

# ASEANO



NORWAY



Norwegian Institute for Water Research



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## REDUCING PLASTIC POLLUTION IN RIVERS, COASTS AND OCEAN: A TOOLKIT FOR LOCAL GOVERNMENTS

## About the Toolkit

As the world enters a period where over 10 billion tonnes of plastic has been produced, the issue of plastic pollution has gained increasing attention in scientific, policy, and public circles. Plastic waste is growing, both visibly and invisibly, and on current trajectories is likely to continue growing. Plastic pollution is both local and transboundary, affecting various sectors of human society in addition to its environmental impacts.

Of growing concern is marine plastic pollution, with the oceans acting as the ultimate sink for large amounts of plastic waste. Managing ocean waste is a complex issue, with it often being hard to measure, and even when measured, being hard to recover. While this waste ends up in the ocean, most originates from land. This shift from land to ocean happens in a number of ways, but a significant conveyor of wastes to the ocean are rivers, which collect waste along their path and deposit all this waste at their mouths.

While plastic pollution is a global issue, it has particular relevance for East Asia, a region which is greatly interlinked with the issue. This is a result of geography, demography, and economy. The seas of East Asia fall into numerous basins, surrounded by the mainland and various island chains. These basins may act as discrete sinks for plastic pollution, exacerbating impacts on local coastlines. Island geography is inherently disadvantageous for actions such as waste management which benefit from scale. East Asia also lies near the Great Pacific Garbage Patch, an end sink for global waste. The plastic pollution that enters these oceans is linked to growing populations and economies, both of which individually exacerbate plastic production and use. This population is not only large, but concentrated on coastlines, in large megacities and smaller communities.

Dealing with plastic pollution requires locally specific actions, tailored to specific conditions, in addition to larger scale and even transboundary agreements and arrangements. Waste management is complex, and requires ongoing and iterative approaches. This toolkit seeks to provide some documents that can assist local governments in their approaches. In an attempt to ensure utility, relevant documents are included only if they are written in English, publicly available, and easily accessible.

# Broad Frameworks

## Integrated Coastal Management



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### PEMSEA page on Integrated Coastal Management

Integrated Coastal Management is a holistic framework for planning and managing development in coastal areas, to ensure it is sustainable and takes into account the many potential impacts and repercussions of any new developments. As it is an iterative process, it works best when integrated into the regular planning process at different levels of government.



## Source to Sea Approach



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### Implementing the source-to-sea approach: a guide for practitioners

A source to sea approach recognized the link between coastal health and the health of connected hinterland regions. Generally, the main component of this connection is a river system which drains from the hinterland into the sea. A source to sea approach allows for governance to account for impacts throughout this connected area.

## A Plastic Circular Economy



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### The New Plastics Economy Rethinking the Future of Plastics

This 2016 document from the Ellen McArthur Foundation takes a holistic look at potential changes to the plastic economy. In addition to examining a circular economy approach and where best to extract value from plastic, the document also looks at where plastic may be reduced or replaced as part of a wider rethink of plastic and its use and impacts.



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### Breaking the Plastic Wave

While the traditional plastic economy takes raw resources and ends in waste disposal, a circular economy shift encourages the reuse and recycling of plastic materials. This not only reduces waste output, but increases the economic value of each unit of plastic material. Even a partial shift to circularity can have a large impact.

# Curbing Plastic Pollution: Global, Regional and National Strategies and Plans

Global and regional responses and plans of action and their relevance to local governments



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## Rio +20 Declaration (2012)

*The Future We Want* resolution was adopted by the UN General Assembly following the United Nations Conference on Sustainable Development in 2012. This was the 20<sup>th</sup> anniversary of the Rio de Janeiro Earth Summit. It lays out a common global vision on the need for sustainable development, linking poverty eradication and socioeconomic development with environmental conservation and restoration. It also underscores the need for broad public participation in development, along with other stakeholders such as businesses and NGOs. It affirms the synthesis of such goals within the green economy concept, laying out guiding principles for a variety of development and resource challenges.



