



Inventory of Global and Regional **Plastic Waste Initiatives**



A UNEP Partner

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Inventory of Global and Regional Plastic Waste Initiatives

CONTENTS

Executive Summary	5
Findings	5
Recommendations	5
Introduction	6
Purpose	6
Scope and Limitations	7
Review Methodology	8
Review of Global and Regional Initiatives	10
Conclusions	13
Recommendations	21
References	22



Executive Summary

Findings

The United Nations Environment Assembly concluded in 2017 that existing global and regional governance frameworks for combating plastic pollution took a fragmented approach that was inadequate in addressing the problem. This review of 60 global and 37 regional plastic waste initiatives supports that conclusion, and finds that most initiatives focus on the consequences rather than the source of the problem, target the last stage of the plastics life cycle and suffer from weak accountability and reporting. In addition, the geographic coverage of the initiatives is far from comprehensive.

The number of plastic waste initiatives has increased significantly over the last decade, together with our knowledge of plastic waste and its implications for human health and the environment. If this trend continues, the number of initiatives will continue to increase in response to the growing problem, but even where these initiatives are effective in meeting their limited goals, the overall approach is likely to remain fragmented. This review supports that a legally binding international framework may be the best way to address plastic pollution on a global scale.

The global initiatives, which operate in multiple countries, are often led by intergovernmental and non-governmental organizations and focus on strengthening operational capacity, awareness-raising and education. Some global initiatives are managed by multiple stakeholders, potentially yielding better uptake and results, and some of the same large multinational corporations and stakeholders fund multiple initiatives in partnership with non-profit organizations. The initiatives also seem to be similar in their targets and geographic focus.

Many regional initiatives pursue activities related to the improvement of waste management operations, awareness-raising and education. Initiatives at both the global and regional levels take temporizing actions that address the consequences rather than the source of the problem. The geographic coverage of the initiatives is determined by each initiative with no apparent coordination. Europe and South-East Asia have more initiatives, and Latin America and Africa have fewer.

Recommendations

Decision-makers and various stakeholders involved in combating global plastic pollution should consider the following recommendations.

The plastic life cycle: Plastic waste initiatives should broaden their scope by considering the entire life cycle of plastics from design through production and consumption. Initiatives should move away from activities that target only the end-of-life stage which deal with the consequences rather than the source of the problem.

Accountability and reporting: Steps should be taken to develop a legally binding international framework that overcomes the current accountability and monitoring challenges in combatting the plastic pollution crisis. A new dedicated agreement could, where feasible, align the monitoring with Sustainable Development Goals in a clear and transparent manner but where not feasible define additional accountability and reporting mechanisms.

Geographic engagement: Measures should be taken to secure equal engagement with as many States as possible to fill in the large existing gaps in the geographic coverage of plastic pollution initiatives.

Introduction

The global production, consumption and disposal of plastics, in particular single-use items and packaging, has increased over recent decades at a pace unmatched by global waste management systems. According to a recent estimate, between 19 and 23 million tonnes, or 11 per cent of plastic waste generated globally, entered aquatic ecosystems in 2016 (Borrelle et al., 2020). The same study predicts that this leakage will increase to between 20 and 53 million tonnes annually over the next decade despite ambitious efforts to reduce plastic leakage (Borrelle et al., 2020). To reverse this trend, scientists are calling for extraordinary efforts to transform the global plastic economy, a recommendation supported by the Nordic Council of Ministers in a call for a binding international agreement that takes a holistic approach to preventing plastic pollution, an approach currently absent in the global governance framework (Raubenheimer & Urho, 2020).

The first United Nations Environment Assembly (UNEA) session, in 2014, recognized the issue of plastics in the environment, and identified the presence of marine plastic litter and microplastics as an emerging global environmental threat. In 2016, UNEA-2 launched the report, *Marine plastic debris and microplastics: Global lessons and research to inspire action and guide policy change*, a report on knowledge gaps. The report highlighted prevention measures through the 3Rs (reduce, reuse, and recycle). In 2017, UNEA-3 recognized the ineffectiveness of existing global and regional governance frameworks in combating plastic pollution (UNEP, 2018), established an intersessional Ad Hoc Open-Ended Expert Group on Marine Litter and Microplastics, and passed a resolution (UNEP/EA.3/Res.7) based in part on the targets under the Sustainable Development Goals “to prioritize policies and measures at the appropriate scale to avoid marine litter and microplastics from entering the marine environment.” In addition, relevant international and regional organizations and conventions were invited to increase their activities to combat plastic pollution within their mandates. UNEA-4 extended the mandate of the intersessional expert group to take stock of existing activities, to identify technical and financial resources and to analyse the effectiveness of response options (UNEP/EA.4/Res.6). UNEP is also developing a multi-stakeholder platform to collate and disseminate such information.

The failure to establish sound national waste management systems has led to a rapid build-up of plastic waste worldwide. This has not gone unnoticed and attention to plastic waste and its impacts has increased in recent decades. Currently, a small number of internationally binding and voluntary instruments address certain aspects of plastic waste in the marine environment. These instruments include Annex V of the International

Convention for the Prevention of Pollution from Ships (MARPOL 73/78), the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention) and the protocol thereto, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which is the only international treaty established to prevent the transboundary movement of hazardous and other wastes and to ensure environmentally sound waste management practices that avoid the adverse consequences of waste on human health and the environment (UNEP, 2018).

In May 2019, at its fourteenth meeting, the Conference of the Parties to the Basel Convention (in decision BC-14/13) established the Partnership on Plastic Waste. The goal of the Partnership is “to improve and promote the environmentally sound management of plastic waste at the global, regional and national levels and prevent and minimize their generation so as to, among other things, reduce significantly and in the long term eliminate the discharge of plastic waste and microplastics into the environment, in particular the marine environment” (UNEP, 2019). Working Groups established under the Partnership on Plastic Waste have been requested to coordinate and collaborate, as appropriate, with other organizations on activities and initiatives to establish or enhance collaboration and to prevent duplication of efforts.

Purpose

The ultimate goal of the inventory review is to enhance knowledge on initiatives aiming specifically to combat pollution by plastic waste in order to support environmental protection decision-makers acting in the absence of permanent and holistic policy frameworks that address broader plastic challenges.

