

Cost and financing for a future free from plastic leakage

POLICY HIGHLIGHTS

Key findings

Contents

Key findings	2
Without additional policies, plastic pollution is set to worsen	4
Global action is needed to effectively tackle plastic leakage	6
The cost of eliminating plastic leakage is higher in developing countries	8
Development co-operation has a key role to play	10
Key levers to scale up development financing	12
Further reading	14

- **As plastic use becomes more pervasive in our societies, the environmental drawbacks of plastic pollution are expected to become increasingly unsustainable especially in developing countries.** After doubling between 2000 and 2019, global plastics use is projected to nearly triple between 2019 and 2060. While improvements in waste management can mitigate increases in the amount of mismanaged waste, annual plastic leakage to the environment is projected to double by 2060, driven by increasing amounts of leakage in rapidly developing economies. Meanwhile, the stocks of accumulated plastics in water bodies is projected to more than triple by 2060.
- **Eliminating plastic leakage is possible but requires co-ordinated and ambitious global efforts.** Combining measures that target all phases of the plastics lifecycle can be effective at eliminating plastic leakage globally by 2060. The Global Ambition policy package developed by the OECD Global Plastics Outlook shows that with adequate measures by 2060 plastic use can decline by 1/3 below the baseline, plastic leakage to the environment can almost completely be eliminated and 60% of plastics can be recycled.
- **Achieving this ambitious goal will imply some costs, but its economic consequences will be modest at the global level.** Due to its impacts on the economy, a



This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Financial support from the United States is kindly acknowledged.



Global Ambition policy package aimed at eliminating plastic leakage to the environment is estimated to reduce world GDP by 0.8% below the Baseline at the global level (USD 3.4 trillion). Developing economies will face higher costs than the global average. While overall macroeconomic costs are small, they are higher for non-OECD countries (-1% of GDP) than OECD countries (-0.4%). The highest costs are projected to be in Sub-Saharan Africa, where GDP would be reduced by 2.8% below the Baseline, as substantial investments in improved waste management must be made to achieve the ambitious policy target.

- **Additional investments in developing countries are a key requisite to eliminate plastic leakage globally.** Investing in recycling capacity – including increased waste sorting and recycling – and in improved waste treatment – including waste collection and landfilling – is essential to avoid mismanaged waste. This is particularly crucial for low- and middle- income countries where additional investment in infrastructures is needed to close leakage pathways. To achieve this, additional investments of ~ USD 10 billion per year in non-OECD countries will be needed. These costs are additional to the investments in waste management in the baseline scenario and would require an increase by one quarter in total waste management costs between 2019 and 2060.

- **Given the large burden that will fall on developing countries, as well as their crucial role in the fight against plastics pollution, there is a strong rationale for increased international co-operation and development financing.** In recent years, development co-operation providers' prioritisation of plastics-related issues has increased and ODA specifically targeting plastics projects experienced a six-fold increase. However, all development financing currently available represents only a fraction of the total costs to eliminate plastic leakage in developing countries and current resources are not targeted in a way that can maximise impact.
- **To live up to the challenge, new approaches to fill the investment gap and mobilise more resources are needed.** Four key levers are identified to maximise the impact of development financing to curb plastic pollution: (i) Supporting initiatives to scale up total resources available to curb plastic pollution in developing countries, including from the private sector; (ii) Enhancing global targeting of existing resources and their alignment to country needs and priorities; (iii) Adopting international good practices and fostering innovation; and (iv) Promoting mutual learning and developing guidance for more effective development cooperation in this area.



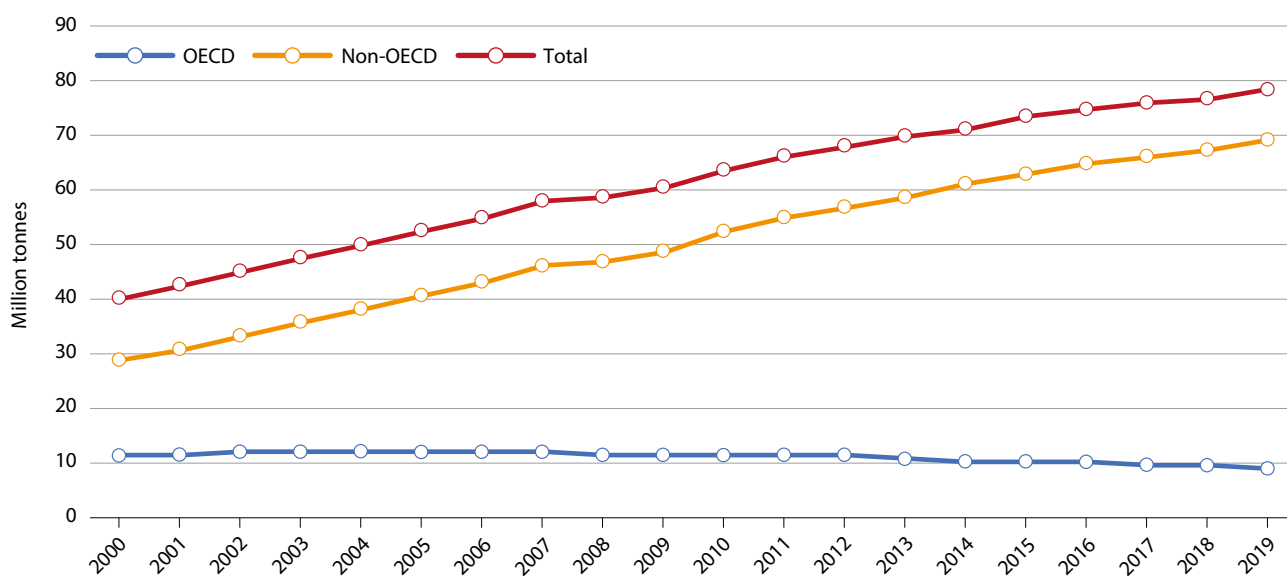
Plastic pollution is becoming increasingly unsustainable

