentives** from government to reward good design

– **Facilitating a collaborative approach** with other producers

– **Promoting deep engagement** and understanding of recycling systems in Indonesia

– **Anticipating future trends** with impact on design, e.g. chemical recycling

Collect

Recommended action

Collect 2.6 times more waste by 2040 by boosting state-funded and informal/private-sector collection systems

Current financing models

Government-run waste management

- **In new areas**: national government budgets (Dana Alokasi Khusus, etc.), some corporate social responsibility (CSR) funds, some support from industry and multilateral/donor grant funding
- **Ongoing operating costs in areas with coverage**
  - **Household retribution fees**, typically collected door to door by local government
  - **Subsidies** from regencies/villages (Environmental Agency, Dana Desa, etc.)
  - Multilateral/donor grant funding for action-innovation projects focused on collection and recycling

Private/informal sector

- **In new areas**: investments by the informal sector itself, CSR/NGO funds (e.g. waste banks)
- **Ongoing operating costs in areas with coverage, mostly sales of recyclable material**

Proposed financing mechanisms

Government-run waste management

- **In new areas**: much larger national government budgets that can be used for both capital expenditures and operating expenses; more co-funding by industry; multilateral/donor support
- **Ongoing operating costs in areas with coverage**
  - **Household retribution fees**, higher (new regulation) and collected online or "indirectly", e.g. at the same time as the electricity payment
  - **Subsidies** (minimum mandatory spending)
  - **Sales of** recyclable material and compost
  - **Extended producer responsibility** schemes

Private/informal sector

- **In new areas**: investments by the informal sector based on better operational costs, CSR/NGO funds (e.g. waste banks)
- **Ongoing operating costs in areas with coverage**
  - **Sales of recyclable material**, at higher prices to meet recycled content demand
  - **Extended producer responsibility** schemes

Key challenges

- **Improving the effectiveness of retribution fee collection**
- **Adopting voluntary or mandated extended producer responsibility** (EPR) or a similar policy
- **Ensuring institutional** and technical capacity to effectively manage EPR funds
- **Investigating concessioning** collection to private waste management companies
- **Integrating** and supporting the private/informal sector to ensure they are investible, e.g. to register/formalize companies and improve social or environmental standards

Recycle

Recommended action

Quadruple current recycling capacity to process an additional 2.1 million tonnes per year of recycled plastic by 2040

Current financing models

- **Private-sector** investment and operations of recycling facilities and supply chains, typically debt financing
- **Industry** investment in new recycling facilities (e.g. Unilever/CreaSolv)
- **Shared industry** investment fund for collection and recycling in South and South-East Asia (Circulate Capital), including loan guarantees from donors (US)

Proposed financing mechanisms

- **Co-funding by government and industry** for operational financing of the plastic waste collection and recycling system, through extended producer responsibility or a similar policy; possible revenue guarantees to support investment
- Continued **(private) recycling sector** investment and operations of recycling chain
- **Upstream industry (e.g. brands, retailers, producers)** contributions to operational funding through producer responsibility organizations or similar entities
- **Price premiums and forward contracts** by users of recycled material to improve operational funding and provide price stability (thus stimulating investments) and factoring to solve liquidity issues (mitigating long payment cycles or defaults)
- **Venture financing** for recycling companies (debt/equity)
- **Incubation and technical assistance grants** to deploy new technologies or enable improvements in quality or environmental/social standards
- **Project financing** for new facilities drawing on a blend of impact investment and commercial investment
- **Advanced market commitments (e.g. GAVI)**
- **Tariffs**
- **Offtake agreements**
- **Corporate social responsibility commitments**

Key challenges

- **Adopting voluntary or mandated extended producer responsibility** (EPR) or a similar policy
- **Ensuring institutional** and technical capacity to effectively manage EPR funds
- **Increasing incentives and leadership** from government for the construction of new recycling facilities
- **Improving feedstock security** to enable project financing, e.g. through the integration of private/informal-sector supply chains
- **Reducing feedstock cost** through the operational financing of waste collection systems
- **Ensuring compliance with quality** and environmental/social standards to enable higher value offtake
- **Ensuring the offtake** of recycled plastic (price/volume) not linked to volatile oil/commodity markets

Controlled disposal

Recommended action

Build or expand controlled waste disposal facilities to safely manage an additional 4.3 million tonnes of plastic waste per year by 2040

Current financing models

- **Government** funding and management of controlled disposal (landfill); multilateral funding
- **Private-sector** management (Surabaya landfill)
- **Private-sector investment** for new waste-to-energy, waste-to-fuel and chemical recycling infrastructure

Proposed financing mechanisms

- **Increased government funding of disposal facilities** supported by multilateral/bilateral funding
- **Technical assistance** grants to deploy new technologies, build technical capabilities or enable improvements in quality or environmental/social standards
- **Blended finance approaches** to increase private capital in disposal projects

Key challenges

- **Expanding government landfill planning**, synched to waste management expansion plans
- **Adopting voluntary or mandated extended producer responsibility** (EPR) or a similar policy
- **Ensuring institutional** and technical capacity to effectively manage EPR funds
- **Increasing land** access for new/expanded controlled disposal facilities
- **Implementing a disposal tax** or "tipping fee", only if combined with enforcement of illegal disposal
- **For waste-to-energy**, proving technical and commercial viability in Indonesia and proving that environmental emissions will meet international standards

Image: Unsplash/Iswanto Arif

A

Part A: Financing Indonesia's NPAP Action Roadmap

Summary

6.8M
Tonnes of plastic waste generated by Indonesia annually

Indonesia generates 6.8 million tonnes of plastic waste each year, of which around 4.8 million tonnes are mismanaged and approximately 620,000 tonnes per year leak into waterways and the ocean. Without a major intervention, plastic pollution, including ocean leakage, will increase 30% by 2025 and more than double within a generation (i.e. by 2040).

The Indonesia National Plastic Action Partnership (NPAP) has conducted Indonesia's first comprehensive analysis of solutions to plastic pollution. This analysis is adapted from global research by the Pew Charitable Trusts and SYSTEMIQ[4] and was carried out with the Indonesia NPAP Steering Board, NPAP Expert Panel, Indonesian Government and other stakeholders. The NPAP supports Indonesia's National Action Plan on Marine Debris, the Indonesian National Waste Management Policy and Strategy (Jakstranas and its subnational equivalent Jakstrada) and other efforts towards achieving a 70% reduction in the nation's marine plastic debris by 2025.[5]

The Indonesia NPAP Action Plan[6] outlines the System Change Scenario (SCS) with an ambitious set of actions for Indonesia to deliver on this ambitious goal and ultimately achieve near-zero plastic pollution by 2040.

Financing the delivery of this scenario requires capital investments of around **$18 billion** for waste management and recycling between 2017 and 2040, and an estimated **$1 billion per year** increase in operational financing for solid waste management systems by 2040.[7] Significant investments are also required in "upstream" (pre-consumer) parts of the plastic system, to enable the reduction, substitution, redesign or reuse of plastics. (The "upstream" investment need is not costed in this report because of the relative immaturity of these approaches.)

A big part of the funding challenge lies with the government. That said, system change also brings opportunities for private investment into circular economy sectors that could grow rapidly to rough estimates of about **$10 billion per year** in revenue by 2040:

- Plastic recycling: **$2.8 billion per year** in sales of recycled plastic; creation of closed-loop circular recycling systems
- Substitute materials with improved environmental performance: **$2.2 billion per year** in sales
- Packaging reuse: **$860 million per year**
- Alternative delivery models (e.g. refill shops, take-back services, packaging-free deliveries): **$3.4 billion per year**
- Waste collection and controlled disposal: **$590-950 million per year** in service revenues (for plastic waste only), part of which is accessible for the private sector; a larger part is projected to stay within government entities such as region-owned enterprises.

These opportunities are mostly blocked today. Despite a large and growing commitment from Indonesian and international investors and entrepreneurs, new financing is not yet flowing to solve the challenge of plastic pollution in Indonesia because enabling conditions are not in place and the pipeline of investible ventures is immature. Ideas need to be translated into tangible concepts for the investor base that highlight the risks, processes and potential returns of different opportunities, possibly through grant and concessional financing, to demonstrate the viability of concepts to investors, who can come on board at later stages through refinancing agreements.

This Financing Roadmap highlights three cross-cutting efforts that are critically needed to unlock financing and investment opportunities:

A. Incubating and scaling up innovations, ventures and project developments at all stages of the plastic system, through supportive policies, incentives and action

1. Government support and policy changes to incentivize reduction, reuse, redesign and substitution, and to promote behaviour change, recognizing the importance of waste management and recycling as system critical
2. Action from large industry players, to move away from single-use disposable options and adopt reduction, reuse, redesign and substitute solutions
3. Incubation support and seed financing for small-scale ventures that have the potential to grow rapidly

B. Closing the operational financing gap for city-level waste collection and recycling systems and building institutional and technical capacity, starting by identifying low-hanging fruit and facilitating small pilot projects that are scalable

4. Higher, easier-to-collect and easier-to-spend household retribution fees as the pillar of funding government-run waste management now and in the future

5. Government funding where needed to close the operational financing gap

6. Higher income from material sales

7. Industry co-funding for the recovery and recycling of plastic packaging and products through the producer responsibility organization (PRO)

8. Institutional and technical capacity development to improve investibility

9. Further research and piloting of private/informal-sector plastic collection systems

C. Enabling capital investments in the after-use (waste and recycling system) through system changes, technology and blended finance approaches, starting with concept notes for further discussion by stakeholders

10. Large-scale government investments to set up waste management throughout Indonesia to expand coverage to the over 160 million Indonesians without waste collection today

11. Mobilization of blended finance approaches to increase private capital in waste and recycling systems, particularly identifying where government grants and contributions from corporate social responsibility (CSR) funds can unlock opportunities

12. Enforcement and investment to ensure compliance with environmental and social standards and the "investment readiness" of the recycling sector

13. Development of advanced recycling solutions for "hard-to-recycle" plastics and organic waste

14. Investment into integrated project developments

The NPAP will play a vital role in identifying complementarity between different organizations working on similar projects across these cross-cutting areas and bringing them together.

Below: Unsplash/Lucija Ros

1 Overview of the NPAP Action Roadmap

1.1 NPAP Roadmap: The System Change Scenario

Radically reducing ocean plastic pollution to meet the government target of 70% reduction of ocean leakage by 2025

The Indonesia NPAP Roadmap provides the first costed System Change Scenario (SCS) to end plastic pollution in Indonesia. Putting this scenario into action would have a broad positive impact on Indonesia's society and environment:

- Radically reducing **ocean plastic pollution** to meet the government target of 70% reduction of ocean leakage by 2025, and then reaching near-zero leakage by 2040. Between 2017 and 2040, this would prevent 16 million tonnes of plastic from leaking into waterways and the ocean;
- Reducing **greenhouse gas** (GHG) emissions and air pollution. Under the SCS, Indonesia avoids 10 million tonnes of GHG (CO_2-equivalent) emissions per year by 2025 and 20 million tonnes per year by 2040.[8] Radical reductions in the uncontrolled burning of plastic waste would remove a source of air pollution in communities across Indonesia;
- Increasing **social and economic benefits**, including protecting the fishing and tourism industries, providing public health benefits and creating more than 150,000 direct jobs in the plastic waste and recycling sectors. Wider benefits in connected, relevant, affected priority areas – for example, encouraging industry/private-sector participation, reducing poverty, empowering women, creating jobs – should be leveraged to attract further funding.

