

Stemming the Plastics Tide in Indonesia

Plastic pollution has a devastating impact on Indonesia's rich natural ecosystems

Indonesia releases into the marine environment annually



200-550,000 tonnes plastic



2,000 full Boeing 747¹

Of this, an estimated 80% comes from land-based sources, and 20% from sea-based sources (World Bank, 2021).

Plastic pollution heavily impacts the fishing and tourism industries.



Threatening the Indonesia's fisheries and tourism industries worth around US\$48 billion to GDP.²

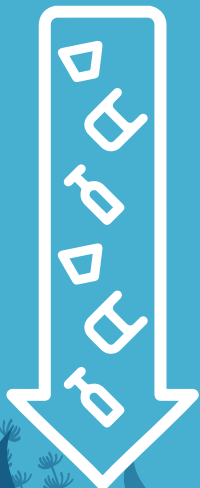


The damage of plastics to Indonesia's ocean economy has a cost of over US\$ 450 million per year.³

Plastic pollution damages the nation's rich marine biodiversity and extensive mangrove, seagrass, and coral reef habitats.

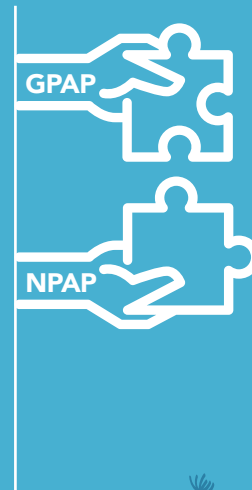


The government of Indonesia has set policies and ambitious targets to tackle marine plastic pollution



Indonesia's Plan of Action on Marine Plastics Debris 2018-2025 and Presidential Decree No 83/2018 aim to **reduce marine debris by 70% by 2025**. Presidential Decree (Peraturan Presiden) No.97/2017 **commits to 30% waste reduction at source and 30% community-based recycling by 2025**.

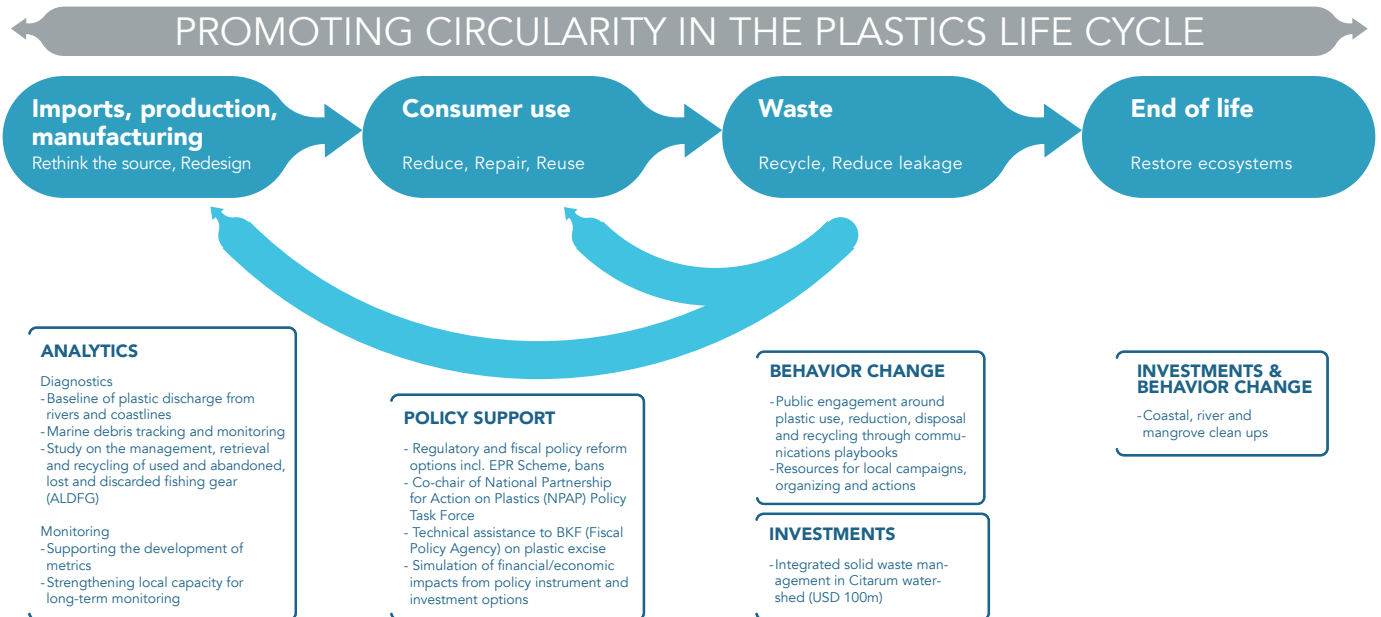
The National Medium Term Development Plan (RPJMN) sets targets of 80% management and 20% reduction of solid waste generated in urban areas by 2024.