The specific objective of the inventory review is to support the Basel Convention as the only legally binding tool governing plastic waste, and the dedicated Partnership on Plastic Waste in its overall goals by:

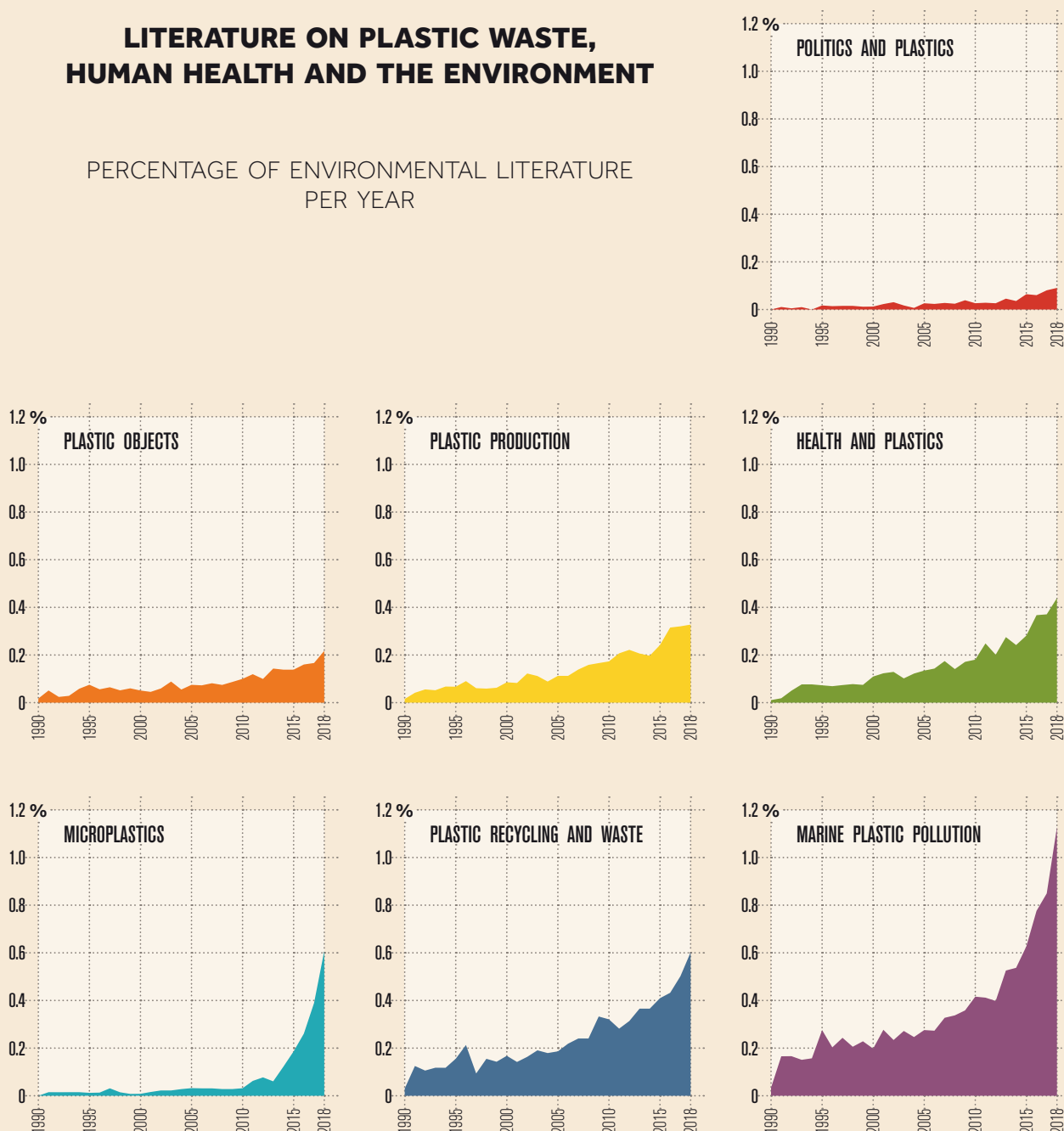
- Identifying where efforts are ongoing and where they are lacking
- Mapping stakeholder engagement
- Listing targets and commitments in combating plastic pollution on land and in marine environments

Scope and limitations

For the purposes of this report, initiatives are defined as existing or ongoing strategic processes and/or plans that include commitments addressing plastic waste; have a minimum duration of three years; are led and implemented

LITERATURE ON PLASTIC WASTE, HUMAN HEALTH AND THE ENVIRONMENT

PERCENTAGE OF ENVIRONMENTAL LITERATURE PER YEAR



Source: Nielsen & et al (2020) Politics and the plastic crisis: A review throughout the plastic life cycle.

Figure 1. Literature on plastic waste, human health and the environment

by one or more institutions or organizations, including monitoring progress towards the stated targets and overall goals; and are global or regional in scope.

The number of initiatives tackling plastic waste has increased significantly over the last decade, correlating with the increase in knowledge related to plastic waste and its effects on human health and the environment (Nielsen et al., 2020). Figure 1 shows how the literature on plastic waste developed as a percentage of environmental literature between 1990 and 2018” after (Nielsen et al., 2020). Should this trend continue, the number of initiatives will increase in the near future as a response to the growing plastic waste problem.

This inventory is a selection of ongoing initiatives worldwide. This review was conducted over a limited period, using open-source data and is not meant to be exhaustive. This review is based on information available in English and Spanish, and thus, is likely to overlook other initiatives, such as regional initiatives written in Arabic, Chinese, French and Russian.

For a more in-depth or continuous analysis, additional efforts will be needed to supplement the information provided by this report.

The definition of plastic waste initiatives established under the scope of this report excludes national regulatory measures.

Review methodology

This review follows a three-step methodology to develop the inventory (Figure 2).

Preliminary search

A preliminary search for initiatives explored online open-source information available from intergovernmental platforms, strategy documents, international summits and coalitions such as the United Nations Environment Programme (UNEP), multilateral environmental agreements (MEA), regional centres and the European Union, and included commitments made during international conferences such as the Our Ocean Conference and the World Economic Forum annual meetings.

This preliminary search was supplemented with a review of recognized online platforms, associations and foundations that actively participate in conventions, and a review of reports on current methodologies by international organizations such as the International Union for Conservation of Nature (Boucher et al., 2019).