Without major intervention, plastic pollution will get worse

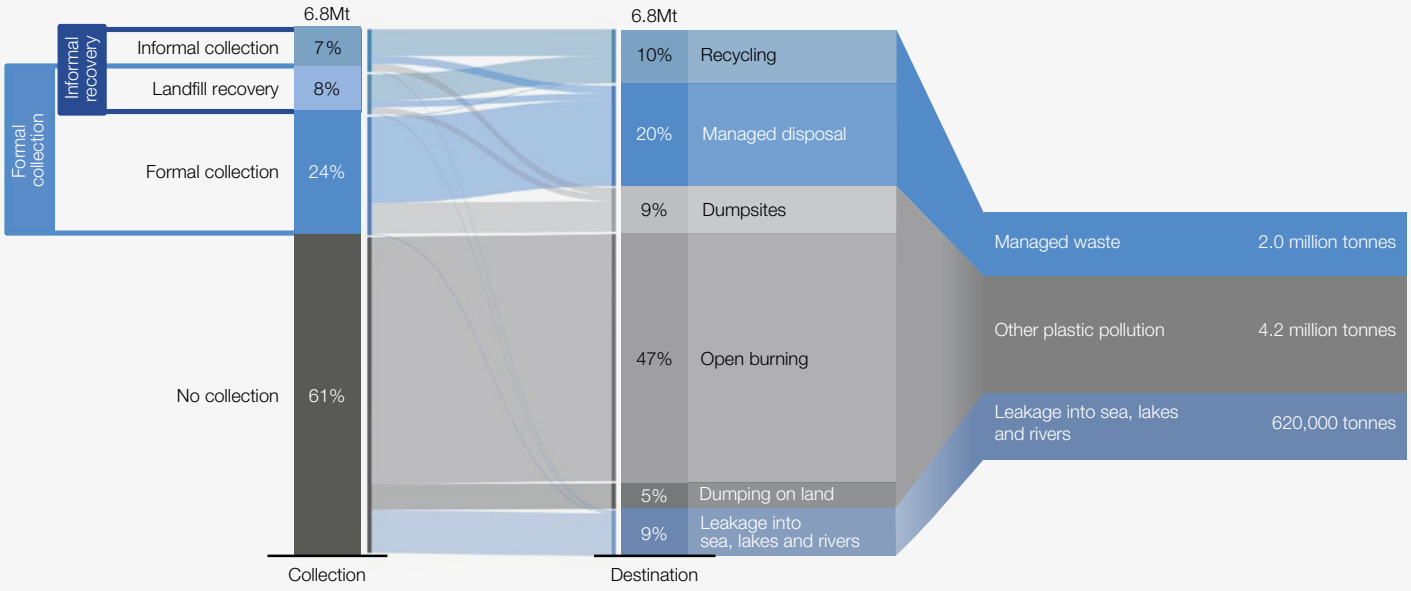
The NPAP analysis focuses on the plastics that are found in municipal waste systems – predominantly, packaging, shopping bags and single-use consumer products. Only 39% of plastic waste is collected: 32% by local governments and 7% by the informal sector.[9] Approximately 10% of Indonesia's plastic waste is recycled today (Figure 1).

If Indonesia continues on its current path, plastic pollution, including ocean leakage, is projected to increase by 30% between 2017 and 2025 and more than double by 2040.[10] Major intervention is required to achieve the government's target of a 70% reduction by 2025 and near-zero plastic pollution by 2040.

Investment and action are required across Indonesia

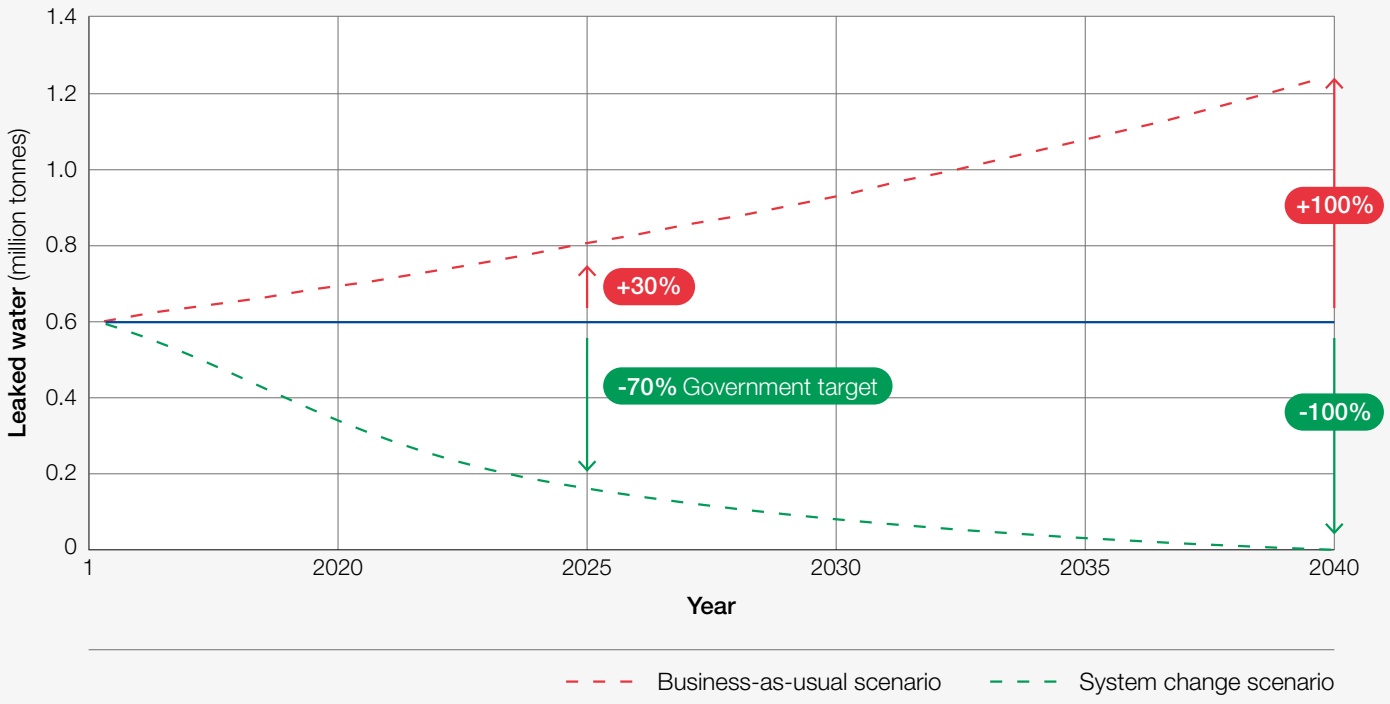
The Indonesia NPAP analysis is based on regency- and city-level[11] data and groups Indonesia's regencies and cities into four archetypes as illustrated in Figure 3.

FIGURE 1 **Where Indonesia's plastic waste ends up today** (% total plastic waste generated)



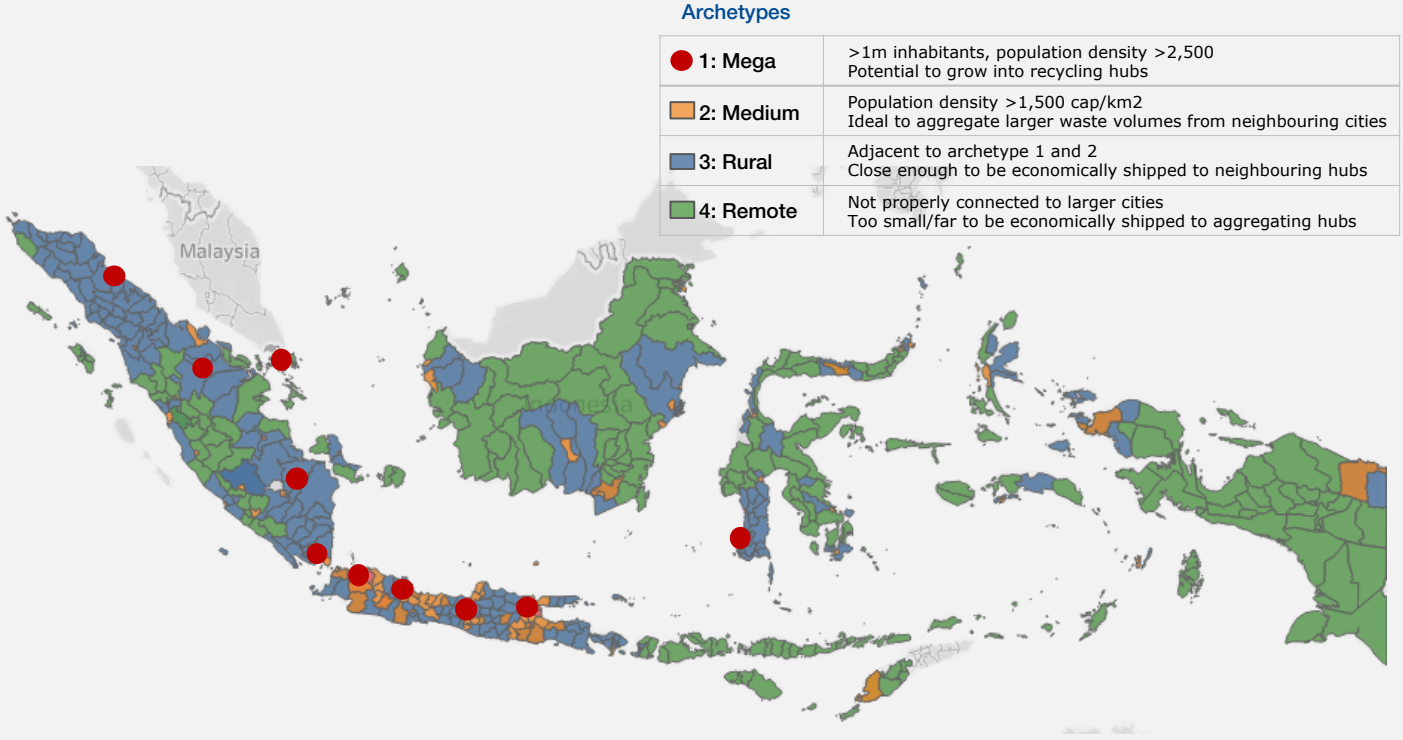
Source: NPAP analysis; World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action Plan*, 2020

FIGURE 2 | **Projected leakage into bodies of water, 2020-2040** (million tonnes)



Source: World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action Plan*, 2020

FIGURE 3 | **Geographic archetypes used in the NPAP system model and System Change Scenario**

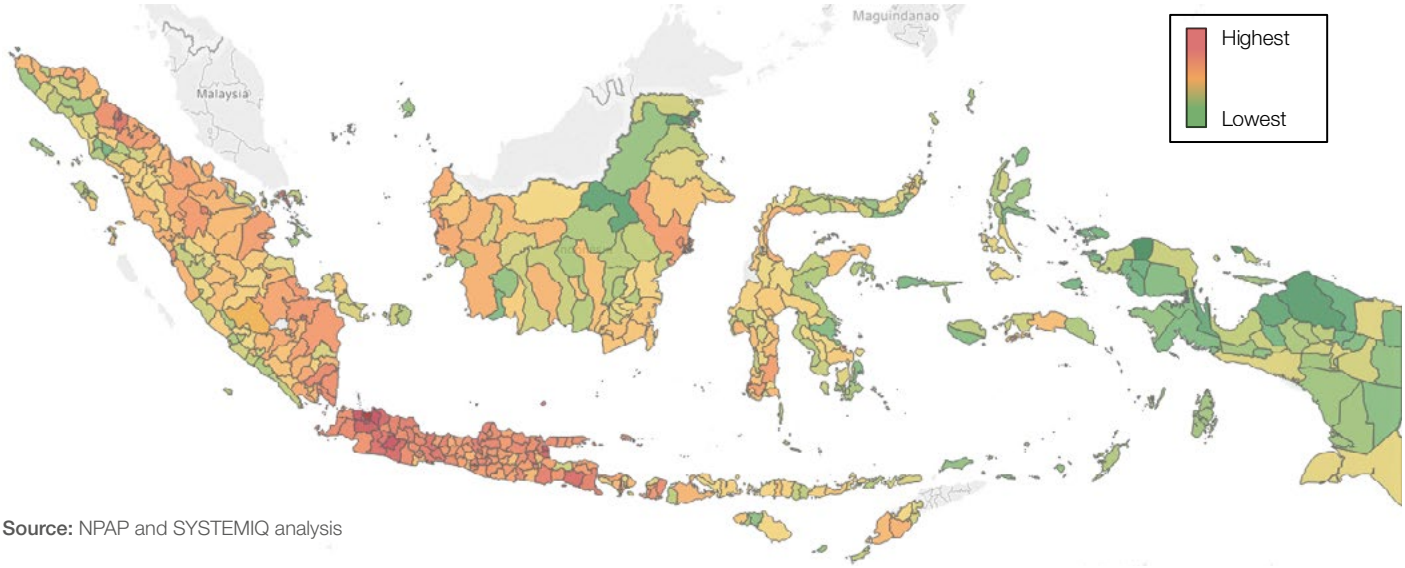


Source: NPAP analysis; World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action Plan*, 2020

The highest potential for impact is in the medium and rural archetypes, the source of more than 70% of plastic pollution (Figure 5). This is particularly true of the most densely inhabited parts of the country: Java, large cities in Sumatra, Bali and greater Makassar. For illustration, Java represents 56% of Indonesia's population, but generates 64% of plastic pollution.