The sheer magnitude of our societies' plastics use bears important environmental drawbacks

Highly versatile, light and affordable, plastic materials are employed in countless industrial applications and have become extremely useful for modern society. As a result, since 2000 the annual production of plastics has doubled, soaring from 234 million tonnes (Mt) to 460 Mt in 2019. The used volumes of these synthetic polymers have been increasing constantly and increased more rapidly than any other commodity, including steel, aluminium and cement. The majority of plastics in use today are virgin plastics, made from crude oil or gas, while plastics made from recycled material only accounted for 6% of global plastics use in 2019.

Since 2000, plastic waste has more than doubled, from 156 Mt to 353 Mt in 2019. After taking into account losses during recycling, only 9% of plastic waste was ultimately recycled, while 22% was mismanaged, namely disposed of in uncontrolled dumpsites, burned in open pits or leaked into the environment, making the current plastics lifecycle far from circular (Figure 1). Year after year, significant stocks of plastics have also accumulated in aquatic environments, with 109 Mt of plastics already accumulated in rivers, and 30 Mt in the ocean. The vast majority of plastic leakage to the environment takes place in non-OECD countries (86%), driven by soaring amounts of mismanaged waste.

Figure 1. The amount of mismanaged plastic waste has been soaring particularly in non-OECD countries