Additionally, the Basel Convention Secretariat initiated a survey in English among the members of the Partnership on Plastic Waste working group in preparation for their first meeting in March 2020. This questionnaire asked members to provide information on national, regional and global initiatives aimed at addressing the problem of plastic waste pollution, together with information on the objectives, membership and activities of each initiative. The information on regional and global initiatives from this survey is included in this report.

The data gathering during January-February and August-November 2020 revealed numerous activities on issues related to plastic waste.

Selection and description

The final selection of initiatives within the scope of this study included 60 global and 37 regional initiatives for a total of 97 entries. The description of the types of initiatives were categorized in consultation with the framework of the Basel Convention's Partnership on Plastic Waste (UNEP, 2019). Table 1 displays how the initiatives were described and categorized for further characterization.

An initiative can encompass a range of activities undertaken by an organization. These activities, for example, can often be designed as projects and/or strategic processes. Multiple initiatives coordinated by a single institutional structure and with the same goal were counted as a single entry. For instance, the Group of Seven (G7) – an informal forum of industrialized countries – has numerous strategic processes such as the Action Plan to Combat Marine Litter, the Bologna Roadmap and the Toyama Framework on Material Cycles, and lately adopted commitments in the Ocean Plastic Charter. The commitments under the G7 are counted as one entry.

Initiatives coordinated by institutional structures such as Regional Seas Conventions are another example where a single-entry principle has been applied. Regional Seas Conventions and action plans have been designed and implemented in 18 different regions.¹ These institutional structures are either administered by UNEP or through independent mechanisms. Although not all regions have developed marine litter action plans, all these structures cooperate with UNEP's Regional Seas Programme and share the same vision and goals.

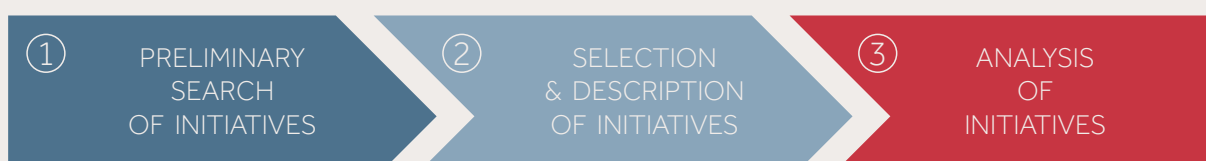
Initiatives can be led by a single organization or multiple organizations. Similarly, they can target more than one stakeholder group² and aim to conduct several types of activities simultaneously. Thus, in the analysis of how many initiatives have a particular focus, the total amount does not represent the exact number of initiatives found, but the number of times the initiatives focus on an activity or a stakeholder group.

Initiatives led by intergovernmental structures such as the United Nations Environment Programme and the European Commission were split and listed independently, as their aim, targets, approaches and partnerships differ greatly. The following review of the initiatives is the analysis step in the methodology.

1. See: <https://www.unep.org/explore-topics/oceans-seas/what-we-do/regional-seas-programme>

2. Stakeholder groups were identified according to: UNEP (2018). Handbook for Stakeholder Engagement. Available at: <https://www.unep.org/resources/publication/stakeholder-engagement-handbook>

THREE-STEP METHODOLOGY FOR THE IDENTIFICATION OF INITIATIVES DEALING WITH PLASTIC WASTE AT THE GLOBAL, REGIONAL & NATIONAL LEVELS



Source: Fischer & et al (2018).

Figure 2. Three-step methodology for the identification of initiatives dealing with plastic waste at the global, regional and national levels

TABLE 1 **Description and categorization of initiatives**

TITLE	FULL TITLE OF THE INITIATIVE
Lead organization	The specific organization or organizations leading the initiative
Stakeholder category	a) Governments (parties, signatories, other governments and governmental organizations) b) Intergovernmental organizations (IGOs) such as United Nations bodies, convention secretariats, and their regional centres c) Business and industry (individual companies, associations or industry coalitions; manufacturers, companies dedicated to the recovery, recycling and disposal of plastic waste; other recyclers) d) Science and technology community including research and academia e) Non-governmental organizations (NGOs) including environmental groups and not-for-profit organizations and charities f) Other (e.g., individuals, philanthropists, designers and other influencers)
Membership	Stakeholders targeted by, or already part of the initiative, including governments, IGOs, businesses and industry, the science and technology community and NGOs
Type of initiative	a) Policy development (encompasses any activities related to policy development) b) Product design (encompasses activities related to any steps of product design) c) Operations (encompasses activities of waste management, e.g. the promotion of sound waste management practices including recycling and similar soft measures such as voluntary guidance etc.) d) Research (including pilot projects) e) Enforcement (encompasses activities related to law enforcement) f) Awareness-raising and education (encompasses capacity-building, training and outreach activities) g) Communications (encompasses activities focusing on broad release of information to the general public) h) Clean-up (encompasses activities to remove waste from the environment) i) Other
Geographic scope	Particular geographic focus
Description	Specific problem the initiative is addressing; ultimate goal of the initiative in a broader context based on the theory of change; how the initiative is going to achieve its goals; information on measures related to the waste hierarchy such as prevention, minimization, reuse, recycle, other recovery (including energy recovery), final disposal (UNEP, 2015).
Targets	a) Measurable: including qualitative (education and awareness-raising) and quantitative metrics, e.g. percentages, key performance indicators b) Non-measurable: no specific measures are intended or none are specified
Monitoring mechanism	How monitoring (if any) is taking place: metrics on the quantity of marine litter collected, reports on collected plastic waste, road maps
Funding sources	Public, private, donations (foundations or individuals), hybrid
Starting date and duration	Start date and planned duration
Source	Website

Review of global and regional initiatives

This review examined a total of 60 global and 37 regional initiatives (see Tables 2 and 3 at the end of this chapter). The majority of the global initiatives were established recently, with only 18 established before 2015. Approximately, half of the regional initiatives were established since 2015.

Of the 60 global initiatives, 40 are led by a single stakeholder group. Partnerships of two or more stakeholder groups lead the other 20 global initiatives with business and industry co-leading 17, NGOs co-leading 14 and intergovernmental organizations co-leading 10 (Figure 3).

Most global level initiatives carry out multiple activities simultaneously as part of their work plans. Improvement of waste management (42 initiatives, including improvements in the reuse and recycling of waste) and awareness-raising and education (40) are the most common types of initiatives. These actions target the end-of-life stage, dealing with the consequences rather than the source of the problem. Other initiatives cover policy development (26), research (25), and communications (23). Only one global initiative focuses its efforts on law enforcement.