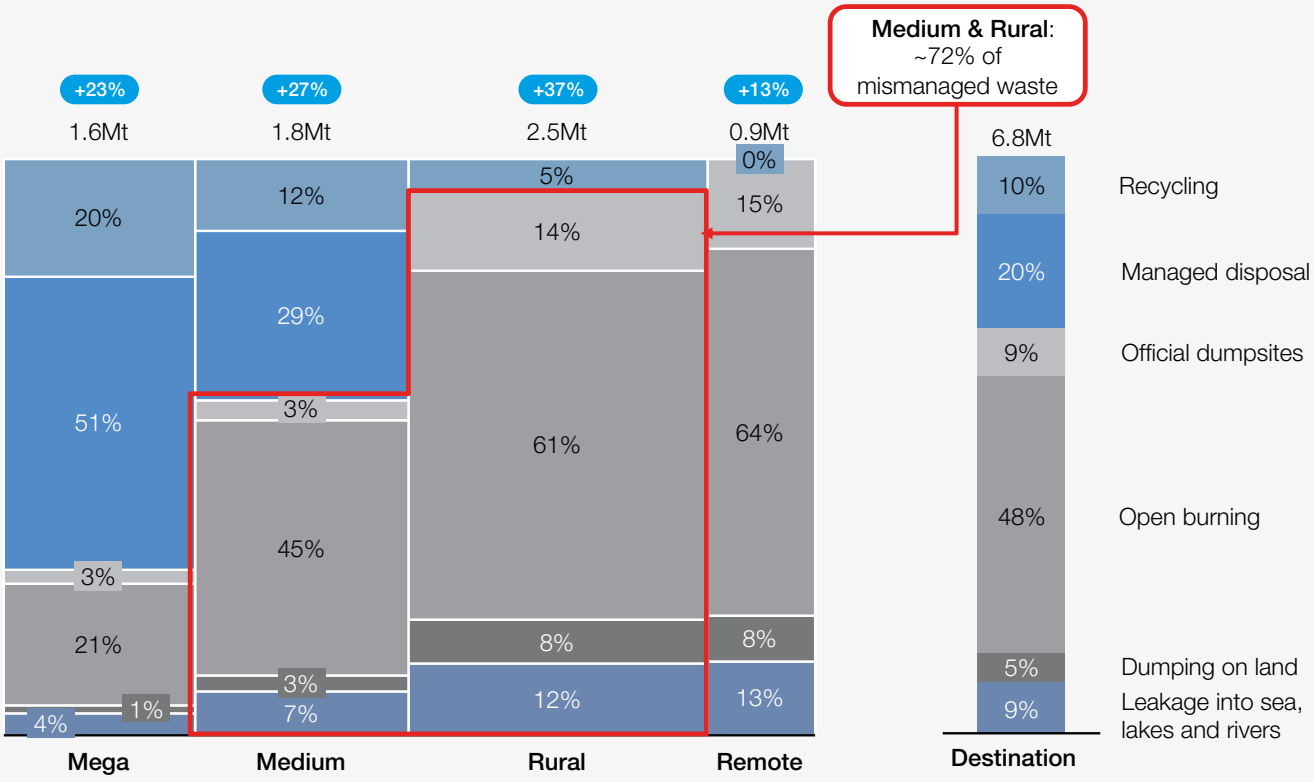
There is also large variation in how plastic types are likely to end up as pollution. Around three-quarters of plastic pollution comes from flexible plastics, including bags, sachets and wrappers. This is partly because they represent a larger volume than rigid plastics, and partly because flexible plastics generally have a lower after-use value for recycling and are not targeted by informal-sector waste collectors. In addition, there are few investment opportunities for flexible plastics recycling.

FIGURE 4 | **Total plastic waste generation in each city or regency of Indonesia**[12]



Source: NPAP and SYSTEMIQ analysis

FIGURE 5 | **The fate of Indonesia's plastic waste, per archetype** (million tonnes per year, 2017)



Source: NPAP analysis; World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action*

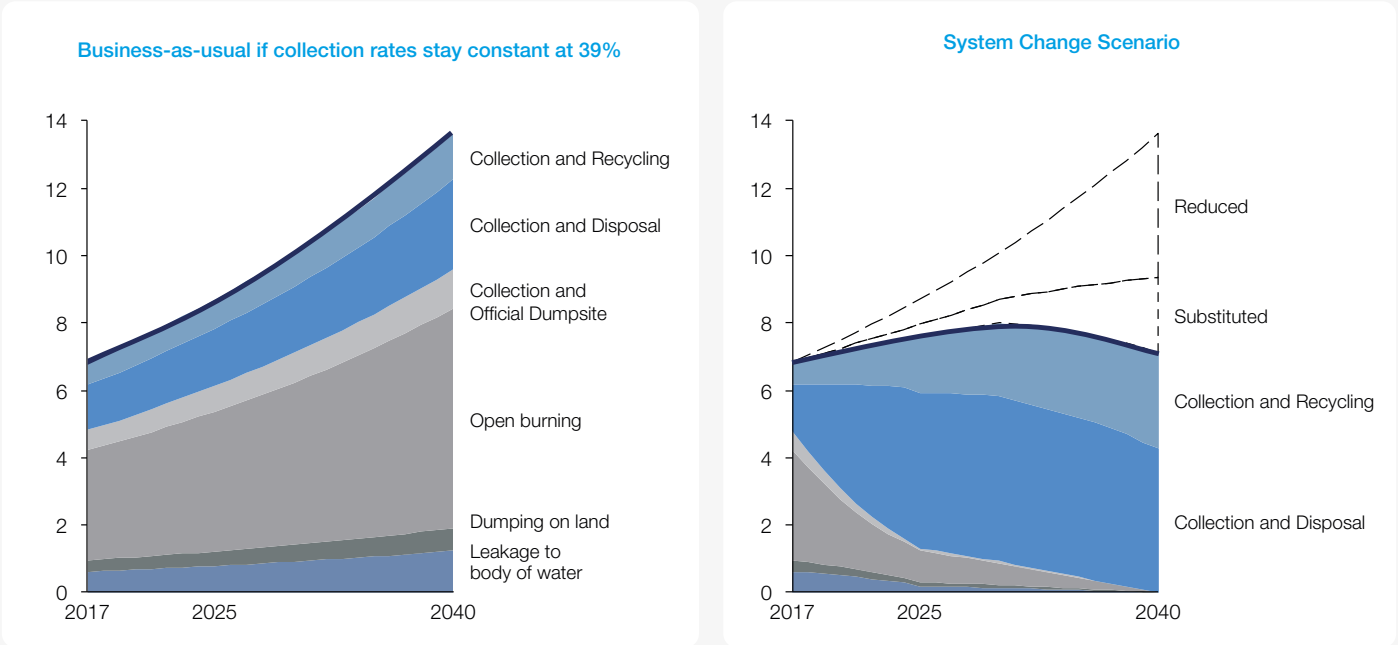
1.2 Urgent and concurrent action required across the whole plastics system

The SCS shows that there is no silver bullet solution to this problem. Five points of action that span the value chain are necessary:

1. **Reduce or substitute (R&S) plastic usage** to prevent the consumption of around 6.5 million tonnes of plastics per year by 2040
2. **Redesign 1.1 million tonnes of plastic products and packaging** to increase high-value recycling or support greater reuse
3. **Collect 2.6 times more waste** from 2.7 million tonnes (2017) to 7.1 million tonnes (2040) by boosting state-funded and informal/private-sector collection systems
4. **Quadruple current recycling capacity** to process an additional 2.1 million tonnes per year of recycled plastic by 2040
5. **Build or expand controlled waste disposal facilities** to safely manage an additional 4.3 million tonnes of plastic waste per year by 2040.[13]

Collectively, these five points of action are projected to reduce plastic pollution, including ocean leakage, by 70% by 2025, and eliminate it within a generation (2040).

FIGURE 6 **Fate of plastic waste in the Business-as-Usual Scenario and in the System Change Scenario** (million tonnes per year)

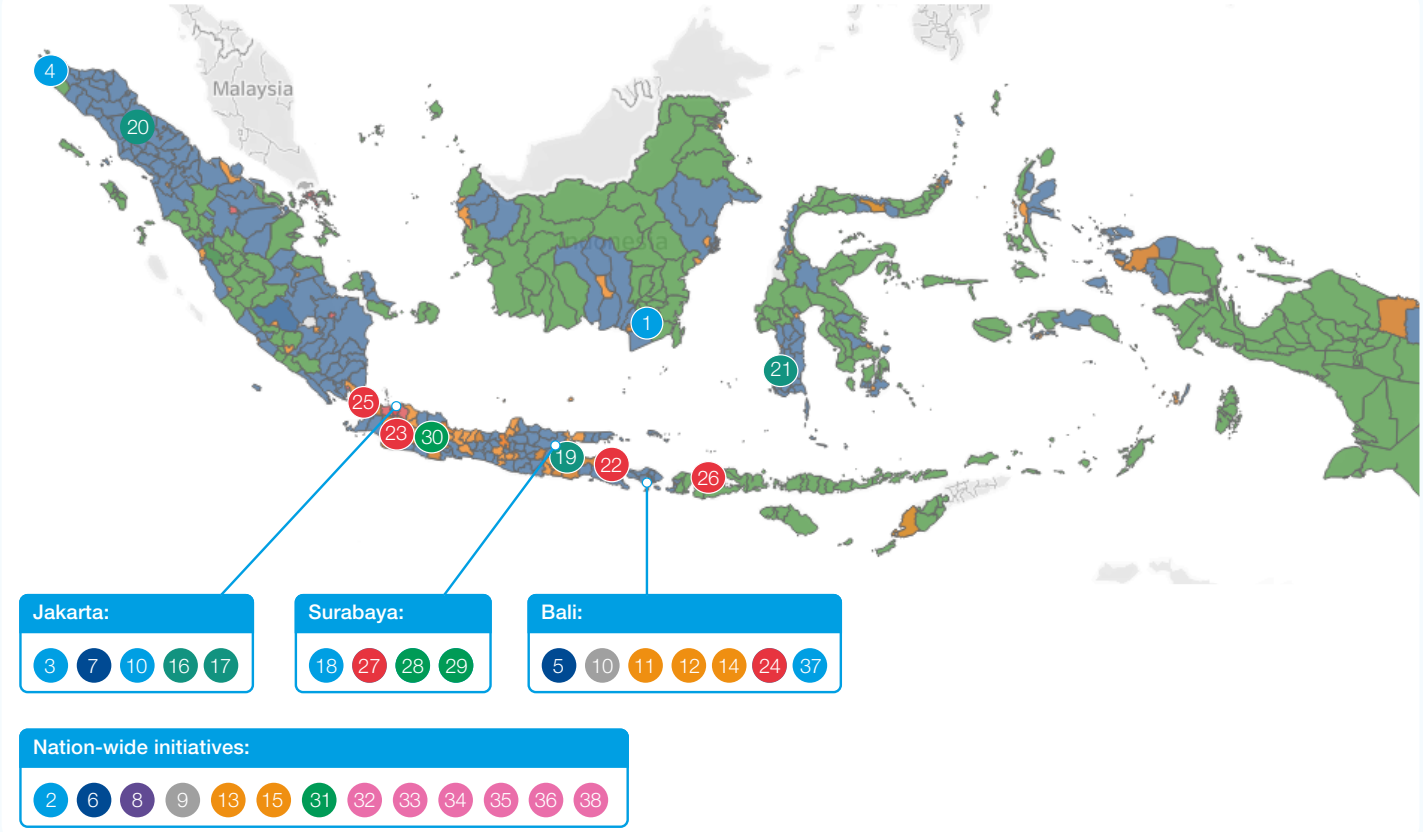


Source: NPAP and SYSTEMIQ analysis based on over 50 public, private and academic publications, nearly all Indonesian (e.g. Jakstrada, BPS - Statistics Indonesia, Ministry of Public Works and Housing)

1.3 A rapidly growing landscape of initiatives and innovations

The NPAP Action Plan identifies more than 40 examples of initiatives and innovations in the plastics system (Figure 7). Many were begun in the last few years. These efforts cover all parts of the value chain, are present in all the archetypes and address all types of plastics. Some initiatives introduce new technology, but many are distinctly low-tech, copying business models that have proven successful elsewhere. Indonesia is often seen as an interesting country to pilot initiatives due to the large potential upside (financial and environmental) if a solution grows to scale in South-East Asia's largest economy.

FIGURE 7 **Case studies and examples of emergent action in Indonesia**



Single-use plastic reduction

1. Banjarmasin is the first city in Indonesia to successfully restrict plastic bags, following an exensive communication period to gain buy-in from businesses and the community. Government promotes the use of a locally produced traditional basket.

2. MAP Group, a leading retail company with more than 2,000 outlets across the country (e.g. Starbucks, Burger King), commits to reducing single-use plastic by replacing plastic cups and cutlery, and charges a fee for plastic bags.

3. BlueBird Group, a company that operates 25,000+ taxis, works with the WWF to eliminate the cups and bottles used daily by its drivers by providing tumblers and refill stations in taxi pools.

4. Nazava, the provider of a technology to filter rainwater and surface water into drinking water, has sold over 150,000 products, thus reducing the consumption of single-use water bottles. Nazava was originally founded to solve the water shortage in Aceh post-tsunami.

New business model

5 MUUSE in Bali operates a deposit-based platform where resturants and consumers can rent reusable food containers and cups for take-away orders.

6 Bulk stores are emerging across Indonesia, especially in cities such as Jakarta, Bandung, Yogyakarta and Denpasar, offering packaging-free shopping to support a zero-waste lifestyle.

7 Since 2015, Kecipir.com has operated an online platform in Jakarta that connects farmers and consumers, allowing sales and delivery of in-season organic vegetables with minimal packaging.