Indonesia joined the Global Plastic Action Partnership, hosted at the World Economic Forum, and became its first National Partner through the National Plastic Action Partnership (NPAP) in 2019.

Tackling Marine Plastic Pollution

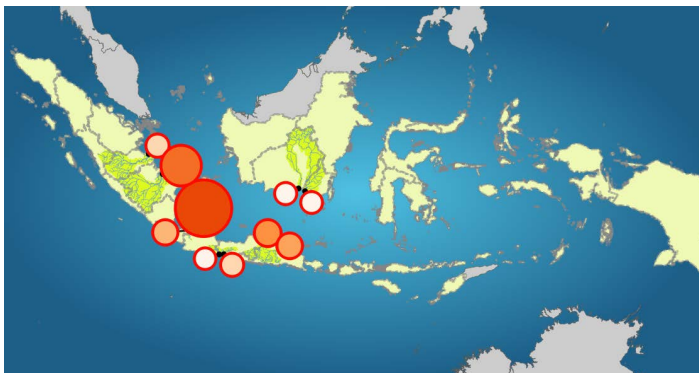
Using knowledge, policy, investments and public engagement, the World Bank supports the Government's ambitious goal to free its waterways, coastal areas and oceans from plastic pollution. The World Bank encourages a circular economy approach throughout the plastics life cycle.



Analytics

Reliable data and concrete evidence are critical to inform priorities and decision-making on solutions to address plastic pollution. The World Bank is undertaking the following analytical studies on the sources and effects of marine debris.

1. BASELINE OF PLASTIC WASTE DISCHARGE FROM RIVERS AND COASTLINES



Graphic for Plastic discharge study

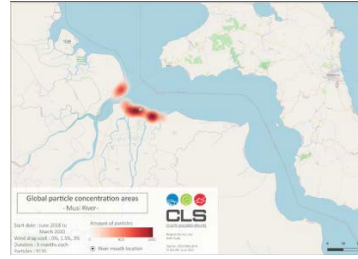
First Indonesia-wide assessment to identify leakage hotspots and establish a national marine debris baseline estimate, a key monitoring metric to understand the current situation and monitor progress.

Findings:

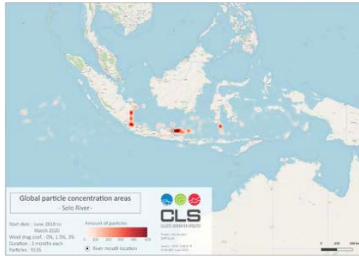
- Indonesia generates 7.8 million tons of plastic waste annually and 58% is uncollected. 9% of uncollected waste is disposed directly into water.
- About two thirds (66.6%) of municipal waste discharged into the ocean originates from rural Desa/Kelurahan.
- About 50% of mismanaged waste ends up in waterways, and of this, 60% is discharged into the ocean
- Most waste enters the marine environment through rivers from: Java (36.6%) followed by Sumatra (28.4%)

