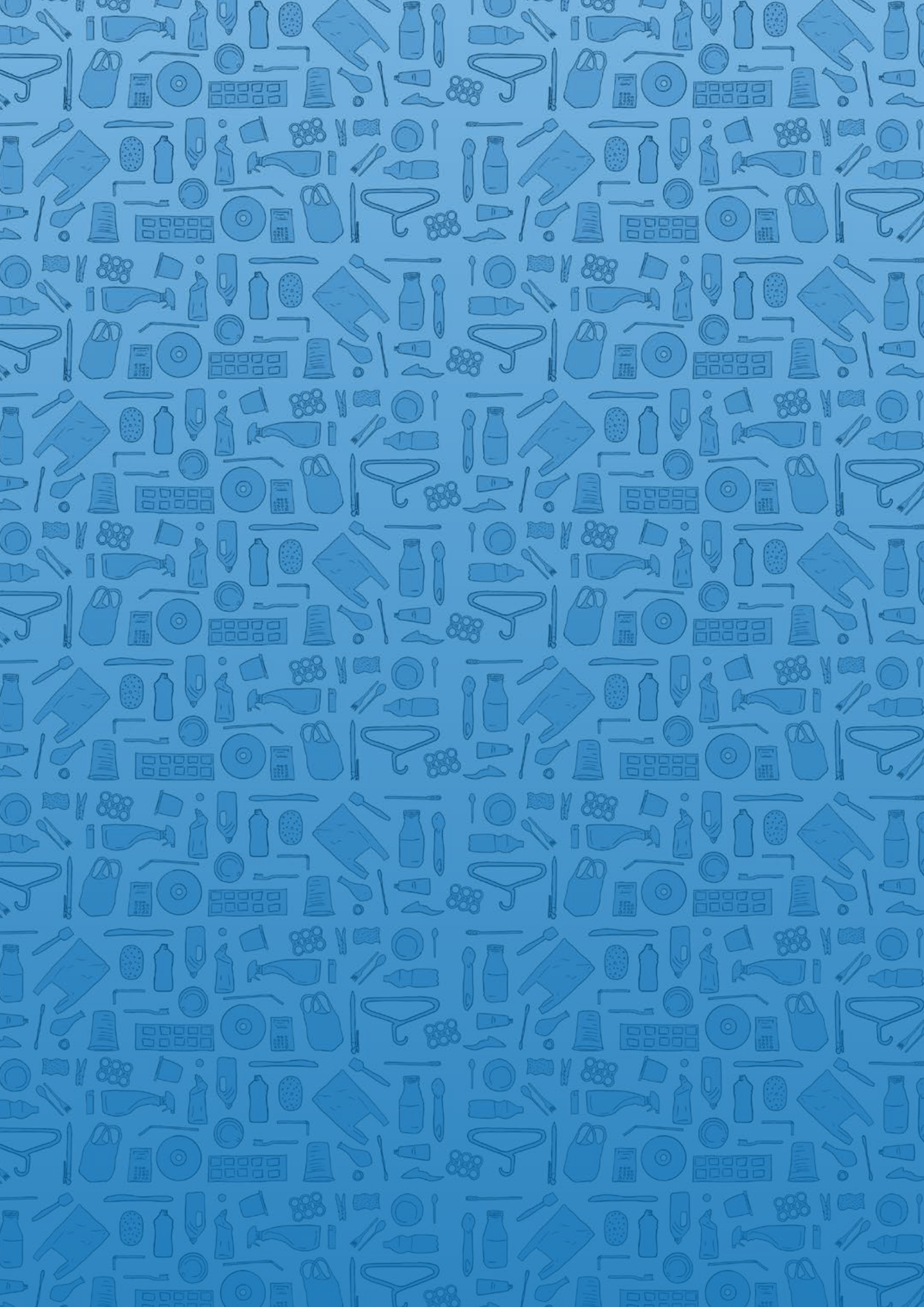


DROWNING IN PLASTICS



**MARINE LITTER AND PLASTIC WASTE
VITAL GRAPHICS**



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Forewords

Global plastic production has risen exponentially over the last decades – now amounting to some 400 million tonnes per year. Although plastic serves many useful purposes, its rapidly growing production and consumption, coupled with a lack of a circular approaches – keeping plastic in the economy and out of the environment – and the extensive leaking of microplastics into nature, all constitute an urgent environmental emergency. Currently, it is estimated that 19-23 million tonnes of plastic leaks into aquatic ecosystems annually – from lakes to rivers to seas – from land-based sources. Exacerbated by contributions from sea-based sources, this combined plastic leakage is having major impacts on ecosystems, economies and society – including on human health.