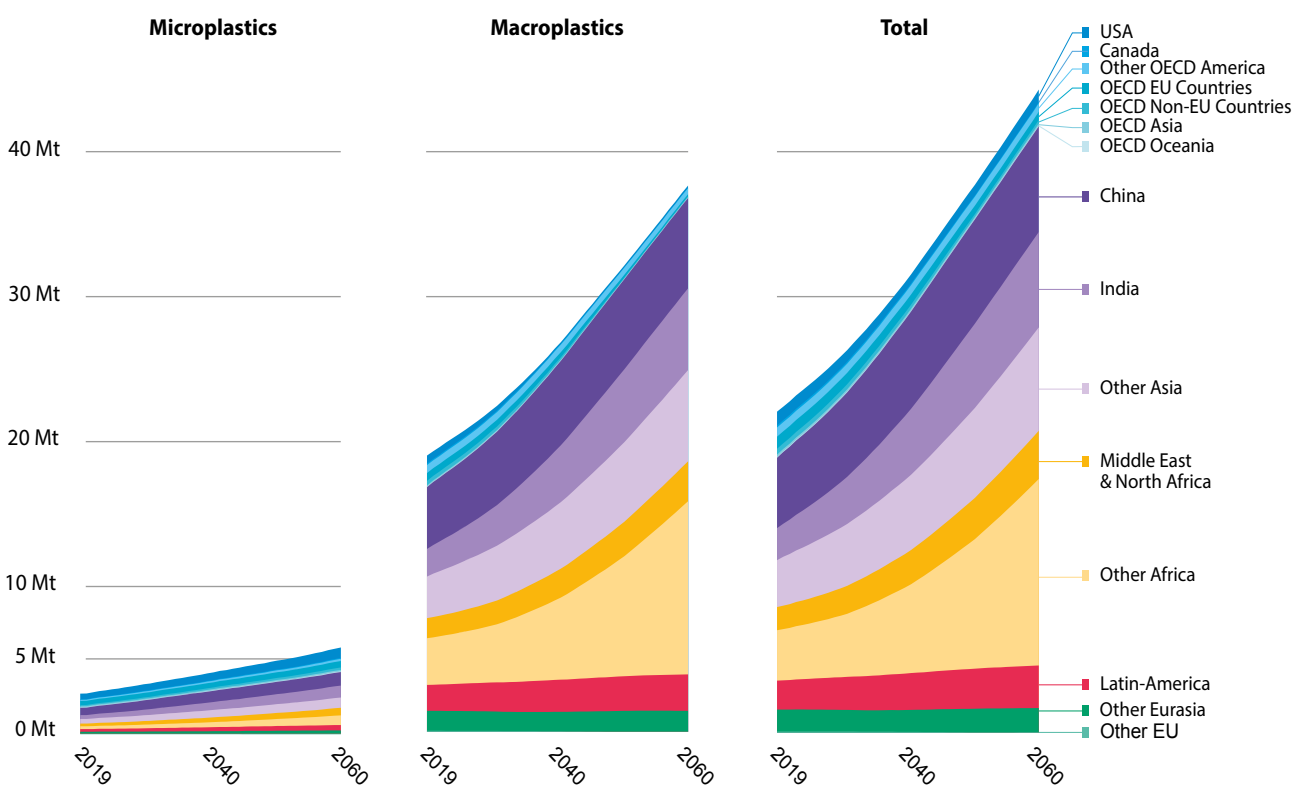




Without additional policies, plastic leakage is set to worsen

By 2060, plastics use is projected to nearly triple from 2019 levels, driven by economic and population growth. While OECD countries are projected to double their plastics use, the largest increases are expected in regions already facing high leakage rates such as Sub-Saharan Africa (x6.5), India (x5.5) and South and Southeast Asia (x3.7). Despite improvements in waste management infrastructure and litter collection, the amount of waste not managed through recycling, landfilling or incineration is projected to more than double, from 79 Mt in 2019 to 153 Mt in 2060. As a result, plastic leakage to the environment is projected to double to 44 million tonnes (Mt) a year in 2060 (Figure 2), while the build-up of plastics in aquatic environments more than triple from 2019 levels. The largest increases in plastic leakage are expected in Sub-Saharan Africa, India, and South and South East Asia.

Figure 2. Plastic leakage is expected to double between 2019 and 2060 under business as usual



Global action is needed to effectively tackle plastic leakage

Eliminating plastic leakage requires comprehensive policy packages throughout the plastics lifecycle

Achieving the global goal of eliminating plastic leakage, as articulated by the United Nations Environment Assembly in its resumed fifth session, requires shared objectives and co-ordinated efforts at the global level. Countries will need to implement comprehensive policy packages, combining measures that target all phases of the plastics lifecycle.

In particular:

- **Restraining plastics demand and enhancing circularity**, including through more durable product design, is necessary to reduce the quantity of new plastics in the economy and thus reduce the scale of the severe environmental and human health problems that arise throughout the plastics lifecycle. Relevant policies include plastics taxes, which can be modulated to reduce the most polluting types of plastics and to incentivise circularity by decreasing the relative price of secondary plastics, as well as policies that incentivise the design of plastics that are more durable and repairable to extend product lifespans.
- **Enhancing recycling** is needed to ensure that any increase in plastic demand that cannot be avoided is met by recycled, second-hand, repaired or remanufactured products. Higher recycling rates can be achieved through policies such as recycled content targets, Extended Producer Responsibility (EPR) schemes for packaging and products such as electronics, motor vehicles and clothing, as well as recycling rate targets.
- **Closing leakage pathways** is a crucial part of a policy package aimed at eliminating plastic leakage. Interventions such as investments in waste collection and sanitary landfills as well as improved collection of litter are key to ensure that generated plastic waste is adequately managed and that it does not end up in the environment.