Material innovation

8 Evoware has developed edible seaweed-based food wrapping

Redesign for recyling

9 Nestlé switches to paper straws for its drinks cartons

10 In 2019, Aqua launched Indonesia's first plastic bottle made of 100% recycled material in Bali and Jakarta. By eliminating pigments and replacing labels by embossed text, the bottles are fully recyclable.

Innovation and informal-sector integration

11 Gringgo, founded in 2015 in Bali, developed a digital platform to connect waste workers with households using route analysis to increase collection efficiency.

12 Waste4Change and EcoBali privatize waste collection and employ former waste pickers as collection and sorting workers in an improved working environment. Monthly reports are provided to increase customer awareness.

13 Smash, MallSampah, Obabas and other start-ups are helping digitize waste bank operations and connect them with the community.

14 Plastic Bank pays a premium price for collected plastics using a "plastic offset" scheme funded by corporate clients.

15 In September 2018, SecondMuse launched an incubator network in Surabaya to accelerate solutions to ocean plastics.

Waste management and recycling

16 In 2016, Jakarta increased the salary of its waste workers, known as the orange army, resulting in increased performance. The government monitors the system by requiring each worker to send a daily report via mobile phone pictures.

17 The Jakarta Environmental Agency, in collaboration with Waste4Change, GBCI and MVB Indonesia, launched waste reduction initiatives for buildings and resturants in which best practices will receive awards.

18 The Surabaya city government has improved the city waste management strategy by building sorting facilities, expanding waste banks, and implementing the first plastic-for-bus tickets initiative. In early 2019, the city was awarded Adipura Kencana, the highest clean city award.

19 TPST Bakti Bumi in Sidoarjo has been equipped with a sorting conveyor and plastic crusher to meet the 14% waste reduction target set by the local government.

20 A waste reduction strategy is scheduled to be piloted in Lake Toba, North Sumatra, following a partnership between Indonesia and IGES-Japan.

21 Makassar has received the Adipura award three times for its improvement in managing waste throughout the city. It is driven by the community with support from the government.

Community and city-level partnership

22 Project STOP in Muncar has introduced a waste collection system to over 50,000 residents for the first time. 100% collection is expected to be achieved in 2020. STOP has expanded to two more cities.

23 In 2018, Bandung adopted The Zero Waste Cities programme, community-based waste management aiming to divert more waste from landfills through community engagement.

24 In Bali, Merah Putih Hijau is implementing a community partnership to improve solid waste management. PRAISE and McKinsey.org recently launched the Desa Kedas programme to upgrade waste sorting facilities and stimulate household waste segregation.

25 Masaro, implemented in Cilegon and Banten, among other cities, aims to create zero-waste communities with waste segregation and waste processing into compost and plastic-to-fuel products.

26 Koperasi Serba Usaha, a local cooperative in Labuan Bajo, employs a trash bank model to attract people to participate in the system.

27 Common Seas and PC Muslimat Surabaya, a women's charity, have agreed to collaborate to tackle diaper waste by piloting reusable diapers and to introduce a new waste management service in the Brantas river.

Recycling technology

28 Unilever CreaSolv® facility close to Surabaya recycles flexible and multi-material plastics.

29 Greater Surabaya will also be home to a bottle-to-bottle recycling facility built by Danone in partnership with Veolia.

30 Plastic Energy™ has signed an MoU to build five plants in West Java targeting to convert 100,000 tonnes of plastic into fuel annually.

31 Plastic-to-roads is being trialled in several places, in a Chandra Asri and PUPR collaboration in Bali, Banten and other areas.

Enabling activity and research

32 The Coordinating Ministry for Maritime Affairs and Investment, World Bank and GA Circular are transforming best practices and strategies into effective behaviour-change campaigns.

33 Nahdlatul Ulama, one of the largest religious organizations in the world, has issued a detailed 76-page Islamic guidance on proper plastic waste management.

34 Indonesia Waste Platform, founded in 2015, connects over 1000 organizations and individuals to coordinate solutions for waste management challenges.

35 IPI, a waste picker association established in 1991, advocates for a better livelihood for waste pickers through access to national healthcare (BPJS). It introduced waste recycling zones (KPPS) in Greater Jakarta to better integrate the formal and informal sectors.

36 IP2WM, PRAISE and ADUPI are associations of plastic manufacturers, consumer packaged goods and the recycling industry that are increasingly concerned about plastic pollution and that have been promoting and developing recycling technologies.

37 Bali Partnership has carried out extensive research to build a baseline database of plastic waste in Bali.

38 LIPI and universities, such as ITB, Udayana, ITS, UI and UNHAS, are pioneering research on plastic pollution data.

Source: World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action Plan*, 2020

1.4 Financing system change

An estimated $18.4 billion in investments must be mobilized for waste collection, recycling and disposal systems, of which $8 billion should be allocated to plastic waste (Table 1). The costs for running the system would be around $1.8-2.2 billion per year. This amount is net of revenues, meaning that the profit-generating activities of the system (such as recycling) are not included in these amounts.

While revenue opportunities are clear at the collect, recycle and controlled disposal stages, reuse solutions have also proven to generate cost-saving opportunities for stakeholders by avoiding the costly production and distribution of plastic packaging. Estimates on the benefits vary widely. Investments earlier in the value chain require limited capital expenditure but are likely to offer the largest reductions in plastic pollution, the greatest net savings and the highest mitigation of GHG emissions.[14]

TABLE 1 **Required capital and operational expenditure**

	Operational funding net of revenues (spending per year in 2040)		Operational funding net of revenues (spending per year in 2040)	
	All waste	Plastic only	All waste	Plastic only
Reduce and substitute:				
Reduce or substitute (R&S) plastic usage to prevent the consumption of around 6.5 million tonnes of plastics per year by 2040	While reduce and substitute actions were not formally costed for the Indonesian market because of the relative immaturity of these approaches in the market, available estimates suggest $2.7 billion in capital and operational funding would be required to pilot and scale reuse solutions, per the Enviu Zero Waste Living Lab.			
Redesign:				
Redesign 1.1 million tonnes of plastic products and packaging to increase high-value recycling or support greater reuse	Internal costs within producers of plastic products and packaging; redesign can be a cost saving or a cost increase depending on the case.			
Collect:				
Collect 2.6 times more waste by 2040 by boosting state-funded and informal/private-sector collection systems	$4.6 billion	$2.4 billion	$1.4-1.7 billion per year	$520-880 million per year*
Recycle:				
Quadruple current recycling capacity to process an additional 2.1 million tonnes per year of recycled plastic by 2040	$2.6 billion (plastic waste; not quantified for other materials)		For-profit business that does not require additional operational funding.	
Controlled disposal:				
Build or expand controlled waste disposal facilities to safely manage an additional 4.3 million tonnes of plastic waste per year by 2040	$11.1 billion	$3.0 billion	$460 million per year	$70 million per year

* These amounts include an incentive to stimulate informal-sector collection. The range expresses the uncertainty in how high this incentive should be to stimulate sufficient informal collection volumes.

Source: SYSTEMIQ analysis with NPAP task force member input

1.5 Other support required for a robust financing ecosystem

The main challenge the Financing Task Force addresses is inadequate funding of the waste management system. This can only be solved at the system level; policy is one of the most important levers in solving waste system financing.

Policy matters for waste funding in two ways. First, for the parts of waste management the government is responsible for, policy drives the amount of public funds government can allocate to waste management (currently less than other countries, between $0.60-0.90/per capita or less than half of 1% of regency budgets). Policy also sets the rules for household retribution fees (the largest source of operational funding) and defines how these revenues are allocated: whether they are added to the general budget or earmarked for waste management. Policies can significantly improve waste financing by increasing the waste budget at the right government level and by making it easier to collect and allocate funding for waste programmes. Some examples include requirements on minimum waste budgets at the local level, easier access to funding from the national government, regulation on waste retribution that is currently being finalized, and indirect or digital retribution collection scheme.

Second, government policies can create an investment-friendly ecosystem and bring more private funding into the system, for example through support and incentives for innovation, tax exemption for recycled materials, and regulated extended producer responsibility (EPR).

EPR can be a powerful mechanism to help close the operational financing gap for waste collection and recycling. To effectively stimulate more recycling, the revenues collected through EPR must be used to finance or subsidize the price of recycled plastic. This reduces the pricing gap with virgin plastic, increases the operating budget for waste collectors and recyclers and helps de-risk further investment in the sector. However, more research is needed to identify whether the key enabling conditions for EPR are present in Indonesia.

Policy elements should be addressed alongside the development of the investment ecosystem, possibly through technical assistance, especially where projects need bespoke financial instruments. Policy financing must consider the national, regional, city and local levels, as each has specific roles and needs.

Below: Unsplash/Jason Cooper

2 Assessment of the current private/ international investment landscape

This section focuses on the private and multi/bilateral investment landscape. As mentioned, the Indonesian Government (national and subnational) plays a major role in waste system investments. These are not covered here. This section draws attention to investments (capital expenditures, e.g. for setting up new systems), not operational expenditures (e.g. for keeping existing systems running).

2.1 Growing appetite and interest from international and Indonesian investors

International investors wishing to invest in solutions to plastic pollution have grown in the last 1-3 years

Announcements from international investors wishing to invest in solutions to plastic pollution have grown in the last 1-3 years, many focused on South and South-East Asia. These investors cut across all types of capital from philanthropic funding to fully commercial capital (Figure 8). For example:

- The Asian Development Bank announced in 2019 that it will expand financing and technical assistance for ocean health and marine economy projects to $5 billion from 2019 to 2024, including co-financing from partners.
- Together with the European Investment Bank and the Agence Française de Développement, KfW founded the Clean Oceans Initiative to protect the oceans from pollution and contamination by waste. By 2023, they intend to make €2 billion available to finance waste management and sewage treatment in developing countries, including Indonesia.
- The Alliance to End Plastic Waste has committed $1.5 billion worldwide to address plastic pollution, with a focus on Asia.[15]
- The World Bank is managing three financing initiatives: a solid waste financing project, including $100 million from the World Bank plus counterpart financing, which supports the clean-up of the Citarum River in West Java; a multi-donor trust fund to support specific projects such as surveys; and the PROBLUE fund, focusing on ocean plastic with funding from Norway and Canada.
- Circulate Capital, backed by a US International Development Finance Corporation guarantee, has launched a $106 million Ocean Fund to catalyse investment solutions to stop ocean plastic.[16]
- In 2019, Minderoo Foundation launched the Sea the Future initiative, an industry-led coalition committed to ending the leakage of plastic into nature and accelerating the transition to a circular plastics economy. Sea the Future is focused on developing a market-based model that incentivizes investment in waste collection and recycling infrastructure and operations. Through a joint partnership with the Government of Indonesia announced on 4 September 2020, Minderoo Foundation will pilot its Sea the Future initiative in Indonesia.
- Linked to Circulate Capital, SecondMuse is building an Ocean Plastic Prevention Accelerator in Surabaya that aims to support 10 innovators in their initial round (supported by the Australian Government's Department of Foreign Affairs and Trade).
- Morgan Stanley has committed to facilitating the prevention, reduction and removal of 50 million tonnes of plastic waste by 2030.[17]

In addition, the Indonesian Government has successfully launched green bonds and green sukuks (an Islamic finance instrument) with waste management as part of the projects that can be financed by these vehicles. A blue sukuk (earmarked specifically for marine and ocean-based initiatives) is in the works to better target financing towards ocean-related projects. A large green finance investment platform managed by the state-owned infrastructure financing company SMI, SDG Indonesia One was launched in 2018 for infrastructure projects in the country. By October 2019, this platform's funding commitment had reached more than $3 billion. This vehicle represents a possible "starting point" for NPAP-related initiatives to build on, leveraging public monies and support to attract private investment and reduce credit risk. More consideration should be applied to appropriate financing models.

FIGURE 8 | Segmentation of potential investors

PUBLIC

DEVELOPMENT

COMMERCIAL

	Definition	Examples
Government	National or local government entities investing in assets, usually focusing on infrastructure through public budgets (e.g. APBN, APBD, Dana Desa)	
Concessional Capital	Typically grants and technical assistance or other form of catalytic capital (MRI/PRI) through ministries or development agencies (through official development assistance)	European Investment Bank, KFW, SMI, AFD
Development Banks	Typically provide commercial rate lending or equity finance (multilateral or bilateral)	ADB, THE WORLD BANK
Philanthropy	Typical charitable fund	Minderoo Foundation
VC/Impact Investors	For various stage development (seed, VC, growth etc.). Can incorporate blending of public/philanthropic capital to mitigate risk	gef, CIRCULATE CAPITAL, ALLIANCE TO END PLASTIC WASTE
Corporate Players	Funding and grants and other support from the corporate sector	Coca-Cola, Nestlé, DOW, PEPSICO
Commercial Investors	Providing debt/bilateral lending, corporate finance advice, sustainability-linked loans	BNP PARIBAS, CREDIT SUISSE, NORGES BANK, TEMASEK, ADM CAPITAL

Source: Indonesia NPAP

This segmentation is not exhaustive: for example, development banks also provide sovereign and non-sovereign finance, including credit enhancement in the form of guarantees, grants, funds (such as Viability Gap Funding), blended finance and public-private partnerships (PPPs). State-owned enterprises (such as PT SMI) also play a valuable role in the investment ecosystem.