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## UNEA I (2014): Resolution on Marine Plastic Debris and Microplastics

*The Resolution on Marine Plastic Debris and Microplastics* was adopted at the first United Nations Environment Assembly (UNEA) in June 2014. It put plastics at the center of the global environmental agenda, noting risks to ecosystem and human health, and the growing risk of microplastics. It called for a precautionary approach regarding the potential impacts of plastic, for better waste management, and for the cleanup of existing marine debris. Of particular note is a call for national and regional action plans tackling marine litter.



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## Later UNEA resolutions: Marine Litter and Microplastics

The second UNEA in 2016 saw the adoption of a new resolution on marine litter and microplastics. This recognized the need for knowledge sharing and capacity building, noted that much marine plastic pollution comes from the land, and called for more information on plastic pathways and hotspots.



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### UNEA 3 (2017)

UNEA 3 in 2017 was focused on global governance, noting the need for international commitments on plastic pollution. It also recognized the “Our ocean, our future: call for action” declaration at the 2017 Our Oceans Conference.



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### UNEA 4 (2019)

UNEA 4 in 2019 focused on the need to fill knowledge gaps.



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### Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change

The 2016 UNEA resolution occurred after the presentation of this book at that meeting. Compiling existing global knowledge, this book provides general background information, evidence from around the world, actions that can be taken, and policy recommendations. It seeks to clearly and simply convey its included information, and should be a starting point of reference for potential plastic action.



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### UNEA 5 (2022): End Plastic Pollution: Towards an internationally legally binding instrument

In March 2022 at UNEA V, there was a formal agreement to create a legally binding international treaty on plastic pollution. The stated goal is to have this instrument ready by 2024, following a model similar to the IPCC and IPBES.



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### Global Partnership on Marine Litter

This partnership was launched at the 2012 Rio+20 conference. It serves as a cooperation and coordination platform, and is open to a variety of stakeholders. Their website contains additional plastic resources divided by country and a calendar of events.



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## Understanding the State of the Ocean: A Global Manual on Measuring SDG 14.1.1, SDG 14.2.1 and SDG 14.5.1

Sustainable Development Goal (SDG) 14: Life Below Water includes Marine Debris in goal 14.1: “By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.” UNEP has released a document for assessing SDG 14, including potential benchmarks under which marine debris can be assessed over time.



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## ASEAN Regional Action Plan for Combatting Marine Debris in the ASEAN member states

In 2021 ASEAN released a specific action plan to handle marine debris. It seeks to support existing national and local efforts, and promote a shift within the region to a more circular plastic economy. The document links to international commitments, ongoing research and activities, and provides specific examples of various initiatives taking place throughout the ASEAN region.



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## NOWPAP Regional Action Plan on Marine Litter

NOWPAP, which includes China, Japan, RO Korea, and Russia, was an early pioneer in regional plastic management, releasing this action plan in 2008. It includes specific suggested activities to be taken up by member states relating to plastic regulation and monitoring to help combat both land- and sea-based plastic waste. Although it is an early document, its suggestions remain relevant today.



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## COBSEA Regional Action Plan on Marine Litter

The COBSEA RAP-MALI was released in 2019 by COBSEA members. Its list of suggested actions are primarily focused on how the organization itself can assist its member states, and serves as an example of providing different areas in which states can cooperate.

## National Policies and Plans of Action as guiding frameworks for local level action plans



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### Single-Use Plastics A roadmap for sustainability

UN Environment in 2018 released a roadmap for single use plastic reduction. This document broadly summarizes the existing issues and tools, while providing case studies from a number of countries around the world. These case studies include examples from both national and local government.



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### Philippines National Plan of Action for the Reduction of Marine Litter

The Philippine National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML) was released in 2021. It promotes a vision of reducing all leakage into the ocean by 2040. It divides different proposed actions into policy clusters, seeking to tackle waste at multiple points in the waste cycle.

An abridged version is also available [here](#).



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### Vietnam's National Action Plan for Management of Marine Plastic Litter by 2030

In 2018 Vietnam released its national action plan for the management of marine litter, aiming to develop a sustainable marine economy by 2030, and to significantly reduce marine pollution by 2045. This includes cutting 50% of marine plastic litter and eliminate single use plastics in 80% of tourist areas by 2025.