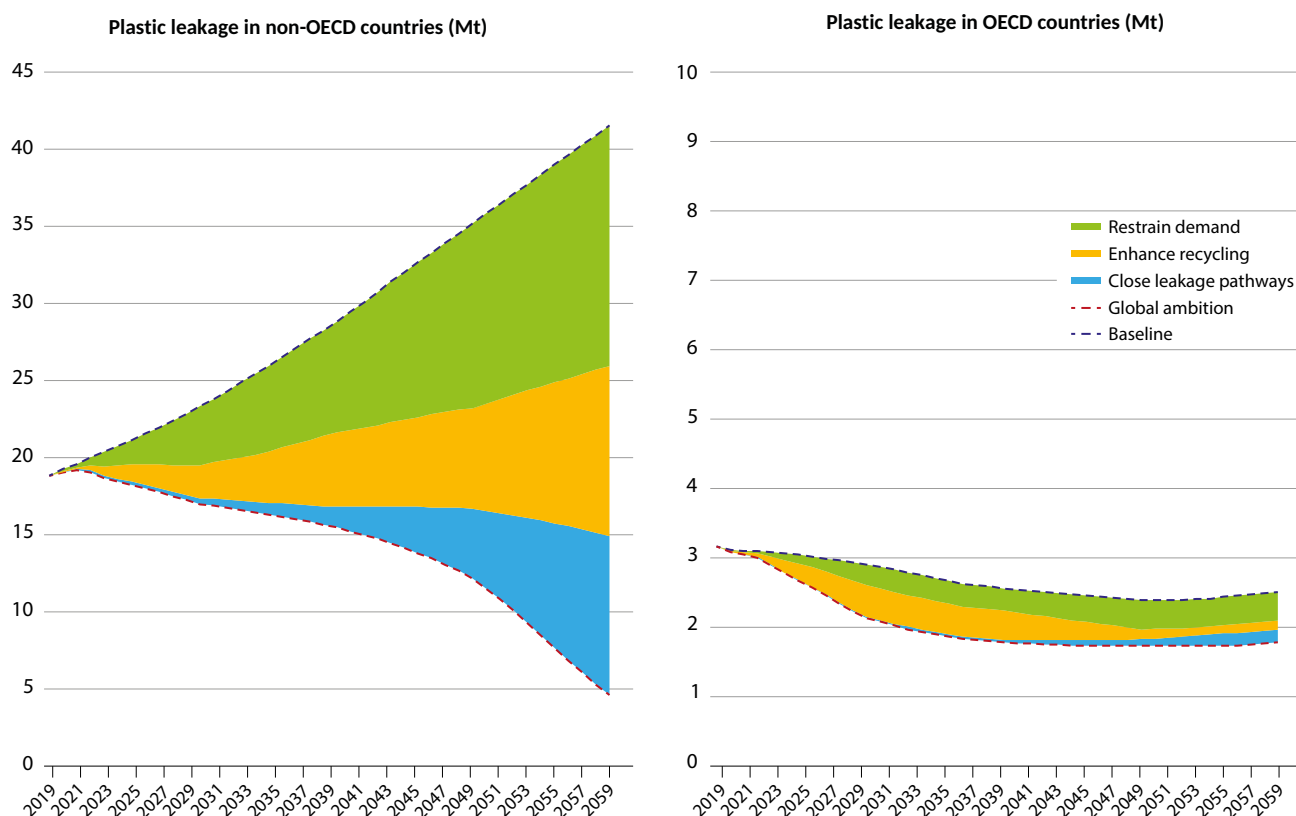
Only co-ordinated global action can put a stop to plastic leakage

The OECD Global Plastics Outlook shows that co-ordinated and ambitious global efforts can almost eliminate plastic leakage by 2060. By developing a policy package that combines various policy instruments along the plastics life-cycle, the Global Ambition scenario achieves substantial environmental benefits:

- **Plastic use** declines by 1/3 below the baseline by 2060, driven by policies restraining plastic demand.
- **Plastic waste** trends largely follows plastics use and is reduced by 33% by 2060.
- **Plastics recycling** is improved and reaches 60% in 2060 through significantly improved treatment of plastic waste.
- **Plastic leakage** to the environment is projected to decrease to near zero levels by 2060, with annual leakage of plastics into the aquatic environment falling by 98% compared to the *Baseline*.

Restraining plastic demand is the main driver of reduced plastic leakage to the environment but investment to close leakage pathways are particularly relevant in non-OECD countries (Figure 3), where poor waste management infrastructure remain a key obstacle to effective plastic management. While policies to avoid plastic leakage to the environment should be implemented both in OECD and non-OECD countries, the vast majority of actions will ultimately need to take place in non-OECD countries, where 86% of current leakage takes place.

Figure 3. The contribution of different policies to eliminate plastic leakage differs between OECD and non-OECD countries



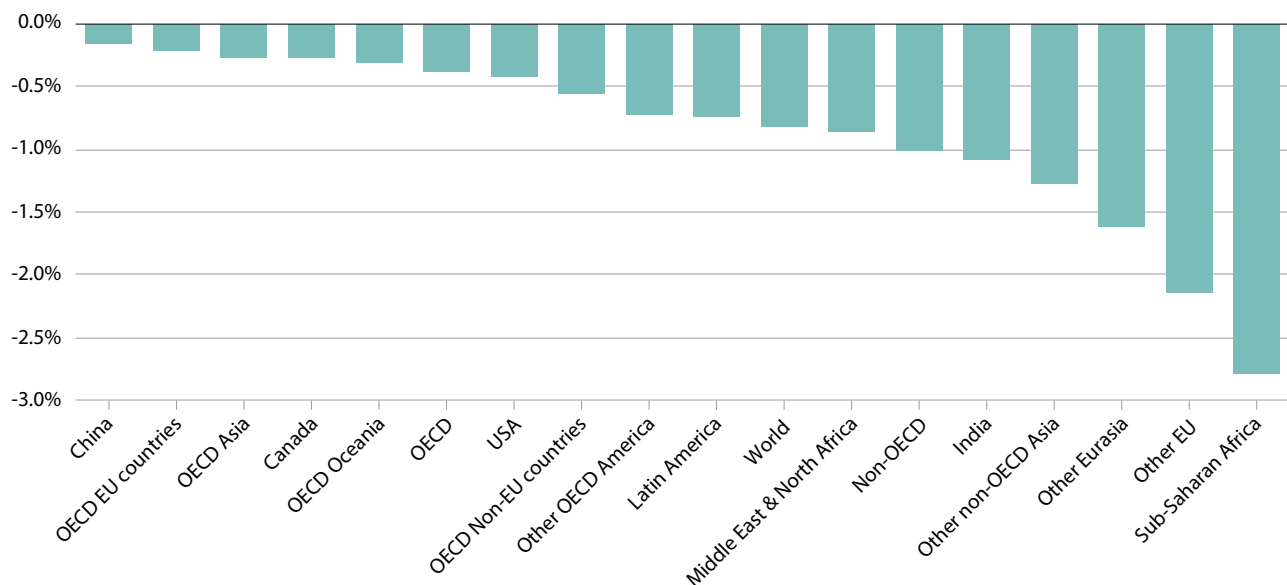
The cost of eliminating plastic leakage is higher in developing countries