2. MARINE DEBRIS TRACKING AND MODELING

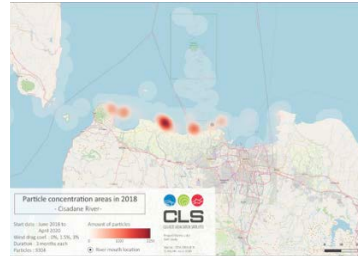
To understand the flow of plastics through Indonesia's main rivers and their accumulation zones through drift simulation, using remote sensing and field surveys. A drift simulation web portal has been launched to allow modeling of predicted volumes of waste likely to wash ashore and the identification of accumulation and dispersion points in rivers. The result of the study showed that macro-plastic articles that leak from water ways into three rivers and the sea in Indonesia display distinct and differing particle concentration areas depending on seasonality and wind sensitivities.



Cisadane River - Majority (64%) of macro-plastic particles that leak to the 138 km long Cisadane River are grounded at shore near the initial river mouth, independent of the season, year or wind speed coefficient.



Solo River - Macro-plastic particles entering the 600 km long Solo river are highly dispersed, to the extent that no concentration zone could be identified. The discharge of particles is spread in the entire inner sea of Indonesia and Indian Ocean.



Musi River - Most of the macro-plastic particles (98%) are grounded quickly and closer to their initial positions around the river mouth and its delta. The accumulation is very dense because of the relatively small (37 km long) size of the nearby coastline.

3. MANAGING END-OF-LIFE (EOL) AND ABANDONED, LOST AND OTHERWISE DISCARDED FISHING GEAR (ALDFG)

First comprehensive, risk-based inventory of plastic leakage from fisheries and aquaculture in Indonesia.

From fisheries, surrounding gears, gillnets and entangling nets account for 90% of the weight of plastics deployed. Purse seine and gillnet fleets have the greatest potential to generate EOLFG and ALDFG respectively, and could be targeted for recycling as they are made of easily recyclable PA (nylon). High risk ALDFG that cause adverse ecological impacts are set anchored gillnets, set anchored trammel nets, plastic pots and drift gillnets.

From aquaculture, extensive coastal ponds utilize the most plastic in terms of kilograms of plastic replenished per year per one tonne of liveweight production (453 kg/yr/mt) and seaweed longlines the least (10 kg/yr/mt). However, very little plastics is lost from coastal ponds while 8.4kg/yr/mt from seaweed is lost at sea, hence seaweed is potentially a major source of plastic leakage.

An Action Plan and Implementation Roadmap offers recommendations based on timeframe, priority and cost.

Policy Support

1. ANALYSIS OF REGULATORY, ECONOMIC AND FISCAL OPTIONS

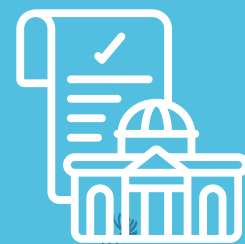
To analyze and recommend strategic, appropriate and cost-efficient combination of policy instruments addressing all parts of the value chain which can provide concrete reductions in marine debris in the short-, mid- and long-term such as the Extended Producer Responsibility Regulation, plastic bag bans and excises, and green public procurement. Economic models are used to simulate impacts from policy and investment options. One of such models is the recent Plastic Policy Simulator which recommends a comprehensive mix of policy instruments including product restrictions/bans and possibly an excise tax on packaging made from virgin plastic to reduce plastic pollution.

2. NATIONAL PARTNERSHIP FOR ACTION ON PLASTICS (NPAP) POLICY TASK FORCE

The World Bank serves as co-chair alongside the Coordinating Ministry of Maritime Affairs and Investment to support implementation of the NPAP Multi-Stakeholder Action Plan and identify pathways for plastic policy implementation through high-level consultations and coordinating a research-based policy roadmap to address plastic pollution.

