



Plastic Footprint Methodology

Measuring plastic impact on investments

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1. Introduction

Plastic has become an indispensable material in our society, but it is associated with significant environmental and societal risks throughout its life cycle. Global plastic production has increased exponentially in recent decades and is expected to continue growing, driven in part by rising consumption and population growth. A large share of this production concerns short lived applications, such as packaging, of which approximately half is used only once. This results in substantial volumes of waste and, where collection and processing are insufficient, in large scale pollution of terrestrial and marine ecosystems.

Plastic pollution is closely linked to biodiversity loss. Pollution is considered one of the main direct drivers of biodiversity decline, alongside land use change and climate change. Microplastics, small particles that arise through wear or are intentionally added to products, are now found in all ecosystems, from oceans to agricultural soils. These particles are ingested by organisms and can cause physical harm and disrupt ecological processes, with negative consequences for ecosystems and species diversity.

Belangrijkste oorzaken van biodiversiteitsverlies



Change in land use



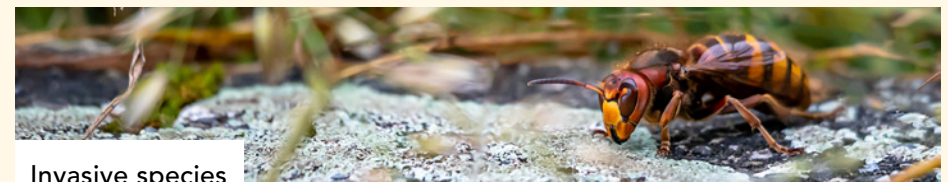
Overexploitation



Climate change



Pollution



Invasive species

In addition to ecological impacts, there is increasing attention to the effects of plastic on human health. Recent scientific insights show that micro- and nanoplastics are present in the air we breathe, the water we drink and the food we consume. These particles can act as carriers of chemicals and pathogens and are associated in the scientific literature with inflammatory responses and other health effects, while the nature and extent of these effects remain subject to ongoing research. Plastic pollution therefore affects not only the environment, but also broader societal interests, including public health and well being.

Policy and regulatory pressure is increasing. In the European Union, plastic pollution is addressed through a coherent set of measures, including restrictions on microplastics, stricter packaging requirements (PPWR), and recently introduced rules to prevent the loss of plastic pellets. At the global level, work is underway on a legally binding United Nations treaty that addresses plastic pollution across the entire value chain.

For a.s.r. asset management, the plastic issue is directly linked to the focus themes Biodiversity and natural resources and Health and well being within our responsible investing approach. To gain better insight into the plastic impact of our investment portfolio, a.s.r. asset management has jointly developed a methodology with the Plastic Soup Foundation and Earth Action to map the plastic footprint of a portfolio. This article describes this approach.

Plastic pollution

Plastic offers important functional benefits. It is lightweight, durable in use and cost effective, making it widely applied in areas such as packaging, healthcare and construction. It can contribute to food safety and efficient use of resources, and enables innovation across sectors.

At the same time, plastic use involves structural risks. Many plastic applications are single use and remain in the environment for long periods. As production volumes increase, responsible management of plastic flows becomes an increasingly important focus for governments, companies and financial institutions.

Plastic waste is partly collected and processed through waste management systems and partly ends up in the environment. The quality of waste management differs significantly between countries and regions. In our approach, we focus specifically on the share of plastic waste that is expected to be poorly managed ('mismanaged waste'), as this represents the greatest risk for the environment and society.