The macroeconomic impacts of eliminating plastic leakage are modest but disproportionately affect developing countries

The economic consequences of policies eliminating plastic leakage will be modest at the global level. A Global Ambition policy package aimed at eliminating plastic leakage to the environment is estimated to reduce world GDP by 0.8% below the Baseline at the global level (USD 3.4 trillion). These costs are driven by a mixture of domestic costs from fiscal instruments and regulations, investment in waste systems, induced effects on demand for goods and services, and competitiveness changes between competitors in different countries.

Developing economies will face higher costs than the global average. The scenario shows that there are important regional differences in the economic consequences (Figure 4). While overall macroeconomic costs are small, they are higher for non-OECD countries (-1% of GDP) than OECD countries (-0.4%). The highest costs are projected to be in Sub-Saharan Africa, where GDP would be reduced by 2.8% below the Baseline, as substantial investments in improved waste management must be made to achieve the ambitious policy target.

Figure 4. The cost of eliminating plastic leakage varies greatly between regions and is the greatest in Sub-Saharan Africa





Much higher investment in waste treatment will be needed to curb plastic leakage

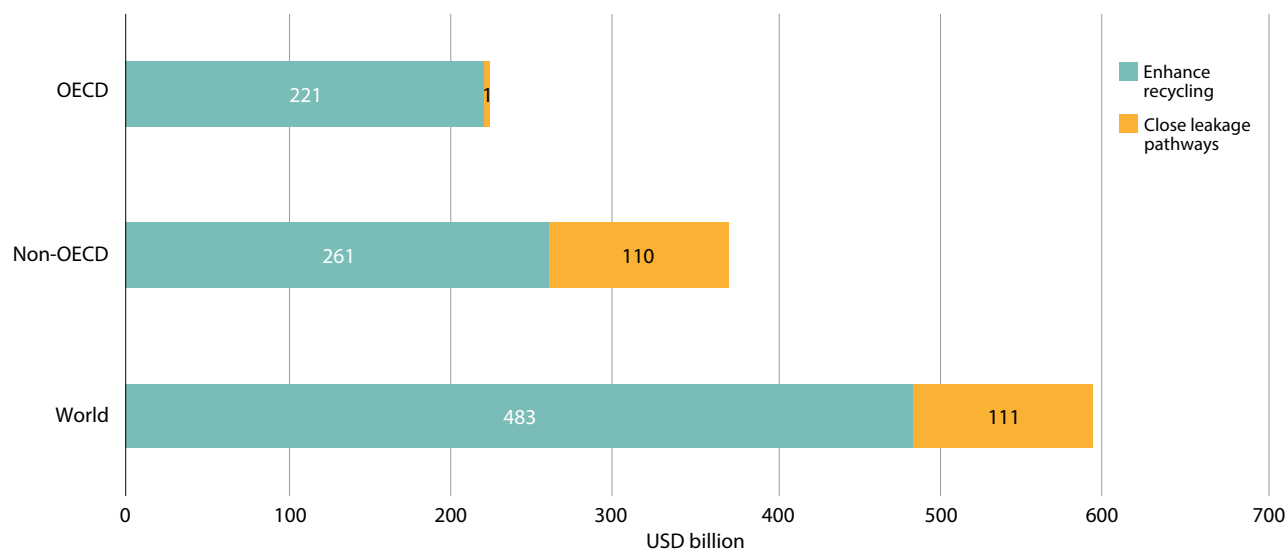
Additional investments are a key requirement to eliminate plastic leakage globally. In particular, an essential part of the policy package is investing in recycling capacity – including increased waste sorting and recycling – and investing in improved waste treatment – including waste collection and landfilling – to avoid mismanaged waste (Figure 5).