3. JUST-IN-TIME TECHNICAL ASSISTANCE

To the Fiscal Policy Agency (BKF) on plastic excise, led by the the Agency's Macroeconomics, Trade and Investment team.



INVESTMENTS

The Oceans Multi-Donor Trust Fund (MDTF) is financing preparation studies to feed into the **Oceans for Prosperity** IBRD-financed project focused on coastal protection.

The World Bank and the Government of Indonesia have made a total investment of US\$326 million in **waste collection and disposal systems** to halve the daily amount of waste leaking into the ocean by 2025, starting in an urgent urban hotspot - the Citarum River Watershed in West Java.

Behavior Change

The World Bank has developed resources for local organizers and communities to develop and organize campaigns and raise public awareness and mobilize local action on the plastic pollution problem.



1

Behavior change study

Highlights a range of innovative campaigns on changing behaviors around plastic use, reduction and recycling, informing the government of Indonesia's communications strategy including on the Clean Indonesia campaign ("Gerakan Indonesia Bersih")



2

Communications Playbooks

Practical guides for outreach activities that improve community awareness and convince consumers to change how they use and dispose of plastic products



3

Voices from Indonesia's Waste Banks

Illustrates and promotes community-based recycling schemes through stories



4

Bicara Bumi

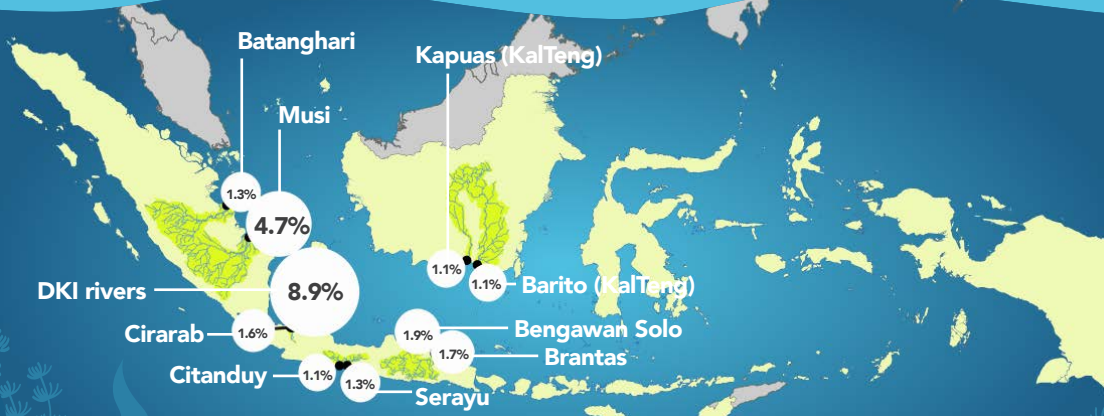
Webinar series to engage the public on environmental issues, including marine debris, with a wide-ranging audience



5

"Impactfluencer" Forum 2019

Brought together Indonesia's most influential social media leaders to build awareness on marine pollution, effectively reaching millions of social media users across the country



Visualisation of Top Waste Discharges from Indonesian River Mouths and Its Contribution (%) to the Total Amount Discharged in Indonesia. (Note: for DKI Jakarta, combined results for several rivers that flow through the region are presented.)

Source: World Bank (2021). Plastic Waste Discharges from Rivers and Coastlines in Indonesia. Marine Plastics Series; World Bank, Washington, DC. © World Bank. <https://www.worldbank.org/en/country/indonesia/publication/plastic-waste-discharges-from-rivers-and-coastlines-in-indonesia> License: CC BY 3.0 IGO.

Partners

The Coordinating Ministry for Maritime Affairs and Investment is the lead ministry on marine plastic waste in Indonesia. Other key implementing ministries include the Ministry of Environment and Forestry, Ministry of Marine Affairs and Fisheries, Ministry of National Development Planning and the Ministry of Public Works and Housing.

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