Source: EarthAction

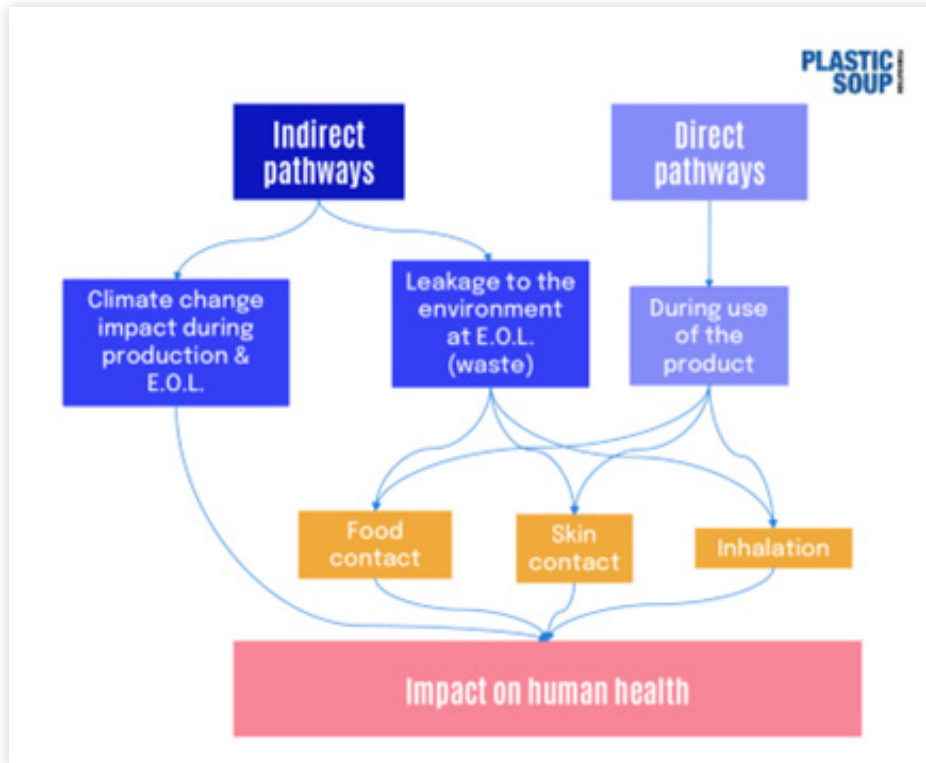
Impact on human health

Plastic pollution can have both direct and indirect effects on human health.

Indirect effects relate to the climate impact of plastic production and environmental damage at the end of the life cycle of plastic products.

Direct exposure can occur through food contact, skin contact and inhalation of microplastics.





Source: Plastic Soup Foundation



Plastic footprint

Determining a plastic footprint is a tool used to quantify plastic pollution at the level of companies and investment portfolios. It provides insight into the extent to which companies contribute to plastic waste within their value chains and supports a more data driven dialogue on risks and improvement measures.

To determine a company's contribution to plastic pollution, total plastic consumption per country is assessed together with the share that is expected to be poorly managed.

The objective of the methodology is to provide a consistent and reproducible approach for estimating plastic pollution financed by a financial institution through its investments. The output is the plastic pollution financed by the portfolio, expressed in tonnes of mismanaged plastic waste. This outcome serves as an indicator for risk and impact analysis and is not intended as an exact measurement.

The methodology enables financial institutions to identify companies and sectors that contribute relatively strongly to financed plastic pollution, with differentiation based on data quality, policy and performance in plastic management.

2. Methodology

Financed plastic pollution

Financed plastic pollution is defined as the volume of plastic pollution that is financed through investments by a financial institution. The methodology is designed to provide insight at portfolio level and to support comparability between portfolios, companies and sectors. The outcomes can be used as input for investment decisions, engagement and monitoring.

The framework consists of three core components:

1. Estimation of mismanaged plastic waste at company level
2. Attribution of this impact to the financial institution based on the financing share
3. Adjustment based on company behaviour and performance through a Plastic Performance Score

Mismanaged plastic waste

Mismanaged plastic waste is the core indicator for environmental impact. It represents the volume of plastic waste that is assumed not to be adequately collected or processed. The methodology uses a Mismanaged Waste Index (MWI), applied to plastic waste volumes. Where possible, country specific data is used; where data is unavailable, a global average is applied.

Data quality is classified into four levels, depending on the availability and specificity of company data. This transparency regarding assumptions and data limitations is an explicit element of the methodology.