Cumulative investment costs are substantial, particularly in non-OECD countries. Additional investment costs of ~ USD 600 billion will be needed between 2019 and 2060 to achieve the Global Ambition Scenario globally. In non-OECD countries only, these additional investments amount to ~ USD 10 billion per year and represent an increase in waste management costs over baseline expenditures of one quarter.

Investment to close leakage pathways is mostly concentrated in non-OECD countries. In most OECD countries, the amount of mismanaged waste is very small, and hence the additional investment required in avoiding mismanaged waste is low. In non-OECD countries, on the contrary, additional investment of USD 110 billion between 2019 and 2060 is needed to close leakage pathways, with regions with more mismanaged waste in 2060 in the Baseline having higher costs.

Investment to enhance recycling is high both in OECD and non-OECD countries Investment needs to enhance recycling are estimated at USD 483 billion. They are highest in countries that have to handle relatively large amounts of waste (such as China), and in countries where the difference in recycling rates between the *Baseline* and the *policy* scenarios is relatively large (such as the USA).

Figure 5. Additional investment cost to curb plastic leakage to 2060 are higher in non-OECD countries



Development co-operation has a key role to play

Development co-operation has increasingly prioritised plastics issues

A growing number of bilateral and multilateral providers have established initiatives specifically focused on addressing marine pollution issues. This coincided with an increase in total development finance resources committed to curb plastic pollution, namely for waste management and plastics-specific initiatives (Figure 6). Flows of development finance to curb plastic pollution have consistently increased since 2015 and moved from an annual average of USD 561 million in the 2015-16 biennium to an annual average of 1.4 billion over 2019-20. Over 2018-2020, development finance for this purpose represented 0.4% of total development finance flows.

The increase in development finance flows was mainly driven by a growth of ODA to the sector. ODA to curb plastic pollution has increased substantially since 2014, from an annual average of USD 331 million in 2014-2015 to USD 700 million in 2019-20. ODA allocated to projects with a plastics-specific component has shown the most significant increase in resources, experiencing a six-fold increase between 2014 and 2020 (Figure 7). Projects targeting other waste management projects not mainly targeting plastics or recycling have also increased over the period but at a lower rate. The rapid growth in plastics and recycling-related projects might be a signal of the increasing mainstreaming of recycling practices in development projects targeting the waste sector.

Figure 6. Official development finance to curb plastic pollution is on an increasing trend

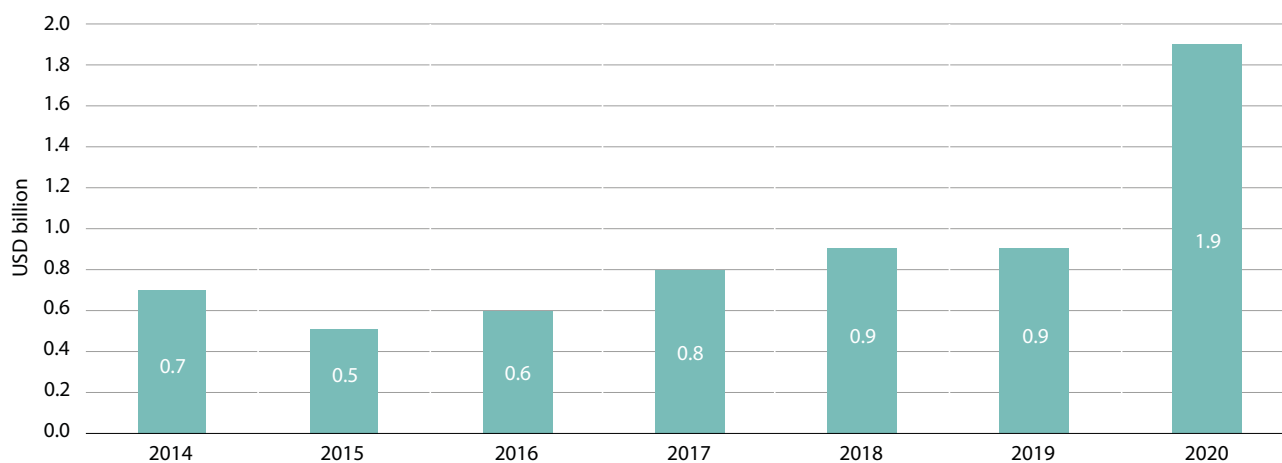
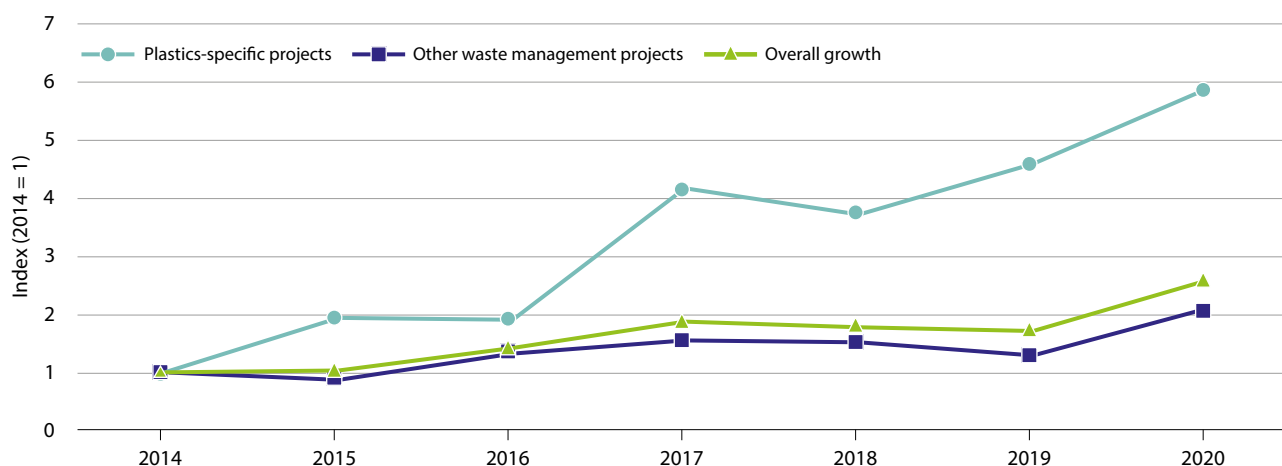