Half of operational activities promoting sound waste management practices operate in a specific location. Recycling initiatives foster the need for circularity of the material, but very little information is available on whether any larger-scale activities are economically viable. Only a few global initiatives provide detailed information in relation to waste management activities.

Of the global initiatives, 22 mention clean-up among their main activities. Most of these clean-up activities are implemented in coastal areas, with only a few focusing on the open ocean, noting that such clean-ups are evolving with innovative technology that may lead to greater efforts away from the coastal zone. Moreover, clean-up initiatives are linked to voluntary activities and often feature a communications and public information component.

Most of the global initiatives operate in a specific local geography, and only 20 global initiatives take a global approach and specify no particular geographic location. Most of the global initiatives are still developing pilot projects or focus in a few specific countries or regions with Indonesia, Vietnam and the Philippines the most frequently listed. This finding correlates with earlier indications that

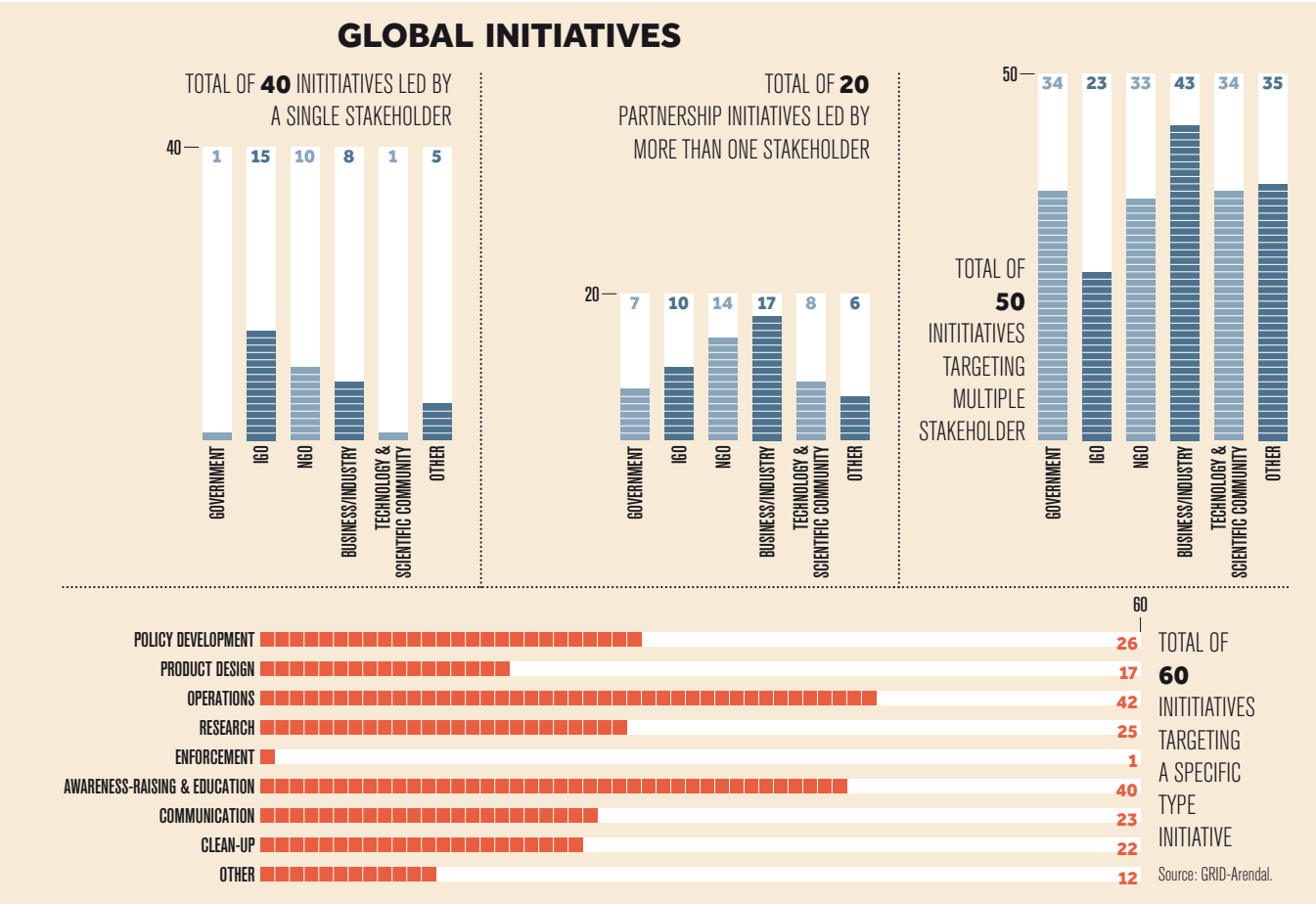


Figure 3. Global initiatives

significant leakages of plastic waste to the oceans occur in South-East Asia (Jambeck et al., 2015; Lebreton et al., 2017). A later study concluded that the United States is among the highest contributors of plastic waste leakage into the ocean (Law et al., 2020).

Of the 37 regional initiatives, a single stakeholder group leads 23, while partnerships lead 14 with the science community co-leading 8, intergovernmental organizations leading 7 and non-governmental organizations leading 6 initiatives (Figure 4).

Regional initiatives focus on awareness-raising and education (25), operations (24), policy development (14), research (13), clean-up (11), product design (9), and communications (6). Again, relatively fewer initiatives focus on product design. As with the global initiatives, only one regional initiative focuses on law enforcement. Regional frameworks offer the most likely approach to establishing common regional actions for addressing marine litter (UNEP, 2018). For example, regional action plans on marine litter take a more harmonized approach to specific key regional activities. Figure 5 maps out regional action plans on marine litter.

Of the 37 regional initiatives, at least 22 are being implemented in Europe, including the Mediterranean region, especially in coastal countries and islands.

Public awareness of marine plastic waste issues is high in Europe, and receives public funding from the European Commission. Indeed, the European Commission either led or provided funding for most of the 22 initiatives. In addition, the concentration and accumulation of marine plastic and microplastic litter in the Mediterranean is similar to the accumulation in the subtropical gyres (Cózar et al., 2015). Fewer initiatives are active in Latin America and Africa.