2.2 System challenges to overcome

More support is required to develop projects to achieve the scale and impact necessary to make a material difference on plastic reduction outcomes

Despite the major commitments outlined above, new financing is not yet flowing to sufficiently solve the challenge of plastic pollution in Indonesia. This is in part due to the availability of a pipeline of investible opportunities sufficient to meet investor demand. More support is required to develop projects to achieve the scale and impact necessary to make a material difference on plastic reduction outcomes. Individual projects need closer scrutiny and, where necessary, targeted support to ensure they are investible or bankable. This may require innovative credit enhancements, structures and new sources of financing to make projects investible. This paper identifies system challenges in financing for upstream and downstream solutions currently inhibiting investments. A particular focus is dedicated to the system challenges of recycling markets.

Key challenges need to be resolved regarding the financing of "upstream" business ventures that aim to reduce the use of plastics through alternative business models (e.g. packaging reuse) or substitute them with alternative materials that have a better environmental performance. They include the cost of change for consumer goods companies and packaging producers that have invested in factories and supply chains based on plastic packaging, the immaturity and relative scarcity of new ventures in this sector, and low public awareness of plastic alternatives.

Several system challenges also currently prevent the expansion of plastic recycling. The problems concern both demand and supply: competition from cheaper virgin plastics means customers are not buying recycled plastics, and a shortage of feedstock for recycling exists due to underdeveloped collection and sorting systems. Limitations in the quality of recycled plastics prevent high-grade use, such as for consumer products, and some recycled plastics do not reach food-contact certifications. Finally, transparency is lacking across the value chain, with limited data on material flows, financial flows and the impact of recycling.

Regarding the financing of "downstream" business ventures in waste management and recycling, a 2019 Circulate Capital report[18] identifies key themes that apply across South and South-East Asia:

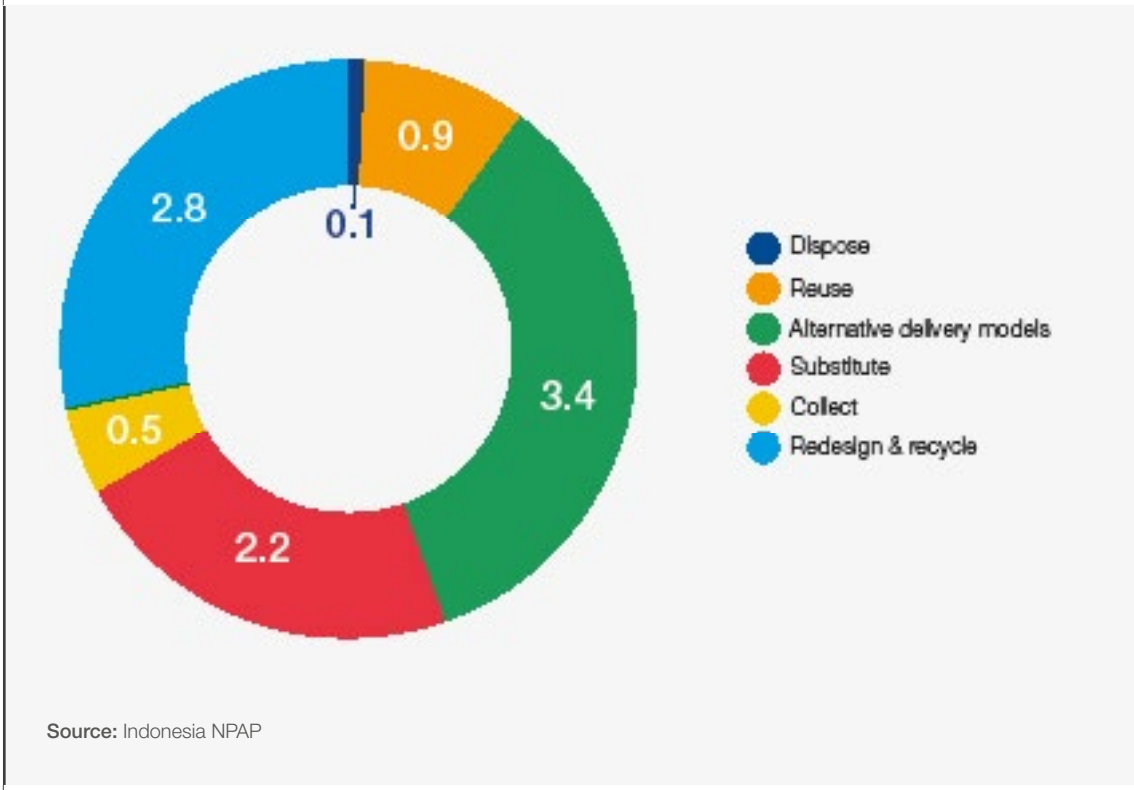
TABLE 2 **Key challenges in the financing of downstream business ventures in waste management and recycling**

Key themes		Possible responses
A weak pipeline of "investible" companies	– Waste management and recycling companies with strong and transparent track records of profitability in South and South-East Asia are lacking. – The pickings for project financings are slim, and medium-to-large financings ($30+ million) typically have credit exposure to a public-sector entity (e.g. for waste-to-energy facilities). – Early-stage investments are generally in the form of equity or quasi-equity, with amounts ranging from $250,000 to $10 million.	– Create instruments like Advanced Market Commitments to support early-stage financing – Use capacity-building tools to support factors that will improve investibility (e.g. governance or marketing). One example is the WHO PQ (prequalification) model. WHO has a mechanism for vaccine manufacturers, to bring them to a certain quality and level called PQ
Lack of appetite/experience among institutional investors in the region	– The top 100 Asian institutional investors allocate less than 0.5% of their assets under management to infrastructure. Waste management is likely a small fraction of this. This may be due to a perception that infrastructure investments are subject to public-sector control, which can be seen as risky relative to investment in other areas, and to the relatively thin pipeline of bankable projects.	– Use the NPAP platform and networks of task force members to tap a global investor base – Use internationally standardized structures and instruments to increase investor comfort – Use the strong credit ratings of partners (such as the Asian Development Bank's AAA rating) to underpin coalitions of investors – Enhance access to credit

Key themes (cont.)		Possible responses (cont.)
Lack of appetite/experience among institutional investors in the region	– Co-investors form a comparatively small pool: multilateral development banks have focused primarily on disposal (waste-to-energy and landfills). Indonesia's comparatively mature impact investment community so far lacks a specific focus on solid waste management.	– Improve awareness among institutional investors in Indonesia and the region, such as through concept notes that provide clarity to investors
Critical gaps in operational financing and enforcement	– National legislation on waste management is typically comprehensive in South and South-East Asia, but enforcement is poor and waste management systems are "characterized by insufficient operating and capital expenditure budgets at the local level". – The decentralization of waste and recycling systems in most countries (including Indonesia) means that active support from local stakeholders and political leaders is critical for the success of investments, and introduces multiple levels of political risk for any investment.	– Work with the Policy Task Force to explore policy responses for greater enforcement – Work at the municipal level to standardize the approach between municipalities where possible and to build the capacity of local government for this to be successful – Connect the informal and formal sectors, piloting projects that link waste pickers to collection points and recycling centres, providing support for transportation
Feedstock security risk for recycling investments	– Plastic waste "feedstock" for recycling in Indonesia almost entirely comes through the informal sector. This leads to significant feedstock risk, as supply contracts may be non-existent or difficult to enforce, and to risks associated with compliance with social and environmental standards.	– Establish clear commitments from industry for a certain level of demand for recycled plastics, using the price signal to incentivize suppliers to contract for and provide certain amounts of feedstock
Policy and regulatory burdens	– Other hurdles for investors to come on board are the regulatory environment, tax system and revenue collection system. – Local governments do not always have the capacity to support new waste management models.	– Perform a gap analysis of existing policies, such as through the NPAP Policy Task Force – Explore tax incentives and other market-based policy instruments to reduce plastic waste and encourage recycling – Hedge foreign currency risk and build up support in local capital markets, possibly through localized instruments (such as KIK-EBA structures – asset-backed securities collective investment contracts – or sukuks) – Support local government to test, pilot and operate new waste management models

Source: Circulate Capital, "Investing to reduce plastic pollution in South and Southeast Asia: A handbook for action", 2019, and SYSTEMIQ analysis

FIGURE 9 | **Circular economy business opportunities (estimated revenue, US$ billion in 2040)[19]**



Source: Indonesia NPAP

One possible mechanism for addressing these challenges is a nationwide scheme rather than a project or series of projects. The Ministry of Finance's Viability Gap Funding scheme, successfully used in other countries including by the Government of India, is an example of how different sectors can be brought in to a common "financing" platform. The projects likely to be implemented under the NPAP will have a diverse set of features and requirements. Having an overarching scheme that provides financial support will help their organized implementation.

Below: Unsplash/Edouard Dognin

3 Cross-cutting recommendations from the Action Plan

Significant new financing must flow into upstream and downstream solutions if Indonesia is to achieve its ambitious goals for preventing plastic pollution. Despite global commitments, little new financing is flowing today. To unlock new financing, action is needed by government, industry, civil society and the investment community.

This section provides cross-cutting recommendations for urgent action that would help mobilize large-scale international and Indonesian investment, from government and private parties, to solve the challenge of plastic pollution in Indonesia. It also focuses on ways to cover operational costs to keep the systems running once set up. The recommendations contain three broad themes:

– Identify high-impact projects that will make tangible progress towards the goals of the Action Plan where sufficient capital can be deployed
– Develop tailored solutions for deploying capital investments in after-use, and help to identify and connect investible small and medium-sized enterprises and projects to potential investors
– Work with the Behavioural Change Task Force to finance and launch high-decibel, sustained nationwide campaigns for behaviour change (possible behavioural change interventions will be detailed in the forthcoming Behavioural Change Roadmap)
– Explore options for funding mechanisms that would support task force initiatives and, if a suitable mechanism is identified, develop and launch a financing scheme (possibilities might include models like SDG Indonesia One, Plastic Viability Gap funding, annuities or hybrid annuities, and blue bonds or traditional managed funds).

3.1 Overview of cross-cutting recommendations

Incubating and scaling up innovations, ventures and project developments

1. Government support and policy changes to incentivize reduction, reuse, redesign and substitution, and to promote behaviour change
2. Action from large industry players, to move away from single-use disposable options and adopt reduction, reuse, redesign and substitute solutions
3. Incubation support and seed financing for small-scale ventures that have the potential to grow rapidly

Closing the operational financing gap for city-level waste collection and recycling systems and building institutional and technical capacity

4. Higher, easier-to-collect and easier-to-spend household retribution fees as the pillar of funding government-run waste management now and in the future[20]
5. Government funding where needed to close the operational financing gap
6. Higher income from material sales
7. Industry co-funding for the recovery and recycling of plastic packaging and products through the PRO
8. Institutional and technical capacity development to improve investibility
9. Further research and piloting of private/informal-sector plastic collection systems

Enabling capital investments in the after-use (waste and recycling system) through system changes, technology and blended finance approaches

10. Large-scale government investments to set up waste management throughout Indonesia to expand coverage to the over 160 million Indonesians without waste collection today
11. Mobilization of blended finance approaches to increase private capital in waste and recycling systems
12. Enforcement and investment to ensure compliance with environmental and social standards and the “investment readiness” of the recycling sector
13. Development of advanced recycling solutions for “hard-to-recycle” plastics and organic waste
14. Investment into integrated project developments

These recommendations span all the task forces: Financing, Policy, Innovation, Behavioural Change and Metrics. The Financing Task Force will work with members of all the task forces on these recommendations.

