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International Resource Panel

POLICY OPTIONS TO ELIMINATE ADDITIONAL MARINE PLASTIC LITTER

BY 2050 UNDER THE G20 OSAKA BLUE OCEAN VISION

This document is an International Resource Panel (IRP) think piece which is a technical or policy paper based on IRP scientific studies and assessments and other relevant literature. It is not a full study and assessment but a collection of science-based reflections, which may catalyze the generation of new scientific knowledge and highlight critical topics to be considered in policy discourse.

Acknowledgements

Lead authors: Stephen Fletcher, Keiron P. Roberts, Yoni Shiran and John Virdin.

Contributing authors (alphabetic): Ivan Conesa Alcolea, Andrew Brown, Elena Buzzi, Lesley Henderson, Frithjof Laubinger, Llorenc Milà i Canals, Sayyidah Salam, Siegfried Anton Schmuck, Joana Mira Veiga, Samuel Winton, Kathryn Marie Youngblood.

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An International Resource Panel Think Piece

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CONTENTS

PREFACE

We know what the impacts of marine plastic pollution are.

Plastic pollution in our ocean is increasing, threatening marine species and ecosystems, impacting human activities and human health, and costing billions of dollars each year. Globally, reliance on inefficient linear economic models is contributing to the climate, biodiversity and pollution crises which in turn are generating huge changes in ocean and terrestrial ecosystems. The cost of inaction exceeds the cost of taking action to protect the environment and human health.

We need to change the way we use plastic to ensure we achieve the Sustainable Development Goals (SDGs) – particularly, SDG 12 for sustainable consumption and production patterns, and SDG 14 for sustainable use and conservation of the oceans, seas and marine resources.

Under the Japanese presidency of the 2019 G20, members agreed to the Osaka Blue Ocean Vision, which commits G20 countries to "reduce additional pollution by marine plastic litter to zero by 2050", thereby ensuring that by 2050, the net volume of plastic entering the ocean is zero. The Government of Japan on behalf of the G20 commissioned the UN Environment Programme International Resource Panel to undertake this 'think piece' to qualitatively consider possible policy options to eliminate additional marine plastic litter entering the ocean by 2050.

This report was produced during 2020 - the global COVID-19 coronavirus pandemic, where we witnessed the stark impacts on the plastics economy. This included huge increases in public health applications of single-use plastic products, disrupted supply chains and the emergence of personal protective equipment as a major source of plastic entering the ocean.

This International Resource Panel think piece provides actionable insights to achieve the Osaka Blue Ocean Vision. It inspires by providing concrete actions to ensure that projected plastic leakage can be reduced by 80% with existing solutions.

Leading businesses and governments are taking actions to reduce plastic use in a systemic way, thus demonstrating this makes both business and political sense. The benefits represent a huge opportunity, and the concerted approach leaves no excuses not to act. We hope this report will encourage further efforts to address marine plastic pollution and help build a future with a clean ocean.

Izabella Teixeira
Co-Chair
International Resource Panel

Janez Potočnik
Co-Chair
International Resource Panel

GLOSSARY[1]

Circular economy

A 'circular economy' is an economic system where the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy (European Commission 2020). Establishing a circular economy is closely linked with the Osaka Blue Ocean Vision and essential to meet UNEA Resolution 4/1 (Innovative pathways to achieve sustainable consumption and production).

Circular plastics economy

This is the application of the circular economy approach to plastics, in which the value of plastics is maintained in order to minimise waste and support their efficient production and consumption.

Consumption

The use of products and services for (domestic) final demand, i.e. for households, government and investments. The consumption of resources can be calculated by attributing the life-cycle-wide resource requirements to those products and services (for example by input-output calculation).

Cradle-to-gate

Denotes the system boundaries of a life cycle assessment study that only covers the first stages of the life cycle, which in this report refers to the resource extraction and processing stage (including the full supply chain of all inputs and disposal phase of all outputs arising in these stages).