The four initiatives found in Africa cover research, awareness-raising and education and innovation projects. The African Marine Waste Network project of the Sustainable Seas Trust creates knowledge, raises awareness and educates the public on plastic pollution in Africa. The Western Indian Ocean Marine Science Association (WIOMSA) pursues primarily research, awareness-raising and education activities on the Western Indian Ocean. African Impact proposes innovation solutions for sustainable building with ecobricks. The Commonwealth Litter Programme (CLiP), led by the Centre for Environment, Fisheries and Aquaculture Science in the UK, helps developing economies including African countries take action on plastics.

This review identified only one initiative with a multisectoral lead – the Regional Initiative for Inclusive Recycling (or Iniciativa Regional para el Reciclaje Inclusivo) – which

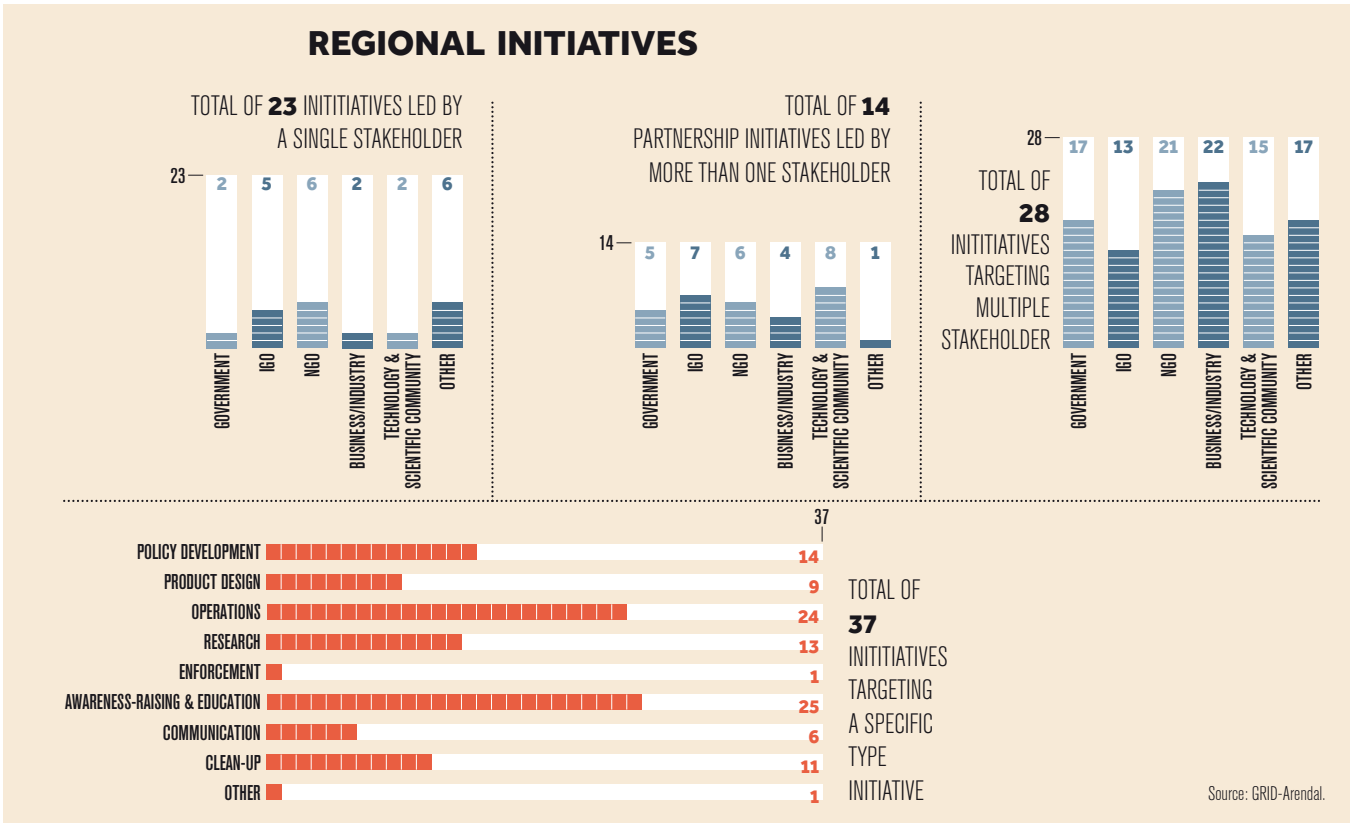


Figure 4. Regional initiatives

Regional action plans on marine litter

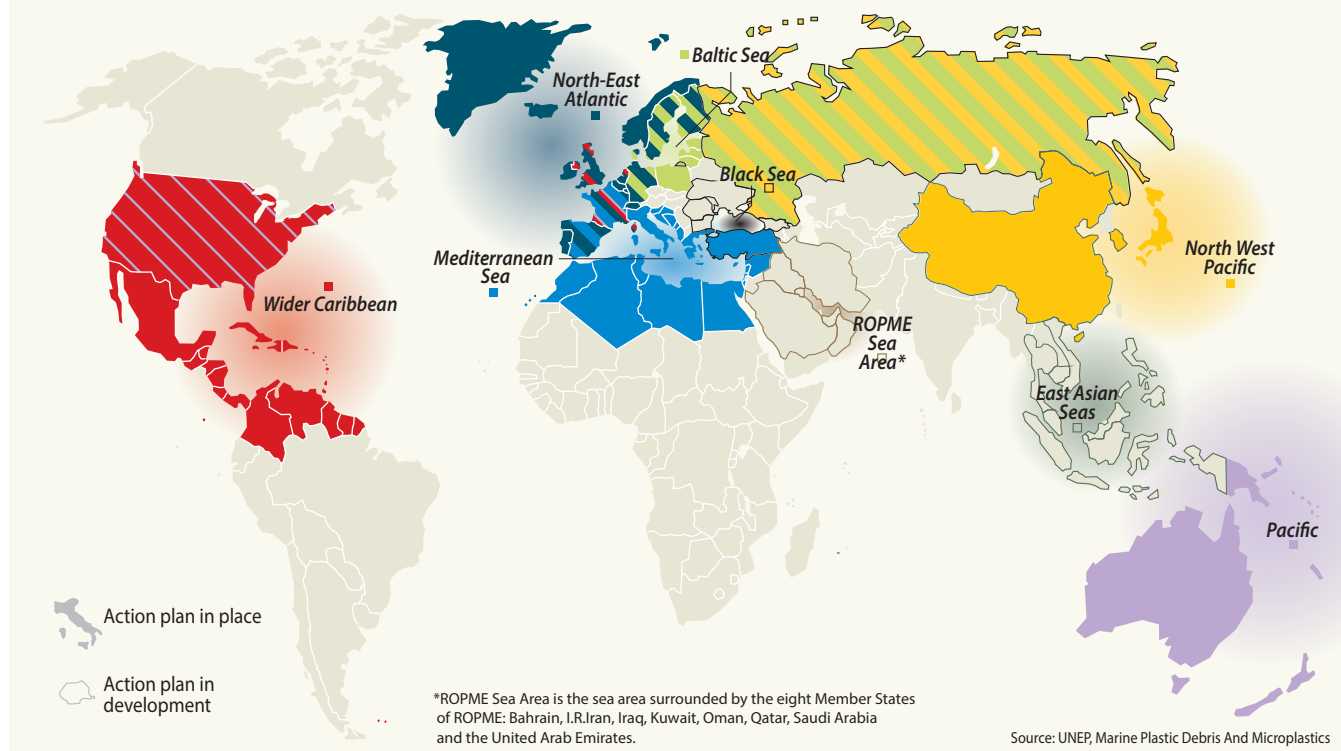


Figure 5. Regional action plans on marine litter

tackles plastic waste in Latin America. This initiative – led by the Inter-American Development Bank, Coca-Cola Latinoamérica, PepsiCo Latino, Avina Fundación, and the Red Latinoamericana de Recicladores – aims to improve the socioeconomic situation of informal waste recyclers; support local and federal governments in the development of inclusive policies; and improve the private sector’s role and integration into the plastic value chain in Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, México, Nicaragua, Panamá, Paraguay, Peru, the Dominican Republic and Uruguay.

According to Fisher et al. (2018), multi-stakeholder and multi-thematic initiatives create significant impacts and better results. The majority of initiatives reviewed here target multiple stakeholders with business and industry the main group targeted – to various degrees – by 43 global initiatives and 22 regional initiatives. Other targeted stakeholders both for global and regional initiatives include governments, NGOs and the scientific community (Figures 3 and 4).

Many initiatives led by business or industry, intergovernmental and non-governmental organizations follow the circular economy principles developed by the Ellen MacArthur Foundation (EMF, 2013). In 2018, in collaboration with UNEP, EMF launched the New Plastic Economy Global Commitment report (EMF and UNEP, 2019). The voluntary commitments of the signatories are specific to their type of organization, and all recognize that

the circular economy for plastic packaging is defined by the following characteristics:

- Elimination of problematic or unnecessary plastic packaging through redesign, innovation, and new delivery models is a priority;
- Reuse models are applied where relevant, reducing the need for single-use packaging;
- All plastic packaging is 100% reusable, recyclable, or compostable;
- All plastic packaging is reused, recycled, or composted in practice;
- The use of plastics is fully decoupled from the consumption of finite resources;
- All plastic packaging is free of hazardous chemicals, and the health, safety, and rights of all people involved are respected.

Global and regional initiatives are setting ambitious targets to solve the problem of plastic waste entering the ocean, and often aligning their course of action with Sustainable Development Goals (SDGs). Although most of the global initiatives have measurable targets, the available information is too limited to understand how these initiatives will meet their goals and how they will contribute to the SDGs. Many initiatives poorly define how they monitor progress, and simply provide annual reports. The Institute for Advanced Sustainable Studies confirms the existing challenges of monitoring activities to combat marine litter at the global and regional levels (IASS, 2021).



Almost half of the regional initiatives fail to specify if they have set targets to meet their goals.