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### Malaysia Plastics Sustainability Roadmap 2021-2030

Malaysia's plastic roadmap is focused on the promotion of a more circular economy to make plastic use more sustainable. It addresses different stages of the plastic cycle, including design, standards, relevant manufacturing capacity, producer responsibility, and cooperation between different entities. It also provides guidance on halal certification for recycled plastics.

## Sub-national/local government policies and plans



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### Regulations (ordinances, memorandum orders, circulars)

#### The situation and causes of plastic pollution in the Imus River, Cavite

This review of the situation of the Imus River includes an overview of various national, provincial, and local regulations affecting the management of plastic waste along the river. It also includes an overview of the practical implementation of plastic waste stemming in part from these regulations.



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#### Closing the Loop Sai Mai District, Bangkok Case Study

This case study on municipal waste in Bangkok includes a summary of existing policy, the waste management system among Bangkok's districts, and a characterization of the waste collected. It also specifically assesses the path that plastic waste takes through the city, how waste is recycled, and the relation of the formal and informal sectors.

### SWM Plans

#### Inception workshop for ASEAN-Norwegian cooperation project on local capacity building for reducing plastic pollution in the ASEAN region (ASEANO) and associated activities

This PEMSEA report from the opening of the ASEANO project includes a field trip of a number of Local Government Units in Cavite, Philippines. Each is implementing its own plastic activities, both setting up their own recycling and encouraging better practices among the local community.



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#### Closing the Loop Baseline Report and Action Plans

The UNESCAP Closing the Loop Project produced baseline reports for four pilot cities, which were used to support the creation of plastic pollution action plans for each city.



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- [Kuala Lumpur](#)
- [Surabaya](#)
- [Da Nang](#)
- [Nakhon Si Thammarat](#)

# Strengthening Local Governance and Upscaling Best Practices to Support the Implementation of Plastic Pollution Reduction Measures

## Effective governance



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### Policy analysis and formulation

#### Single-use plastic bags and their alternatives Recommendations from Life Cycle Assessments

This meta-analysis of research papers was published by UN Environment in 2020. It focuses specifically on single use plastic bags, with research coming from around the world. The environmental impact of these bags is compared to that of potential replacements.



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#### Canada: Single-use Plastics Prohibition Regulations – Guidance for selecting alternatives

In June 2022 Canada introduced restrictions on single use plastics. The recentness of these restrictions (others have been in place elsewhere in the world for over a decade) provides a useful benchmark to evaluate similar efforts elsewhere. The strategy of this document, which allows for variations based on need and capacity due to Canada's geography, may prove helpful to those similarly managing jurisdictions with discrete and varying population centers.

### Legislative support and communicating with policy makers



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#### Plastics Policy Playbook: Strategies for a Plastic-Free Ocean

This document by the Ocean Conservancy seeks to educate key stakeholders on the broad issue of plastic pollution and provide insight into some of the strategies most needed to manage the plastic waste challenge. It provides a framework to manage plastic that includes ideas for both the public and private sectors. pollution action plans for each city.



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### Status of Research, Legal and Policy Efforts on Marine Plastics in ASEAN+3 A Gap Analysis at the Interface of Science, Law and Policy

This 2020 publication provides a review of marine plastic pollution in East Asia. It first examines the state of current knowledge in the region, as well as ongoing policy and initiatives to tackle plastic pollution in the region. It then provides an analysis of what is thus missing from ongoing efforts, and therefore where future effort may be best directed.

### Building public support



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### Social Implications of Plastic Pollution Mitigation Initiatives near the Imus River: Basis for Policy Framework

This PEMSEA ASEANO study in Cavite surveyed residents near the Imus River on various plastic pollution initiatives that were being carried out by local governments. It also assessed their potential impact on various sectors of society, and what actions might be taken to manage this.

### Alliances and networking



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### A review of research on marine plastics in Southeast Asia: Who does what?

This 2019 document provides an overview of the plastic situation in each Southeast Asian country, as well as to regional and international bodies working on plastic pollution in the region. It can provide a helpful starting point for identifying potential partners for knowledge sharing or further collaboration.