Figure 7. ODA specifically targeting plastics has increased x6 since 2014

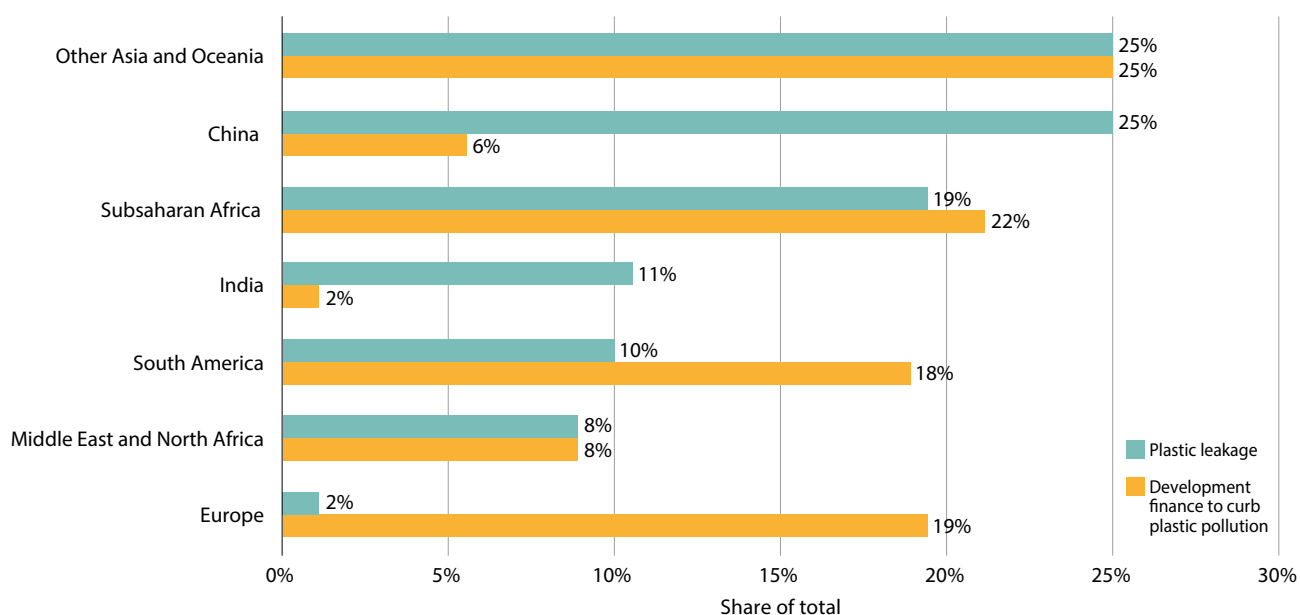




Development finance to curb plastic pollution could be more aligned with where the main sources of leakage are

If development finance flows are compared with data on plastic leakage, it appears that some regions should be more targeted than what they currently are. While in regions such as South and Southeast Asia and Sub-Saharan Africa flows are relatively well aligned, in other regions they could be better targeted. China and India, for instance, contribute respectively 25% and 11% of non-OECD plastic leakage, while they received only 6% and 2% of development finance to curb pollution respectively over 2018-20. On the contrary, ODA-eligible European countries, which contributed 2.2% of total plastic leakage, received 19.4% of development finance to curb plastic pollution (Figure 8).