The report by the Ellen MacArthur Foundation and UNEP confirms that most initiatives operate on a voluntary, non-legislative basis and lack accountability (EMF and UNEP, 2019). Such initiatives may be effective as far as they go, but may not significantly affect the overall problem.

Many different funding mechanisms have supported work on plastic waste. Funding provided by the private and public sectors is a common financial model to support initiatives, but hybrid funding by public, philanthropic and private sources covers many activities and applies to global and regional initiatives.

Some plastic manufacturing corporations, philanthropic foundations, and certain NGOs are strongly connected on initiatives. The same large multinationals fund multiple initiatives such as “Next Wave Plastic” or “Global Plastic Action Partnership”, which are led by NGOs. Increased interest in bioplastics has triggered new plastic waste initiatives such as the “Bioplastic Feedstock Alliance”, supported by prominent international NGOs and multinationals.

Conclusions

The number of global and regional plastic waste initiatives has increased in response to growing knowledge and political actions.

This review finds a focus on consequences rather than sources of the problem, and indicates important thematic and geographic gaps in the work towards solving the plastic crisis. The global and regional initiatives under review are mostly clustered around waste management, awareness-raising and education while attention to the full plastic life cycle is largely lacking. The initiatives dealing with plastic waste are not coordinated with each other and vary in the scope of their activities. Monitoring, reporting and accountability appear to be limited.

This review proposes concrete recommendations for the consideration of the decision makers and stakeholders involved in combating global plastic pollution. Further in-depth analyses and additional efforts to supplement the information and findings of this study may expand our understanding of the crisis, and may illuminate pathways to a more coordinated, comprehensive and balanced approach to solutions.

TABLE 2

Global Initiatives

TITLE	LEAD ORGANIZATION(S)	TYPE OF INITIATIVE(S)
The 3R Initiative: Reduce, Recover, Recycle	The 3R Initiative Secretariat	Operations and other
4Oceans	4Oceans	Research, clean-up, awareness-raising and education
Alliance to End Plastic Waste	Alliance to End Plastic Waste	Product design, operations, research, awareness-raising and education, communications and other
Operation Clean Sweep	American Chemistry Council and Plastics Industry Association	Policy development, product design and operations
Waste Programme	As you sow	Policy development, operations and product design
Partnership on Plastic Waste	Basel Convention Secretariat	Operations, awareness-raising and education
Cutting River Plastic Waste	Benioff Ocean Initiative and the Coca-Cola Foundation	Operations, research, clean-up, and awareness-raising and education
Break Free from Plastic	Break Free from Plastic	Policy development, operations, awareness-raising and education, and communications
The Circulate Initiative	The Circulate Initiative	Operations and other
Mitigating short-lived climate pollutants from the municipal solid waste sector	Climate & Clean Air Coalition	Policy development, operations, clean-up, awareness-raising and education, and communications
New Plastics Economy Global Commitment	Ellen MacArthur Foundation in collaboration with UNEP	Product design and operations
eXXpedition	eXXpedition	Research, awareness-raising and education, communications and other
Blue Flag	Foundation for Environmental Education	Awareness-raising and education
Global Alliance for Incinerator Alternatives' Initiatives	Global Alliance for Incinerator Alternatives (GAIA)	Policy development, operations, awareness-raising and education, and communications
Global Alliance of Waste Pickers Initiatives	Global Alliance of Waste Pickers	Operations and clean-up
Global Ghost Gear Initiative	Global Ghost Gear Initiative (GGGI)	Policy development, operations, product design, research, clean-up, awareness-raising and education