## Capacity development

### Innovative tools, approaches, methodologies and protocols: tools and methodologies (in manuals, guidelines, toolkits, etc.) for mapping plastic pollution in rivers and bays; identification of sources, hotspots, pathways and sinks; monitoring of macro and microplastics



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### Assessing Knowledge, Attitude, and Practices Concerning Plastic Waste and the Ability and Willingness to Pay for Measures Tackling Plastic Pollution of the Imus River, Cavite, Philippines

This survey within the PEMSEA ASEANO project directly assessed public knowledge and attitudes towards plastic waste. This was carried

out through surveys, in cooperation with local government bodies. Results include a very high knowledge regarding plastic pollution, but unfamiliarity with local government efforts to tackle waste.



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### *MOOCs/e-learning courses*

#### **Cities and Marine Plastic Economy Building a Circular Economy**

This course, created by UNESCAP's Closing the Loop project, includes modules crafted by a variety of leading institutions in the plastic waste management sphere. It is free and open source, and consists of seven 1-2 hour modules.



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### **Generating scientific data and knowledge**

#### **Priorities to inform research on marine plastic pollution in Southeast Asia, by Omeyer et al. 2022**

This 2022 review of the state of plastic research in Southeast Asia identifies 21 key research questions from the region. These questions cover an understanding of plastic waste types and movement, plastic impacts, and plastic policies.



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#### **Plastic Pollution in Indonesia and the Philippines: current status and upcoming knowledge needs**

The ASEANO project allowed for the detailed comparison of the plastic situation in Indonesia and the Philippines, two ASEAN countries responsible for globally significant amounts of marine plastic pollution. This provides information on current scientific knowledge, as well as providing overviews of local and national initiatives in both countries to manage the issue.

## Environmental investments and financial mechanisms for reducing plastic pollution



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### Investing to reduce plastic pollution in South & Southeast Asia: A HANDBOOK FOR ACTION

This handbook released by Circulate Capital in 2019 provides an overview of the investment opportunities surrounding a plastic circular economy in South and Southeast Asia. It also includes a specific examination of the business environment in Indonesia, and general circular economy principles to which funding may be most impactful.

## Monitoring, evaluation and reporting on the state of plastic pollution in rivers, coasts and ocean



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### Survey on Plastic Litters Along Imus River, Cavite, Philippines

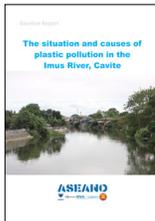
The PEMSEA ASEANO survey of the Imus River was able to characterize the waste found in the river by material and use. It found significant differences in waste carried down the river between the dry and wet seasons, and a lack of easily recycled plastic bottles despite their ubiquitous use in the area.

# Sample Holistic Research Toolbox: Resources for Local Governments on Plastic Pollution Reduction

To provide an example of holistic local research, some of the PEMSEA ASEANO projects research outputs are included here. These resources, which are also listed above, were designed to fill knowledge gaps identified by a previous desk study that looked at the baseline existing knowledge. Of critical note is the inclusion of research not only on the plastic pollution itself, but also on the wider impact of plastic use and misuse, as well as public knowledge and attitudes on the topic. This research was also notable in its comprehensive inclusion of local stakeholders, including academia, policy makers at local and national levels, and civil society organizations.

## **BASELINE REPORT:**

The situation and causes of plastic pollution in the Imus River, Cavite



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## **TOOL 1: Mapping and Characterization of the Imus River Watershed**



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## **TOOL 2: Mapping of Sources and Concentration of Plastic Waste in the Imus River Watershed**



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## **TOOL 3: Assessing Knowledge, Attitudes and Practices Concerning Plastic Waste Along Imus River**



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## **TOOL 4: Survey on Plastic Litter Along Imus River**



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## **TOOL 5: Social Implications of Plastic Pollution Mitigation Initiatives Along the Imus River**



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## About ASEANO

East Asian countries produce over half of our world's marine plastic pollution. Rivers act like conveyor belts to discharge waste to the oceans.

To stem this flow, Project ASEANO is developing practical and sustainable measures to reduce the impacts of plastic pollution and their implications on both socioeconomic development and the environment.

The ASEAN – Norway local capacity development project is a three year project that aims to enhance local capacity on monitoring and understanding the source, flow and nature of riverine waste. It aims to strengthen local enforcement and provide practical solutions to tackle problems at the local level.

The project uses an integrated solid waste management approach and focuses on the city and municipal level through two pilot sites: the Citarum River in Indonesia and the Imus River in the Philippines.

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