The aim of this Vital Graphics publication is to provide an overview of the current global marine litter and plastic pollution challenge and its effect on the environment using graphic visualisations – each covering central topics of the challenge and related technical, scientific and policy perspectives. It covers the broad area of marine litter and plastic pollution, including production and consumption of plastic worldwide, chemical composition of plastic material, major sources of plastic leakage to the marine environment and impacts on ecosystems, human health and the economy. The publication builds on the first Marine Litter Vital Graphics published in 2016, capturing the latest trends and developments and expanding the focus to include technical and operational management solutions to removing unnecessary, avoidable and problematic plastics, enhancing circularity and improving plastic waste management – as well as policy and governance frameworks that can address the challenge from a local to global level.

The publication is developed jointly by UNEP, the Secretariat of the Basel, Rotterdam and Stockholm Conventions and GRID-Arendal, drawing on these entities' broad expertise across different thematic areas. It reflects the multi-sectoral nature of

this environmental challenge and the need for a multi-pronged approach – addressing it from scientific, technical and policy angles. With much still unknown about the distribution and impacts of plastic on the marine environment and human health – the publication reflects current state-of-the-art knowledge on the global marine litter and plastic challenge and what solutions can be implemented to avoid both known and potential impacts, while global research continues.

The contributions of this report should be seen as complementary to UNEP's new scientific assessment, *From Pollution to Solution*, aiding in visually communicating its findings to policymakers and practitioners worldwide, while enabling stronger global advocacy for a transformation away from business as usual.

Our hope is that together, these publications can help guide and support policy processes on marine litter and plastic pollution worldwide – providing a foundation for evidence-based action to stimulate innovative, circular solutions across the life cycle of plastic products from source to sea.



Susan Gardner

Director
Ecosystems Division
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9.2 billion tonnes. That is the total amount of plastic estimated to have been made between 1950 and 2017. More than half this plastic has been produced since 2004. Of all the plastic discarded so far, some 14% has been incinerated and less than 10% has been recycled. And the remainder? It has either been disposed of in landfills and dumps or released into the environment, including the oceans.

Take a moment to think about these figures. The 9.2 billion tonnes of plastic ever produced are as heavy as 28,000 Empire State Buildings in New York, or almost 2 billion elephants. Today, approximately 438 million tons of plastic are produced per year.

By now we are all painfully aware that plastic waste poses a serious threat to our environment, including both marine and terrestrial ecosystems. What many of us don't know is that microplastics find their way into the food we eat, the water we drink and even the air we breathe. By some estimates, people consume more than 50,000 plastic particles per year – and many more if inhalation is considered. Many plastic products contain hazardous additives. These additives may pose a significant threat to our health. As long as plastic waste is dumped and subject to open burning, toxic chemicals will continue to be released into the environment.

Our triple planetary crisis – climate change, biodiversity loss and pollution, including plastic pollution – is having the greatest impacts on the world's poorest and most vulnerable populations. Segments of these populations predominantly work in the informal waste sector and/or live in the vicinities of open dumpsites. Plastic pollution directly and indirectly threatens the full and effective enjoyment of all human rights, including the rights to life, water and sanitation, food, health, housing, culture and development.

The Covid-19 pandemic has not only highlighted our continued reliance on plastic products, but also exposed weaknesses in our infrastructure and our ability to manage plastic waste in an environmentally sound manner. The plastic waste crisis is truly an issue of global concern requiring immediate action from policy makers, regulators, industry and civil society.