TABLE 2 | *continued*

TITLE	LEAD ORGANIZATION(S)	TYPE OF INITIATIVE(S)
Global Plastic Action Partnership (GPAP)	Global Plastic Action Partnership, part of PACE initiative and hosted by the World Economic Forum	Policy development, product design, operations, research, awareness-raising and education, and other
The Declaration of the Global Plastics Associations for Solutions on Marine Litter	Global Plastics Associations for Solutions on Marine Litter	Policy development, operations, research and communications
G20 Implementation Framework for Actions on Marine Plastic Litter	The Group of 20 (G20)	Policy development and operations
Ocean Plastics Charter	Group of Seven (G7)	Policy development, operations, product design, research, clean-up, awareness-raising and education, communications and other
The United Nations Decade of Ocean Science for Sustainable Development	Intergovernmental Oceanographic Commission (IOC) of UNESCO and UNEP	Research, operations, awareness-raising and education, and communications
GloLitter Partnership	International Maritime Organization (IMO) and Food and Agriculture Organization (FAO)	Policy development, operations and other
ISWA Marine Litter Task Force Initiatives	International Solid Waste Association (ISWA)	Policy development, operations, research, clean-up, awareness-raising and education, and communications
Close the Plastic Tap Programme	International Union for Conservation of Nature (IUCN)	Policy development, operations, research, awareness-raising and education, and communications
International Waste Platform	International Waste Platform	Operations, awareness-raising and education, and communications
Pollution crimes	INTERPOL	Enforcement
GESAMP Working groups 40 and 43	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP)	Research, awareness-raising and education, and communications
International Pellet Watch (IPW)	Laboratory of Organic Geochemistry, Tokyo University of Agriculture and Technology	Research
Let's Do It Foundation Initiatives	Let's Do It Foundation	Policy development, clean-up, awareness-raising and education, and other

TABLE 2 | *continued*

TITLE	LEAD ORGANIZATION(S)	TYPE OF INITIATIVE(S)
Litterati	Litterati	Research, clean-up and communications
Making Oceans Plastic Free	Making Oceans Plastic Free	Product design, research, clean-up, awareness-raising and education, and communications
NextWave Plastics	Member-driven, convened by Lonely Whale	Operations, product design and awareness-raising
Minderoo Foundation Initiatives	Minderoo Foundation	Operations, product design, research and awareness-raising, and education
The Ocean Cleanup	The Ocean Cleanup	Research and clean-up
Ocean Conservancy Initiatives	Ocean Conservancy	Policy development, product design, operations, clean-up, research, awareness-raising and education, communications, and other
One Planet Network -Wide Plastics Initiative, Global Tourism Plastics Initiative	One Planet Network	Operations, awareness-raising and education, and other
The OECD Ocean initiatives	The Organisation for Economic Co-operation and Development (OECD)	Policy development and operations
Preventing Ocean Plastics	Pew Foundation	Research, awareness-raising and education
Plastic Bank	Plastic Bank	Operations, clean-up, awareness-raising and education
Plastic Soup Foundation Initiatives	Plastic Soup Foundation	Policy development, research, clean-up, awareness-raising and education, and communications
The Plastic Leak Project	Quantis and Shaping Environmental Action	Product design
R4W Odyssey 2015	Race for Water: A Foundation to Preserve Water	Research and awareness-raising and education
Initiatives e.g., Plastic Revolution, the Vessel	RevOcean	Research, operations, awareness-raising and education, and communications
Surfrider Foundation Initiatives	Surfrider Foundation Europe	Policy development, research, clean-up, awareness-raising and education
SystemIQ's Initiatives	SystemIQ	Operations and clean-up
Closed-Loop Solutions	TerraCycle	Product design and operations

TABLE 2 | *continued*

TITLE	LEAD ORGANIZATION(S)	TYPE OF INITIATIVE(S)
Ad Hoc Open-Ended Expert Group on Marine Litter and Microplastics	UNEP	Policy development
Clean Seas Campaign	UNEP	Operations, clean-up, awareness-raising and education, and communications
Global Partnership on Marine Litter (GPML)	UNEP	Policy development, operations, awareness-raising and education, communications and clean-up
Life Cycle Initiative	UNEP	Policy development, product design, operations and communications
Global Plastics Platform	UNEP	Policy development and communications
Regional Action Plans on Marine Litter	UNEP and Regional Seas Conventions	Policy development, operations, awareness-raising and education, communications and other
Unwrapping the risks of plastic pollution to the insurance industry	UNEP Finance Initiative and Principles for Sustainable Insurance (PSI)	Policy development, awareness-raising and education
Ocean Innovation Challenge	UNDP	Product design, operations, research, awareness raising and education, communications, clean-up, and other
Clean Cities, Blue Ocean	USAID	Awareness-raising and education
Waste Free Oceans	Waste Free Oceans (WFO)	Policy development, operations, clean-up, awareness-raising and education
World Bank Initiatives (e.g., PROBLUE)	World Bank	Policy development, operations, awareness-raising and education
WWF Plastic Initiatives	World Wide Fund for Nature (WWF)	Policy development, operations, clean-up, awareness-raising and education, and communications
Bioplastic Feedstock Alliance	WWF, the Coca-Cola Company, Danone, Ford Motor Company, Nestle, P&G, Unilever, the LEGO Group, McDonald's Corporation, PepsiCo, Keurig Dr Pepper and Target Corporation	Product design, operations, research, awareness-raising and education
ReSource Plastics	WWF, The Ellen MacArthur Foundation, Ocean Conservancy, Keurig Dr Pepper, McDonald's Corporation, P&G, Starbucks, The Coca-Cola Company, Amcor, Colgate-Palmolive, Kimberly-Clark	Operations, product design