3.2 Incubating and scaling up innovations, ventures and project developments

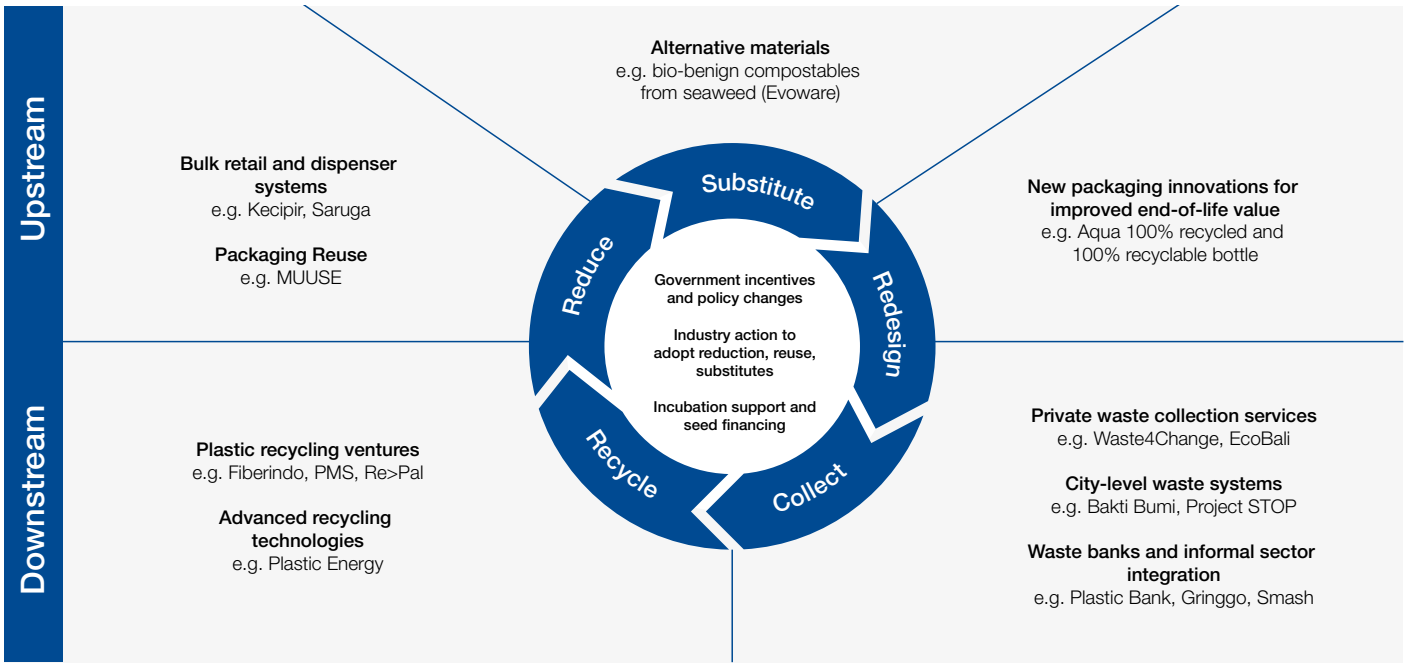
Innovation, incubation and scale-up efforts are needed across all stages of the plastic system in Indonesia:

Upstream (pre-consumer) innovations, ventures and project developments, including reducing avoidable plastics, switching to reusable rather than single-use packaging, substituting plastics with alternative materials that have a better environmental performance, as well as redesigning plastic products and packaging to increase their value for reuse or recycling.

Downstream (post-consumer) innovations, ventures and project developments, including new recycling technologies and new plastic waste recovery models that integrate informal-sector collectors and use digital traceability technologies.

These initiatives are supported by the Government Regulations on a Plastic Bag Excise as mandated in the National Action Plan on Marine Plastic Debris Handling (Presidential Decree 83/2018), aimed at further encouraging consumers to reduce their use of single-use plastics nationwide. The Ministry of Finance established a plastic excise tax, approved by Parliament, to put a price on all single-use plastic carrier bags. The revenues from plastic imports or packaging excise taxes could support PROs, which face resourcing challenges in the current environment.

FIGURE 10 **Upstream and downstream innovations, ventures and project developments**



Source: NPAP analysis

Recommendations

1. Government support and policy changes to incentivize reduction, reuse, redesign and substitution, and to promote behaviour change

New ventures and business models are emerging worldwide to reduce avoidable plastics and redesign plastic packaging for high-value reuse and recycling. In Indonesia, these efforts are still small-scale.

Since 2019, a Special Allocation Fund (DID) rewards regional governments that have a proven record of reducing their plastic waste. Banjarmasin, the first city in Indonesia to ban plastic bags, was the first recipient of this facility in 2019, receiving about 9.5 billion Indonesian rupiahs (approx. $650,000). In 2020, 10 further eligible cities will receive the allocation. Four other forms of support under the authority of the Ministry of Finance are: ecological fiscal transfers (EFT), which redistribute government tax revenues to protect ecologically important sites and compensate local governments for conservation efforts; the waste management service fee (BLPS); the investment scheme for cooperation between government and business entities (KPBU) to support the implementation of PPPs in Indonesia; and the purchase of electricity generated by waste biomass power plants (PLTS).

Through Ministry of Environment and Forestry Regulation 75/2019, the Roadmap to Plastic Waste Reduction by Producers, the government signals its important commitment to reducing avoidable plastic use.[21] This could be complemented by government support and incentives that will encourage the growth of new Indonesian ventures to take advantage of this opportunity in the country and wider region, for example:

- Embedding incentives to "reduce, reuse, redesign" within new policies, for instance ensuring that EPR policies are rewarding the reduction of avoidable plastics and the use of design-for-recycling guidelines and recycled content
- Aligning government policies on substitute materials with internationally recognized standards, particularly oxo-degradable plastics that can cause environmental harm
- Promoting research/innovation funding and partnerships between Indonesian universities and private-sector companies
- Recognizing leading entrepreneurs and innovators in this sector, for example through a government innovation challenge or awards programme
- Doing away with single-use plastics in government offices and in government procurement contracts
- Promoting behaviour change through public information campaigns and partnerships with civil society and religious organizations, to raise the profile of plastic pollution and encourage responsible uses of plastics
- Building a long-term pipeline by supporting research and development and incubating projects.

2. Action from large industry players, to move away from single-use disposable options and adopt reduction, reuse, redesign and substitute solutions

> Large industry players have a key role in enabling investment in new business ventures

Large industry players have a key role in enabling investment in new business ventures, particularly in the fast-moving consumer goods, retail and food service sectors, for example:

- Providing a clear signal of this new market opportunity for entrepreneurial ventures in Indonesia by committing to reduce single-use disposables and adopt reduction, reuse, redesign and substitute solutions
- Continuing precompetitive collaborations between companies across the value chain, to ensure coordination and consistency of approaches across multiple companies
- Providing patient financing or a revolving fund for ventures as they expand, for example through equity investments or patient loans
- Incubating, collaborating and developing solutions with entrepreneurial ventures, while also allowing ventures the space and freedom to innovate and protect their intellectual property
- Promoting behaviour change through investment in communications, marketing and advertising that encourages responsible uses of plastics and the uptake of alternative delivery models.

Policy actions provide important levers to guide industry behaviour, including, for instance, subsidies for redesign and substitute solutions, or additional taxation or other disincentive schemes for high polluters.

3. Incubation support and seed financing for small-scale ventures that have the potential to grow rapidly

Incubation support and seed financing have been very successful at increasing small-scale ventures in other sectors, particularly digital technology. Several incubation initiatives have already been established to support entrepreneurs developing both upstream and downstream solutions for plastic pollution (for example, SecondMuse, The Circulate Initiative, Enviu Zero Waste Living Lab, Plug and Play, and the Grameen Creative Lab). These incubation efforts are a key part of the ecosystem that should be further supported by government, industry, civil society, multilateral/bilateral donors and philanthropic funders to ensure a strong pipeline of investible businesses with potential for impact and commercial success. The government can consider de-risking early-stage and unproven innovative start-ups to help them get through the "valley of death".

3.3 Closing the operational financing gap for city-level waste collection and recycling systems and building institutional and technical capacity

Solid waste management is devolved to subnational (city/regency) levels in Indonesia, with some responsibilities further decentralized down to the village or even neighbourhood level. Waste collection systems are under-funded by about $1 billion per year and face institutional and technical capacity challenges. Closing this operational financing gap and building institutional capacity are critical steps to mobilizing investment financing for the equipment and infrastructure required to change the system. Investors will not deploy capital for waste collection and recycling systems that are not financially sustainable. The recommendations provided below follow the main three sources of operational funding today (household retribution fees, government subsidies and material sales) plus EPR. Two further recommendations on capacity development and the informal sector follow.

The government is providing valuable support in this area. The Ministry of Finance is the National Designated Authority (NDA) of the Green Climate Fund, which is one available innovative financing alternative to assist in meeting the financing gap. Financing gaps that cannot be allocated through state budgets can be filled using various innovative financing mechanisms, including, for example, green sukuks, which the Indonesian government has been issuing since 2018, with rates improving into 2020. Well-organized plastic waste management programmes and activities can be incorporated as underlying assets in the issuance of green sukuks in the future, especially where they can demonstrate returns. Through the Ministry of Finance, in March 2018 the Government of Indonesia issued the very first sovereign green sukuk in US dollars. The five-year issuance raised $1.25 billion and reached a broad range of investors, including conventional, Islamic and green investors. In fact, the issuance was oversubscribed, signalling the growing market demand for sustainable and responsible investments.

In addition, waste management in general and plastic in particular cannot be separated from gender issues. Investments should encourage the participation of women and other vulnerable groups in informal-sector plastic collection or recycling processes. An increased role for vulnerable groups and raising household incomes will support sustainable development, particularly through increasing transparency and traceability to ensure women and other vulnerable groups can play an active role in waste management and plastics reduction initiatives.

Recommendations

> Addressing the critical challenge of closing the operational funding gap starts by strengthening the primary source of revenue of waste management systems locally

4. Higher, easier-to-collect and easier-to-spend household retribution fees as the pillar of funding government-run waste management now and in the future[22]

Addressing the critical challenge of closing the operational funding gap starts by strengthening the primary source of revenue of waste management systems locally: household retribution fees collected by local governments:

- **Higher fees**: Although household retribution fees typically are the largest source of income for waste collection systems (between 50% and 100% of revenue), most regencies/cities set their fee levels too low to cover the costs of waste management operations. The Indonesian Government is in the final stages of establishing new regulation that makes it easier for local governments to calculate the appropriate per-household fee level, based on volume and/or type of customer (households vs business). In many cases, this would increase the fees that residents currently pay, while remaining affordable for households (the higher rates are still below 0.5% of the median household income).

- **Easier-to-collect fees**: Collecting retribution fees often involves going from door to door. Some cities allow digital payments, with good results. In some locations, retribution fees can be paid simultaneously with PLN (electricity) or PDAM (water) charges. Similar systems are considered best practice internationally because of their ease of payment for households. In Indonesia, work is needed to ensure they cover the right people (only those with waste collection), are user-friendly and allow for the funds to be used for waste management.

- **Easier-to-spend fees**: Based on current regulations, retribution fees are one of the revenue sources of local governments, which therefore go into local government budgets (APBD accounts). This means they are added to the general budget and not earmarked for waste management. Because the regulations only suggest that retribution fees be *prioritized* for spend on waste management instead of being *earmarked* for it, the local government decides on how they are spent. In some cases, restrictions block spending the funds on operational costs such as salaries (the main cost of running a waste management system).

5. Government funding where needed to close the operational financing gap

- Increasing local (regency) government spend on solid waste management at the city/regency level, for instance by requiring local governments to allocate a mandatory minimum percentage of their budget to waste management, similar to mandatory spending on education and health, which require cities/regencies to spend a minimum of 20% of their total budget on education and 10% on health. This requires revising the law on waste management.

- Increasing the allocation of funds from national or provincial budgets and making these allocations more dependable. For example, the Indonesian Government could create new DAK-non-fisik funding (funds that cannot be used on physical infrastructure) similar to DAK-non-fisik BPLS (Bantuan Biaya Layanan Pengelolaan Sampah) dedicated to waste management operations that can be used for both capital expenditures and operating expenses, to be prioritized for regencies/cities that have projects or initiatives to achieve 70% marine debris reduction (and/or Jakstranas goals). This would allow the areas where the highest leakage takes place to access the funding.

- Implementing a mandatory waste disposal tax or "tipping fee" paid by waste producers to finance the controlled disposal of waste and also incentivize reduction, reuse and recycling, while recognizing the need for increased enforcement of waste haulage operators to mitigate the risk of illegal dumping.

6. Higher income from material sales

In Indonesia, nearly all recycled material is sourced from the informal sector. Informal waste workers collect about half of that material in residential areas, the other half from landfills and government transfer stations. So far, the role of government entities in supplying to the recycling sector is limited to a small number of best-practice locations. On the informal side, there is an active market in higher-value plastics. As a result, medium-value and low-value plastics are those that are most commonly found in nature and that pollute the most.

- Paying price premiums and establishing long-term contracts with buyers of recycled material to boost the value of recyclable material

- Redesigning products and packaging to increase their after-use value to improve recovery economics

- Stimulating extra demand by encouraging or mandating the large-scale procurement of recycled plastic products by government agencies, state-owned enterprises and government-funded projects

- Promoting extra supply and improved government-run waste management economics by introducing household waste segregation and government-run sorting and material sales.

7. Industry co-funding for the recovery and recycling of plastic packaging and products through the PRO

The Indonesia PRO was launched in August 2020. The coming years will be crucial in developing an effective and fair way for companies to contribute funding to waste management systems.

– Developing industry co-funding through an effective EPR[23] scheme that channels funding from producer companies to subsidize and incentivize the recovery and recycling of plastic waste through private/informal-sector systems or by supporting city-level waste management systems.