(Score 1 is the highest data quality; score 4 is the lowest data quality)

Data quality	Options for estimating plastic pollution		Required data	Methodology
Score 1	Reported plastic pollution	1a	- Plastic waste volumes per country	Direct calculation of mismanaged waste at country level by applying MWI data.
Score 2	Reported plastic pollution	1b	- Total plastic waste volumes	Direct calculation of mismanaged waste without country-level breakdown by applying MWI data.
Score 3	Plastic pollution based on physical activity	2	- Plastic consumption volumes	Estimation of generated plastic waste using sector-specific average product lifespans. Determination of mismanaged waste with the help of MWI data.
Score 4	Plastic pollution based on plasticity	3	- Revenue per company - Plastic waste intensity	Direct calculation of generated plastic waste based on revenue by region and product lifespans. Determination of mismanaged waste with the help of MWI data.

Attribution

The attribution of financed plastic pollution is conceptually aligned with the methodology for financed greenhouse gas emissions under the PCAF standard for listed equities and corporate bonds. The attribution factor determines the share of a company’s plastic pollution that is assigned to the financial institution.

This attribution method ensures that financed plastic pollution reflects the proportional financing of the company by the financial institution. A larger investment position relative to the value of the company results in a larger share of the company’s mismanaged plastic waste being attributed to the portfolio.

Plastic Performance score

The Plastic Performance Score adjusts the calculated volume of mismanaged plastic waste for companies that actively implement policies to reduce their plastic impact. This score introduces a forward looking element by taking into account targets for plastic reduction and performance on circularity, including reusability and recyclability.

Health Risk Impact score

In addition to financed plastic pollution, the methodology also includes a Health Risk Impact Score. This score provides an indication of potential direct health risks associated with plastic products.

The Health Risk Impact Score consists of five dimensions:

- Production of microplastics during the use phase of the product
- Inhalation during the use phase
- Direct contact with food.
- Direct skin contact
- The presence of problematic polymers and additives in the product

The score ranges from 0 (low risk) to 6 (high risk) and can be used in conjunction with financed plastic pollution to set priorities within risk dialogue and engagement.

3. Next steps

The methodology for the financed plastic footprint has been developed as a tool to help investors gain insight into plastic-related risks and impact within their portfolios. The outcomes support a structured dialogue with companies and can contribute to further integration of ESG information into the investment process.

Data availability and transparency remain important points of attention. Scientific knowledge on the health impact of plastic is also evolving rapidly. The methodology is therefore periodically reviewed and refined when new insights become available.

The detailed methodology will be published as a module within the Plastic Footprint Network (PFN), after completion of the PFN review process.

The modules are available online:

<https://www.plasticfootprint.earth/assessment-methodology/>

About a.s.r. asset management

[a.s.r. vermogensbeheer](#) is a Dutch asset manager that supports institutional investors in achieving financial returns while taking societal impact into account. The organisation manages investments for pension funds, insurers, governments, healthcare and educational institutions, and charities, among others. Based on a long-term perspective, a.s.r. asset management combines financial returns with responsible investing, taking into account people, the environment and society. The organisation's roots lie in the management of the assets of insurer a.s.r., a tradition dating back to 1720.

About Earth Action (EA)

[Earth Action](#) (EA) is a mission-driven research and advisory firm dedicated to evidence-based action against plastic pollution and climate change. EA develops methodologies, data platforms and directly applicable knowledge for policymakers, companies and civil society. EA is the developer of the Plasteax database and the Packaging Data Hub and is a member of the Environmental Footprint Centre. Scientific research is conducted under the name EA For Impact, EA's Swiss non-profit organisation, which also coordinates the [Plastic Footprint Network](#).

About Plastic Soup Foundation

[Plastic Soup Foundation](#) is an independent Dutch non-profit organisation committed to reducing plastic pollution at the source. Through scientific research, public campaigns, policy advocacy and partnerships, the organisation works towards a future without plastic pollution in our environment, food, water and bodies. Since its establishment in 2011, Plastic Soup Foundation has been working worldwide on structural solutions that protect the health of people and the planet.

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