TABLE 3

Regional Initiatives

TITLE	LEAD STRUCTURES	TYPE OF INITIATIVE
Plastic and Environmental Sustainability Initiative	African Impact	Awareness-raising and education
Sustainable Ocean Funds	Althelia Funds and Mirova	Operations
ASEAN	Association of Southeast Asian Nations (ASEAN) working group on Coastal and Marine Environment (AWGCME), the Norwegian Institute for Water Research (NIVA), Centre for Southeast Asian Studies Indonesia (CSEAS) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)	Clean-up, awareness-raising and education
Regional Initiative for Inclusive Recycling	be Waste Wise	Operations
Commonwealth Litter Program (CLiP)	Centre for Environment, Fisheries and Aquaculture Science	Policy development, operations, research, clean-up, awareness-raising and education
Circular Economy for Flexible Plastic Packaging (CEFLEX)	Circular Economy for Flexible Plastic Packaging	Operations, product design and communications
The Litter Challenge	Clean Europe Network	Awareness-raising and clean-up
Plastic Free Baltic - Plastic Free Ocean	Coalition Clean Baltic	Policy development, operations, awareness-raising and education
Rethinking plastics – circular economy solutions to marine litter	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Expertise France (EF), European Union (EU), German Federal Ministry for Economic Cooperation and Development (BMZ)	Policy development, product design, operations, awareness-raising and education
eCircular Challenge	EIT Climate-KIC	Product design, research, and operations
Circular Plastic Alliance	European Commission	Policy development, product design, operations, and research
Plastic Strategy	European Commission	Policy development, product design, research, clean-up, awareness-raising and education and communications
Marine Litter Watch	European Environment Agency	Operations, research, clean-up and awareness-raising and education
European Week for Waste Reduction	European Week for Waste Reduction Secretariat	Operations, clean-up, awareness-raising and education, and communications

TABLE 3 | *continued*

TITLE	LEAD STRUCTURES	TYPE OF INITIATIVE
Healthy Seas	Healthy Seas	Product design, clean-up, awareness-raising and education
Interreg Mediterranean Programme	Interreg Mediterranean	Policy development, research, awareness-raising and education
KIMO Initiatives	KIMO (Municipalities for Sustainable Seas)	Policy development, clean-up and awareness-raising and education
Nordic Solutions to Global Challenges and other initiatives	Nordic Council and the Nordic Council of Ministers	Policy development, operations, research, awareness-raising and education
OSEAN	Our Sea of East Asia Network (OSEAN)	Policy development, research, clean-up, awareness-raising and education
Polyolefin Circular Economy Platform (PCEP)	PCEP Polyolefin Circular Economy Platform	Product design, operations and communications
Plastics 2030	Plastics Europe	Product design, operations and communications
Regional Action Plan on Marine Litter in the Arctic	Protection of the Arctic Marine Environment (PAME), a working group of the Arctic Council	Policy development, operations, awareness-raising and education
Red Lacre	Red LatinoAmericana de Recicladores	Operations and clean-up
Reloop	Reloop	Policy development, operations, awareness-raising and education
Rethink Plastics	Rethink Plastic Alliance Composed of: Center for International Environmental Law (CIEL), ClientEarth, ECOS, Environmental Investigation Agency (EIA), European Environmental Bureau (EEB), Friends of Earth Europe	Policy development, operations and product design
OPTOCE	SINTEF	Operations
Sustainable Coastlines	Sustainable Coastlines	Research, clean-up, awareness-raising and education
How2Recycle	Sustainable Packaging Coalition and GreenBlue	Operations, awareness-raising and education, and communications
African Marine Waste Network	Sustainable Seas Trust	Research, awareness-raising and education, communications and other

TABLE 3 | *continued*

TITLE	LEAD STRUCTURES	TYPE OF INITIATIVE
Keep the Mediterranean Litter Free Campaign	UNEP and the Mediterranean Action Plan (UNEP/MAP MEDPOL), the Hellenic Marine Environment Protection Association (HELMEPA), Clean-up Greece, and the Mediterranean Information Office for Environment, Culture, and Sustainable Development (MIO-ECSDE)	Clean-up, awareness-raising and education
Countering Illegal Hazardous Waste Trafficking	United Nations Office on Drugs and Crime UNODC-WCO Container Control Programme	Enforcement
Plastic Busters	University of Siena, and the Mediterranean Sustainable Development Solutions Network (SDSN Mediterranean)	Clean-up, awareness-raising and education
Municipal Waste Recycling Programme	USAID	Operations
Arctic Marine Litter Project	Wageningen University & Research	Policy development, research, awareness-raising and education
Marine Litter Monitoring	Western Indian Ocean Marine Science Association (WIOMSA), in partnership with the Sustainable Seas Trust through its African Marine Waste Network	Research, awareness-raising and education
The European Plastic Pact	WRAP	Product design, operations and communications
Zero Waste Cities	Zero Waste Europe	Policy development, operations, awareness-raising and education

RECOMMENDATIONS

Decision-makers and various stakeholders involved in combating global plastic pollution should consider the following recommendations.

THE PLASTIC LIFE CYCLE

Plastic waste initiatives should broaden their scope by considering the entire life cycle of plastics from design through production and consumption. Initiatives should move away from activities that target only the end-of-life stage which deal with the consequences rather than the source of the problem.

ACCOUNTABILITY AND REPORTING

Steps should be taken to develop a legally binding international framework that overcomes the current accountability and monitoring challenges in combatting the plastic pollution crisis. A new dedicated agreement could, where feasible, align the monitoring with Sustainable Development Goals in a clear and transparent manner but where not feasible define additional accountability and reporting mechanisms.

GEOGRAPHIC ENGAGEMENT

Measures should be taken to secure equal engagement with as many States as possible to fill in the large existing gaps in the geographic coverage of plastic pollution initiatives.

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The United Nations Environment Assembly concluded in 2017 that existing global and regional governance frameworks for combating plastic pollution took a fragmented approach that was inadequate in addressing the problem. This review of 60 global and 37 regional plastic waste initiatives supports that conclusion, and finds that most initiatives focus on the consequences rather than the source of the problem, target the last stage of the plastics life cycle and suffer from weak accountability and reporting. In addition, the geographic coverage of the initiatives is far from comprehensive.