8. Institutional and technical capacity development to improve investibility

Financing is not the only challenge for government-run waste systems. The Indonesia NPAP report highlights several actions that are required to build institutional and technical capacity to effectively roll out and manage solid waste management systems at the city/regency level. Investments in equipment and infrastructure often fail without a focus on the institutional and technical capacities to set up and maintain waste system operations; this can become a major detractor for investors. To mitigate these effects, capacity building, technology and knowledge transfer through workshops and seminars and, in certain cases, joint ventures that combine many of these elements are necessary. Many cities around the world concession out their waste management to professional waste management companies. Whether that is a viable option in Indonesia could be explored.

9. Further research and piloting of private/informal-sector plastic collection systems

Alongside the rapid expansion of the government-run solid waste management system, the SCS developed by the Indonesia NPAP incorporates new plastic waste collection through private-sector channels, for example via a PRO that channels industry co-funding to incentivize plastic waste collection by private/informal-sector collectors. Some of the revenue from possible excise taxes could be directed towards supporting PROs.

Further research is needed to compare the cost of plastic waste collection through this route versus government-run systems, and to satisfy concerns about the expansion of private/informal waste recovery systems that can have unsafe working conditions and other social issues. This route, if considered scalable, may provide an opportunity for investors and a pathway for faster expansion of plastic waste collection and recycling. This should be complemented by incentives for industry to invest in R&D and/or reform to allow FDI in this field with companies with well-developed models. Crucial factors in unlocking investments are supply chain transparency and compliance with social and environmental standards. Without good tracking and monitoring systems in place, and without programmes that effectively improve working conditions, many international investors will not be able to invest in the space. Digitization will play a big role in enabling these systems, but most of the work would require people on the ground.

> “ Financing is not the only challenge for government-run waste systems

3.4 Enabling capital investments in the after-use (waste and recycling system) through system changes, technology and blended finance approaches

Capital investments in the waste system are required to pay for waste collection equipment (bins, tricycles and trucks), waste transfer stations and sorting facilities, recycling facilities and waste disposal sites

Capital investments in the waste system are required to pay for waste collection equipment (bins, tricycles and trucks), waste transfer stations and sorting facilities, recycling facilities and waste disposal sites. The capital investments required are large, but would represent 1.2% of Indonesia's planned infrastructure investments over the same period.[24] To make this attractive and bankable, a combination of credit enhancement mechanisms will be needed. These might include minimum revenue guarantees, annuity mechanisms or Blue Viability Gap Funding for plastics – or some combination sufficient to attract private-sector funding for capital expenditure.

Private investment and private-sector operatorship for waste collection and disposal systems are permitted in Indonesia. However, despite a small number of exceptions – such as Waste4Change and ecoBali, which run privately funded waste collections, and Sumber Organik, which runs the Surabaya landfill – the majority of collection and disposal systems are funded and operated by the government. Several factors explain this situation, including that private capital may be restricted to investing in private companies only. Closing the operational financing gap and building institutional and technical capacity could increase the opportunity for private investment and private-sector operatorship of waste collection and disposal systems, possibly by allowing partnerships with private-owned waste management companies with appropriate regulatory oversight.

In contrast, the plastic recycling sector is entirely funded by private investment, particularly family funding and partial bank funding, including the recovery of plastics through informal-sector supply chains and the processing of plastics into new products or recycled resin. This sector is dominated by Indonesian family businesses, with only a few exceptions, such as Veolia and Danone's recycled PET (rPET) plant and Re>Pal in the greater Surabaya region. Almost all plastic waste feedstock is procured through the private/informal sector. This system poses challenges for investors in plastic recycling, in particular:

- Feedstock security risk, since investors typically want to see long-term procurement contracts for plastic waste feedstock before they are willing to invest. Recyclers report that their biggest challenge in Indonesia is to procure high-quality and reliable feedstock.
- Volatile offtake prices for recycled plastic, which can be affected by changes to virgin plastic/crude oil prices as well as international trading dynamics and import controls. In addition to volatile prices, demand is also volatile, driven by virgin prices, and (crude oil) buyers may switch between virgin and recycled plastic depending on their price competitiveness, except for certain plastic material (such as food-grade rPET) backed by the demand of global brands as part of their sustainability targets. Building a solid offtake for materials beyond the well-established PET recycling demands is critical, provided it can be achieved at sustainable offtake prices.
- Weak compliance with social and environmental standards, for example worker safety and working conditions during the recovery of plastic waste and environmental pollution from some recycling facilities (particularly wastewater and residual plastic disposal).
- Competitiveness of recycling vs virgin plastics, since recyclers are typically the first stage of the value chain who pay value added tax (VAT), which cannot be passed on to their informal supply chain, and face particular challenges from managing a small business in the face of volatile plastic prices.

Government support is available generally for infrastructure projects that could also be granted for waste-related undertakings, for instance, in the form of Viability Gap Funding and the Project Development Facility. The Ministry of Finance can offer various types of support, including an excise tax on plastics, fiscal support for waste handling and reduction, and tax holidays for industries that meet certain criteria, such as investing 100 billion rupiahs in new capital while maintaining a strong debt-to-equity ratio. Credit enhancement facilities provided by banks and international partners will also play an important role.

160M
Indonesians have no choice but to burn or dump their waste

10. Large-scale government investments to set up waste management throughout Indonesia to expand coverage to the over 160 million Indonesians without waste collection today

Tackling plastic pollution ultimately depends on how fast Indonesia increases its waste management system. Today, more than 160 million Indonesians have no choice but to burn their waste or dump it in nature, as they do not have waste management in the area where they live. Solving this problem is primarily the responsibility of national and local governments. City-by-city expansion programmes are under way in the country, some supported by multilateral organizations or private companies. The scale of the challenge is huge: dozens of millions of people need to be covered additionally each year for Indonesia to meet its leakage targets. This means that major shifts in government budgets need to take place to meet the challenge. International or private-sector assistance should focus on supporting the Indonesian Government as much as possible.

11. Mobilization of blended finance approaches to increase private capital in waste and recycling systems

Blended finance refers to the strategic use of development finance and philanthropic funds to mobilize private capital flows to emerging markets. Of the various investment opportunities, a blended finance approach is best suited for investment in recycling infrastructure projects because they require significant upfront capital, provide public goods aligned with the Sustainable Development Goals (bringing environmental, social and public health benefits) and are often considered as high risk by commercial investors that are unfamiliar with the sector. At the same time, it does generate enough cash flow to be profitable. This makes it different from collection infrastructure, which is in a pre-investable space in Indonesia.

Mobilizing blended finance solutions for Indonesian waste and recycling systems will depend on progress in solving the operational financing and regulatory challenges already outlined. In parallel with these efforts, the Coordinating Ministry of Maritime Affairs and Investments and the Indonesia NPAP initiative are well positioned to engage with existing finance vehicles in the country (e.g. SDG Indonesia One) and to initiate discussions with development finance institutions, philanthropic funders and private-sector investors. An enabling regulatory environment for blended financing should be considered.

Blended finance approaches for plastic recycling should also incorporate long-term price guarantees or forward contracts for recycled plastic from large customers such as consumer goods companies, so investors can rely on stable offtake demand and pricing.

Blended finance should not only include the blending of concessional and private-sector financing at a particular point in time, but should also reflect elements of time and risk: as a project continues, risk should reduce, which may broaden the range of interested investors and provide potentially cheaper financing.

12. Enforcement and investment to ensure compliance with environmental and social standards and "investment readiness" of the recycling sector

Some plastic recyclers in Indonesia are operating at a high level of environmental and social standards, but this is not universal. For example, wastewater treatment is not always in place, leading to discharges of pollutants and micro-plastics, and residual plastics can be burned in uncontrolled incinerators, leading to air pollution.

Improvements in environmental and social compliance are needed to professionalize the industry, protect the competitiveness of compliant operators and ensure the investment readiness of the sector overall. An industry-wide investment and enforcement campaign could be linked to new investment in recycling facility upgrades and a review of the tax status for compliant operators (who typically pay the full VAT burden as they are sourcing material from informal-sector waste traders). A targeted fund for R&D and technical assistance could help here.

13. Development of advanced recycling solutions for "hard-to-recycle" plastics and organic waste

Recycling rates are above 50% for high-value plastics in the more populated parts of Indonesia (e.g. rigid PET or high-density polyethylene (HDPE) bottles). The market for high-value plastic waste is competitive and feedstock security is challenging for recyclers. Lower value plastics, particularly flexible and multilayer films, make up three-quarters of plastic pollution in Indonesia and are generally not in high demand for recycling.

Developing economically viable advanced recycling solutions (e.g. plastic-to-plastic chemical recycling) that support increased collection rates for "hard-to-recycle" plastics will have the double benefit of enhanced feedstock security and greater contribution to the problem of plastic pollution. A key element of this is for producers to move from multilayer to single-layer plastics that facilitate recycling. Similarly, organic waste makes up most of the municipal waste stream in Indonesia and advanced recycling/reprocessing solutions that can valorize organic waste would improve

the investibility of integrated waste systems and ultimately reduce plastic pollution.

14. Investment into integrated project developments

Integrated project developments combine investments in waste collection, logistics and recycling at a "waste-shed" scale (e.g. a city or collection of cities), collecting significant waste volumes that can generate feedstock security for recycling investments. Ideally, recycling investments are considered in clusters (e.g. mechanical and advanced/chemical recycling co-located) to take advantages of synergies in feedstock supply and logistics. One such example is the Project Beacon integrated recycling initiative developed by Recycling Technologies and the Ellen MacArthur Foundation.

Integrated projects could also provide a suitable context to trial new collection models in partnership with industry, such as PRO models that can channel collection incentives from industry into private/informal or government-run collection systems.

Integrated projects require significant upfront investment in project development and engagement/negotiation between the government and investors. Development finance or philanthropic funding could be deployed to establish new models for integrated projects. The integration of informal-sector waste collectors and traders is likely to be a key success factor, drawing on positive examples from India and Latin America.

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4 Open questions and areas for future research

Quantifying the wider benefits of plastics action

Reducing plastic waste will benefit the health of minorities, women and children in particular, and will benefit GDP as well as boost certain types of tourism, among myriad other benefits. Not estimating these benefits understates the return on investments and limits the focus to pollution caused by plastics, not the wider impacts of plastic pollution. A broader assessments of benefits can expand the impact to other areas of the SDGs and attract a wider audience of partners, higher interest and potentially greater financing.

Concentrating financing to build a "high-profile" centre of excellence

A centre of excellence can support the pipeline development of investible projects for plastic waste reduction. One proposed model can include a hub or institute supporting research and development, education and partnerships; dedicated funding or facilities for plastic reduction projects; and an incubator to help develop bankable projects and a long-term pipeline.

The concentration of a pilot programme in one city or region, such as Java, could provide high-profile examples of impact and replicability, which would in turn support further fundraising and build Indonesia's global profile, setting an example of best practice for future NPAPs.

Defining a result-based monitoring and evaluation framework for plastic projects

Such a framework might consider the overall reduction target, the timeliness of project actions, the expected outcomes at initiation and the real impacts at various times. The Philippines' National Urban Development and Housing Framework and the South Africa Pollution Framework provide useful examples.[25]

Evaluating the role of green or blue bonds and sukuks in financing

Further evaluation is required to understand how these instruments can be deployed as fit-for-purpose investment vehicles, compliant with Islamic financing requirements and investor needs in the capital markets in terms of size, term and returns. A thorough understanding is particularly important in a time of uncertainty when investors may favour less sophisticated instruments with clear risk profiles.

Combining government and private-sector investment in recycling projects

A combination of state and private financing may help recycling projects reach viability for private-sector investment. One such example could be outsourcing waste collection and disposal to the private sector, while funding it through taxes, or using private financing to unlock capital investment in new Tempat Pengelolaan Sampah Reduce, Reuse, Recycle (TPS3R) sites at the local level. This could translate to lower costs and better returns for private-sector investors while contributing to government policy aims.

Image: Unsplash/Silas Baisch

B

Part B: The NPAP Financing Task Force

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5 Overview of the NPAP Financing Task Force

The Financing Task Force has a clear programme of action to create impact on Indonesia's plastic waste reduction targets. Financing Task Force members have committed to collaborating on joint action towards these goals, and the task force will play a vital role in identifying complementarities between different organizations and bringing them together for implementation.

The broader NPAP ecosystem is a platform to convene stakeholders, generate new insights and action roadmaps, and match solutions with financing – unlocking greater impact than would be possible through independent action carried out without coordination.

The roles of the Financing Task Force within the NPAP include identifying sources of financing, matching financing to projects, increasing the speed of deployment, developing new innovative financing models, and catalysing the exchange and implementation of high-potential solutions by increasing investment, technical assistance and other forms of financial support.

5.1 NPAP task forces

The NPAP platform aims to bring together government, business and civil society representatives to translate Action Plan commitments into meaningful action.