The Basel Convention, the most comprehensive global environmental treaty dealing with hazardous and other wastes, offers an important part of the solution. In a landmark decision taken in 2019, Parties to the Basel Convention unanimously

adopted the Plastic Waste Amendments, which are now binding on 186 States. By extension, the legally binding provisions of the Basel Convention, which apply controls on the global trade in hazardous and other waste, now apply to plastic waste. In addition to ensuring the trade in plastic waste is more transparent and better regulated, under the Basel Convention governments must take steps not only to ensure the environmentally sound management of plastic waste, but also to tackle plastic waste at its source. These are powerful incentives for governments and other key players to strengthen national and regional capacities for environmentally sound recycling, thereby creating jobs, and to promote innovation, favouring the investment in alternatives to plastic and the phasing out of toxic additives.

The Basel Convention is not the only instrument at our disposal to tackle plastic pollution. The Stockholm Convention on Persistent Organic Pollutants, which requires Parties to prohibit, eliminate and restrict the production, use, import and export of a number of hazardous chemicals, plays a pivotal role in reducing hazardous additives we find in plastic, ensuring it is safer for use and easier to recycle. In addition, the UNEP Regional Seas Programme provides critical regional governance of marine plastic pollution. To top it off, all eyes are on the United Nations Environment Assembly, which will meet again in 2022, to discuss further international action to address the global plastic pollution crisis.

Using powerful maps and graphics, this publication strikes a balance: relying on the latest science, it alerts us to the complex challenges posed by our plastic waste problem. At the same time, it highlights solutions for policy- and decision-makers in the public and private sectors, from innovation and financial mechanisms to regulation and infrastructures.

For this is our problem, and we need to work collaboratively, to ensure our fight against plastic waste and pollution becomes a joint success story.



Rolph Payet

Executive Secretary
Secretariat of the Basel, Rotterdam
and Stockholm Conventions

Abbreviations, acronyms and units of measurement

AHEG	Ad hoc open-ended expert group on marine litter and microplastics	MSW	Municipal solid waste
ALDFG	Abandoned, lost or otherwise discarded fishing gear	MT	Million metric tonnes (or megatonnes)
APEC	Asia-Pacific Economic Cooperation	µm	Micrometres
ASEAN	Association of Southeast Asian Nations	NAFTA	North American Free Trade Agreement
BPA	Bisphenol A	OECD	Organisation for Economic Co-operation and Development
BRS	Basel, Rotterdam and Stockholm Conventions	OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
CBD	Convention on Biological Diversity	PCBs	Polychlorinated biphenyls
CIS	Commonwealth of Independent States	PE	Polyethylene
cm	Centimetres	PET	Polyethylene terephthalate
CMS	Convention on the Conservation of Migratory Species of Wild Animals	PHA	Polyhydroxyalkanoate
ECHA	European Chemicals Agency	PIC	Prior informed consent
EEA	European Environment Agency	PLA	Polylactic acid
EPR	Extended producer responsibility	POPRC	Persistent Organic Pollutants Review Committee
EPS	Expanded polystyrene	POPs	Persistent organic pollutants
ESM	Environmentally sound management	PP	Polypropylene
EU	European Union	PPA	Polyphthalamide
FADs	Fish aggregating devices	PPE	Personal protective equipment
FAO	Food and Agriculture Organization of the United Nations	PS	Polystyrene
GES	Good Environmental Status	PVC	Polyvinyl chloride
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection	Res.	Resolution
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities	SAC	Scientific Advisory Committee
GPML	Global Partnership on Marine Litter	SDG	Sustainable Development Goal
HDPE	High-density polyethylene	t	Tonnes (tonnes in this publication refers to metric tonnes)
IMO	International Maritime Organization	TBM	Transboundary movements
ISO	International Organization for Standardization	UNCLOS	United Nations Convention on the Law of The Sea
ISSCFG	International Standard Statistical Classification of Fishing Gear	UNEA	United Nations Environment Assembly
ISWA	International Solid Waste Association	UNEP	United Nations Environment Programme
kg	Kilograms	UNGA	United Nations General Assembly
LDPE	Low-density polyethylene	US\$	United States dollars
LLDPE	Linear low-density polyethylene	USA	United States of America
MARPOL	International Convention for the Prevention of Pollution from Ships	US EPA	United States Environmental Protection Agency
MEPC	Marine Environment Protection Committee	UV	Ultraviolet
mm	Millimetres	WEF	World Economic Forum
		WHO	World Health Organization
		WRAP	Waste and Resources Action Programme (United Kingdom)

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