Cradle-to-grave

Denotes the system boundaries of a full life cycle assessment study, considering all life cycle stages, including raw material extraction, production, transport, use and final disposal. Also termed "life cycle perspective".

Decoupling

Refers to removing the link between two variables. It refers to resource decoupling (the delinking of economic growth and resource use) and impact decoupling (the delinking of economic growth and negative environmental impacts). The term double decoupling refers to delinking economic growth from resource use and from environmental impacts. Moreover, decoupling can be relative (the rate of resource use increase is lower than the rate of economic growth) or absolute (resource use declines while the economy grows).

Environmental Impacts

Harmful effects of human activities on ecosystems.

Life Cycle Assessment

Compilation and evaluation of the inputs (resource use), outputs (emissions) and the potential environmental impacts of a system throughout its life cycle (according to ISO 14040).

Macro, Micro and Nano Plastics

Macroplastics are large pieces of plastic greater than 5 mm in diameter (UNEP 2016a). Microplastics and microbeads have been defined as particles of plastic less than 5 mm in diameter (GESAMP 2015). Nanoplastics are particles of plastic less than 100 nm in diameter (Koelmans 2015; Stapleton 2019; Liss 2020).

Marine environment

Marine environment is defined as the oceans, seas, coast, intertidal areas, estuaries and major water bodies (including rivers) that drain into saline regions below the high-water mark.

Marine Litter

Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in, or which reaches, the marine and coastal environment (including from terrestrial sources).

1 Definitions are based on IRP 2017 unless stated otherwise.

Resource efficiency

In general terms, resource efficiency describes the overarching goals of decoupling — increasing human well-being and economic growth while lowering the amount of resources required and negative environmental impacts associated with resource use. In other words, this means doing better with less. In technical terms, resource efficiency means achieving higher outputs with lower inputs and can be reflected by indicators such as resource productivity (including GDP/resource consumption). Ambitions to achieve a resource-efficient economy therefore refer to systems of production and consumption that have been optimized with regard to resource use. This includes strategies of dematerialization (savings, reduction of material and energy use) and re-materialization (reuse, remanufacturing and recycling) in a systems-wide approach to a circular economy, as well as infrastructure transitions within sustainable urbanization.

Resources

Resources — including land, water, air and materials — are seen as parts of the natural world that can be used in economic activities to produce goods and services. Material resources are biomass (like crops for food, energy and bio- based materials, as well as wood for energy and industrial uses), fossil fuels (in particular coal, gas and oil for energy), metals (such as iron, aluminium and copper used in construction and electronics manufacturing) and non-metallic minerals (used for construction, notably sand, gravel and limestone).

Shared socioeconomic pathways (SSP)

SSPs are socioeconomic narratives that outline broad characteristics of the global future and country-level population, global domestic product and urbanization projections. SSPs are not scenarios themselves, but their building blocks (Riahi *et al.* 2016).

Sustainable consumption and production

At the Oslo Symposium in 1994, the Norwegian Ministry of Environment defined sustainable consumption and production as: the use of services and related products that respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product (so as not to jeopardize the needs of future generations). Ensuring sustainable consumption and production patterns has become an explicit goal of the SDGs (Goal 12), with the specific target of achieving sustainable management and efficient use of natural resources by 2030. The concept thus combines with economic and environmental processes to support the design of policy instruments and tools in a way that minimizes problem shifting and achieves multiple objectives — such as SDGs — simultaneously.

Sustainable resource management

Sustainable resource management means both (a) ensuring that consumption does not exceed levels of sustainable supply and (b) ensuring that the Earth's systems are able to perform their natural functions (i.e. preventing disruptions like in the case of GHGs affecting the ability of the atmosphere to "regulate" the Earth's temperature). It requires monitoring and management at various scales. The aim of sustainable resource management is to ensure the long-term material basis of societies in a way that neither resource extraction and use nor the deposition of waste and emissions will surpass the thresholds of a safe operating space.