Task forces lead the implementation of the Action Plan, in close collaboration with the National Steering Board, managed and curated by a local secretariat located within the World Resources Institute. Each task force is responsible for a different thematic area of the Action Plan; the five task force themes are: policy, innovation, financing, behavioural change and metrics.

The task forces play a key convening role, curating and bringing together diverse partners from across Indonesia and the world to organize a coordinated and strategic approach. They create concrete impact by identifying problems, generating new solutions and catalysing the implementation of high-potential results with financial resources.

Each NPAP task force member makes a voluntary commitment to play a key role in driving forward the NPAP's agenda and accelerating its success by providing expert input on NPAP-led initiatives. Task forces meet regularly to exchange best practices and practical knowledge, coordinate their respective actions towards reducing plastic pollution and provide resources to drive impact in Indonesia.

Each task force convenes monthly, and the co-chairs report progress to the chair of the NPAP Steering Board after each meeting. The task force also submits quarterly progress reports to the NPAP Steering Board, which in turn updates the Global Steering Board.

TABLE 3 **The five NPAP task forces**

Policy	Develop and implement policy, and regionalize the national Action Plan, industry standards, EPR
Innovation	Enable innovation and the incubation of new and emerging solutions, through support, leadership and incentives from government and industry
Financing	Develop financing mechanisms for the five priority interventions: reduce and substitute, redesign, collect, recycle, dispose
Behavioural Change	Encourage positive consumer choices, waste behaviours and participation in reduction, reuse and recycling programmes
Metrics	Enable digital technologies and traceability mechanisms to monitor leakage, reuse, collection, disposal, etc., and to monitor progress on the national, city and company levels

Source: World Economic Forum

FIGURE 11 | **Financing Task Force co-chairs and members**

Task Force Co-Chairs

Kementerian Keuangan
Republik Indonesia

Dian Lestari
Acting Head of the Climate Change and Multilateral Policy Center Fiscal Policy Agency, Ministry of Finance

Asian Development Bank

Winfried Wicklein
Country Director, Indonesia
Asian Development Bank

Task Force Members

Government of Canada
McKinsey.org
SMI
MINISTRY OF FOREIGN AFFAIRS OF DENMARK
AFD
P4G
UK Government
SYSTEMIQ
amartha
KFW
ALLIANCE TO END PLASTIC WASTE
CIRCULATE CAPITAL
ADUPI
ClimateWorks AUSTRALIA
PACE

Source: Indonesia NPAP

5.2 Objectives of the Financing Task Force

The mission of the Financing Task Force is to develop financing mechanisms for the successful implementation of the Action Plan – brokering additional financing and speeding up the deployment of capital towards the overall actions and targets of the NPAP. The five overarching objectives are to:

1. Map investible ventures and projects
2. Identify gaps and barriers to sustainable financing
3. Identify financing mechanisms that have proven successful for infrastructure and other relevant projects in other contexts
4. Develop and launch a roadmap outlining the pathway to financing investible interventions
5. Coordinate financing partners to deliver on the recommendations and goals of the Financing Roadmap

The NPAP Action Plan includes 14 recommendations to achieve its goals (see Section 3). Of these recommendations, most are within the scope of the Financing Task Force (Table 4) and cover both the provision of technical assistance to support the financing ecosystem and the direct provision of financing support. Achieving these recommendations necessarily requires coordination and collaboration with other task forces, most notably the Policy and Innovation Task Forces.

TABLE 4 **Recommendations within the scope of the Financing Task Force**

Incubating and scaling up innovations, ventures and project developments	Incubation support and seed financing for small-scale ventures that have the potential to grow rapidly
Closing the operational financing gap for city-level waste collection and recycling systems and building institutional and technical capacity	Higher, easier-to-collect and easier-to-spend household retribution fees as the pillar of funding government-run waste management now and in the future[26]
	Government funding where needed to close the operational financing gap
	Higher income from material sales
	Industry co-funding for the recovery and recycling of plastic packaging and products through the PRO
	Institutional and technical capacity development to improve investibility
Enabling capital investments in the after-use (waste and recycling system) through system changes, technology and blended finance approaches	Large-scale government investments to set up waste management throughout Indonesia to expand coverage to the over 160 million Indonesians without waste collection today
	Blended finance approaches to increase private capital in waste and recycling systems
	Enforcement and investment to ensure compliance with environmental and social standards and “investment readiness” of the recycling sector
	Investment into integrated project developments

Source: World Economic Forum

Below: Unsplash/Nick Fewings

6 Turning recommendations into action

Financing Task Force members are already working on projects across the plastics value chain, providing a foundation for task force action

The Financing Task Force will deliver on the goals of the Action Plan by coordinating the actions of members around each recommendation. This section outlines the key activities required to implement each recommendation and highlights examples of members' initiatives already under way. Financing Task Force members will undertake activities according to their specific expertise and experiences, with the task force serving as a coordinating body to:

- Highlight existing initiatives and support their progress
- Identify and facilitate the matching of new financing opportunities
- Co-create solutions to the challenges and roadblocks members face in financing plastic waste initiatives.

Financing Task Force members are already working on projects across the plastics value chain, providing a foundation for task force action. The success of the implementation phase will be assessed on whether the NPAP platform achieves results.

6.1 Financing Task Force programme of activities through 2021

The roles of the Financing Task Force within the NPAP include identifying sources of financing, matching financing to projects, increasing the speed of deployment, developing new innovative financing models, and catalysing the exchange and implementation of high-potential solutions by increasing investment, technical assistance and other forms of financial support.

To achieve the goals of this Financing Roadmap, it is vital for the Financing Task Force to monitor and report on progress. The Action Plan sets clear goals and outlines recommendations and actions for the Financing Task Force to achieve its objectives. Establishing metrics for success provides a method to evaluate at any given moment whether Indonesia is on track to achieve the Action Plan goals.

Each task force will also keep track of metrics to guide its progress in implementing the Action Plan recommendations; progress on each metric will be formally reported to the NPAP Steering Board on a quarterly basis. In addition, the Financing Task Force will keep track of its members' collective actions, such as the amount of direct and in-kind funding provided to plastics-related initiatives in Indonesia.

Action	2021
Establish the task force	✓ Recruit task force members (aim: 10-15) – Agree on success metrics and goals in consultation with the Metrics Task Force – Identify 2-3 opportunities for further collaboration or development ✓ Collate commitments from task force members (including members' needs) – Develop the 2021 work plan for the Finance Task Force – Identify any types of actors missing from the task force and recruit where necessary – Engage stakeholders from outside the task force
Identify and prioritize potential solutions, and develop and agree on a task force work plan for 2021	– Define financing challenges facing the implementation of each Action Plan recommendation – Identify where technical support could improve investibility – Identify and showcase successful projects that could be scaled with financial support, and facilitate matchmaking with potential funders – Facilitate investments into scaling successful pilot projects – Launch technical assistance programmes – Identify and map investible projects – Begin packaging opportunities for investment and identifying possible investors from outside the task force

Action	2021
Provide technical and financing support	– Identify opportunities for collaboration between task force members – Identify priority innovative financing instruments for reducing plastic waste and pollution – Begin technical support projects to improve institutional and technical capacity to improve investibility – Consider investible opportunities arising from the Innovation Task Force – Package opportunities for investment and facilitate access to potential investors
Create a strategy document for investibility	– Map current and potential financing sources – Identify, map, prioritize and promote policy and finance instruments (fit-for-use for investment today vs those with potential but that need development), including credit enhancement features, viability gap funding and government initiatives – Build pipeline strategies, using a multipronged approach that supports: (i) research and development, capacity-building and partnerships; (ii) dedicated funding for plastic waste reduction projects; and (iii) an incubation or pull mechanism that enables a long-term pipeline of projects
Coordinate with other task forces	– Identify where policy roadblocks prevent financing – Support the Innovation Task Force in establishing an innovation competition to identify investible ideas – Develop and finalize a concept for pull funds – Share success stories with other task forces – Share policy roadblocks with the Policy Task Force and jointly work on solutions – Support the Innovation Task Force on innovation competitions

Endnotes

1. Other major targets are a 30% reduction in waste at source (including recycling) and increasing the volume of managed plastic waste to 70% (Presidential Decree 97/2017). This target builds on existing policy programmes to improve waste management and reduce pollution, such as Jakstranas and Jakstrada, initiated in 2017.
2. Indonesia's Business-as-Usual Scenario assumes that the waste collection and recycling rates stay constant at 39% and 10%, respectively.
3. Operational financing of $1.8-2.2 billion per year by 2040 will be needed compared to an estimated operational financing budget of $0.5-1 billion in 2017.
4. Pew Charitable Trusts and SYSTEMIQ published the results of this research in *Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution*, Full Report, 2020, https://www.systemiq.earth/wp-content/uploads/2020/07/BreakingThePlasticWave_MainReport.pdf (accessed 11 September 2020).
5. Other major targets are a 30% reduction in waste at source (including recycling) and increasing the volume of managed plastic waste to 70% (Presidential Decree 97/2017).
6. See World Economic Forum, *Radically Reducing Plastic Pollution in Indonesia: A Multistakeholder Action Plan*, 2020, https://globalplasticaction.org/wp-content/uploads/NPAP-Indonesia-Multistakeholder-Action-Plan_April-2020.pdf (accessed 15 September 2020).
7. Operational financing of $1.8-2.2 billion per year by 2040 will be needed compared to an estimated operational financing budget of $0.5-1 billion in 2017.
8. These figures are for plastics only. An even more positive contribution to climate change mitigation can be expected from proper management of organic waste (e.g. to avoid methane emissions), which would be enabled through the implementation of some elements of the SCS. This is not quantified here.
9. A collection type that straddles the formal and informal sectors is informal recovery from the formal waste stream, e.g. waste pickers who work on landfills.
10. This assumes that the waste collection and recycling rates stay constant at 39% and 10%, respectively, which in itself would require large-scale investments.
11. Regencies and cities are the administrative level below the province, equivalent to counties in the United States. Indonesia has 514 regencies and cities, with an average population of about half a million inhabitants.
12. This map is based on archetype averages for the collection rate and for waste generation per capita; it does not accurately reflect local circumstances.
13. In addition to 18.3 million tonnes of non-plastics, mostly organic material.
14. Pew Charitable Trusts and SYSTEMIQ, *Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution*, op. cit.
15. See Alliance to End Plastic Waste, "About", https://endplasticwaste.org/about (accessed 16 September 2020).
16. See Circulate Capital, "US$106 million to invest in companies that prevent ocean plastic and advance the circular economy", 11 December 2019, https://mailchi.mp/circulatecapital/december-11-2019 (accessed 16 September 2020).
17. See Morgan Stanley, "Our Plastic Waste Resolution: Progress Six Months In", 21 November 2019, https://www.morganstanley.com/ideas/our-plastic-waste-resolution-progress-six-months-in (accessed 16 September 2020).
18. Circulate Capital, "Investing to reduce plastic pollution in South and Southeast Asia: A handbook for action", 2019, https://docs.wixstatic.com/ugd/77554d_3bb19c2c7b75435f8d2817edfc15a28f.pdf (accessed 16 September 2020).
19. Collection and disposal revenues are based on what it would cost the government to execute those activities (including an informal-sector subsidy). These revenues would not all be accessible for private players. Redesign and recycling revenues are calculated based on 2019 average recycled polyethylene prices of approximately $1,000 per tonne; the same dollar amount is used to estimate the value of reuse, alternative delivery and substitute models per tonne of plastic utility.
20. Waste-to-energy is not incorporated in the Indonesia NPAP System Change Scenario because it has not yet been effectively deployed in the country. For this reason, a feed-in tariff for waste-derived electricity is not included in the recommendations for bridging the operational financing gap.
21. The Roadmap includes numerous ambitious reduction and recycled content targets per plastic type, to be realized by 2028.
22. Waste-to-energy is not incorporated in the Indonesia NPAP System Change Scenario.
23. Industry co-funding can take several forms, of which EPR is the most common; over 400 EPR schemes exist worldwide. So far, EPR schemes are mostly prevalent in developed countries, but India, Brazil and Chile show that it is possible to implement them in emerging markets as well. Companies in Indonesia (e.g. those united in the industry organization PRAISE) are taking the lead to test systems and inform policy. Regulation through a government decree or a law is inevitable to create a common standard and avoid freeriding by non-compliant companies.

24. The National Medium-Term Development Plan (RPJMN) 2020-2024 foresees 5,957.7 trillion Indonesian rupiahs in infrastructure investments, compared to about 70 trillion rupiahs ($5.1 billion) that is needed for waste management to build a full waste management system.

25. See Santos, R. B., "A look inside development: What the monitoring and evaluation framework designs of foreign-funded urban development projects in Metro Manila, Philippines reveal?", http://comm.eval.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=b8b274f7-a0c1-4f29-b090-9a3520269f92 (accessed 15 September 2020).

26. Waste-to-energy is not incorporated in the Indonesia NPAP System Change Scenario.

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