Figure 8. Development finance under-targets certain regions with respect to others



Note: The share of plastic leakage is calculated among non-OECD countries and OECD ODA-eligible countries in 2019 based on the OECD Global Plastics Outlook Database indicator "Plastic leakage from mismanaged and littered waste". The share of development finance to curb plastic pollution is calculated over the period 2018-2020.

Key levers to scale up development financing to curb plastic pollution

Compared to the investment needs of the Global Ambition Scenario, development finance flows only represent a fraction of total costs. Compared to the annualized costs to finance total investment in waste management in non-OECD countries, current development finance resources a fraction of the total. In a context of insufficient development co-operation resources, it is paramount to allocate resources strategically and maximise their impact as well as to adopt innovative development co-operation approaches to mobilise more resources. Tools that can help providers better allocate their resources to maximise impact include:

Supporting initiatives to scale up total resources available to curb plastic pollution in developing countries

While development finance to address plastic pollution is on an increasing trend, alone it will not suffice to fill the gap in infrastructure investment in developing countries. For this reason, new sources of finance, in particular from the private sector, should be mobilised. Current financing volumes associated with innovative instruments such as blended finance and blue bonds for plastics remain very limited. Providers of development co-operation have however so far been pioneers and should continue exploring opportunities and feasibility of such instruments. In addition, development co-operation providers should continue support actions that facilitate access to private financing for waste management infrastructures in emerging economies.

Enhancing global targeting of existing resources and their alignment to country needs and priorities

To avoid the mismatch between development finance allocations and country needs, data analysis and evidence on current and projected growth in plastics use and leakage could be used to enhance the targeting of development finance. In addition, tools that help inform developing countries of resources available and how to access them could facilitate matching between development financing and national plans.





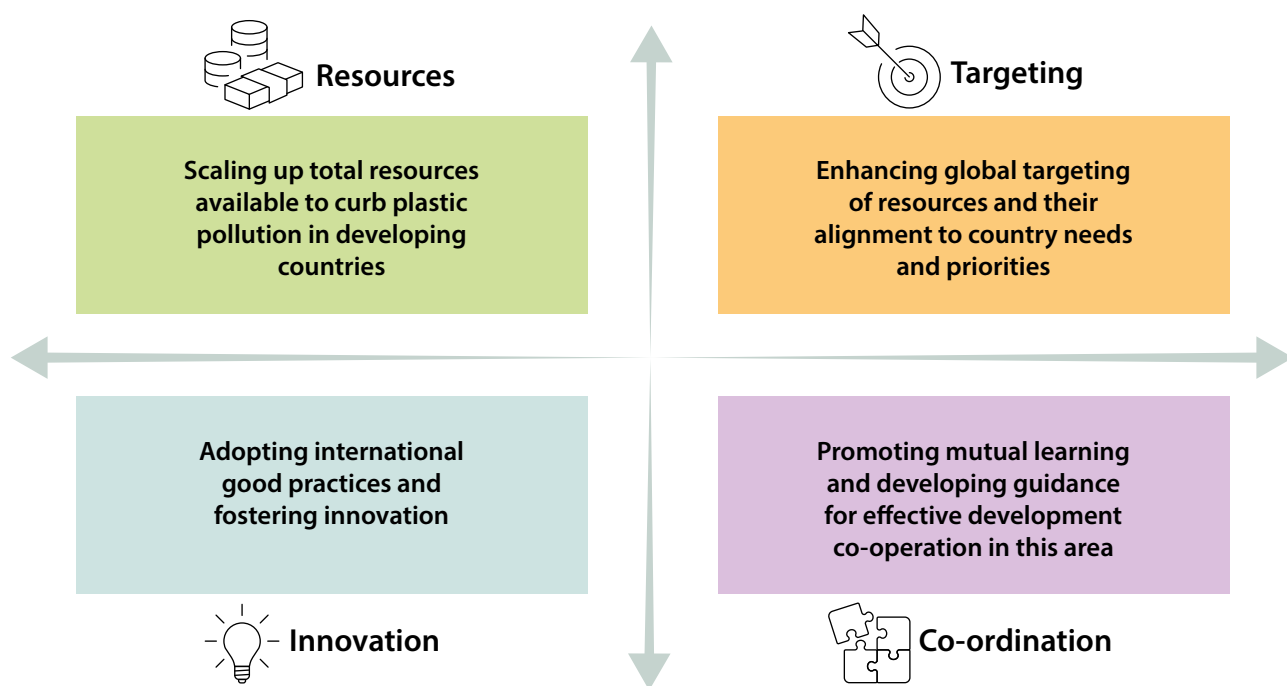
Adopting international good practices and foster innovation

Incorporating a lifecycle approach into development co-operation policies and strategies is crucial. On the government side, opportunities exist to further encourage the adoption of policy instruments for plastics based on the polluter-pays-principle, such as EPR schemes, and other policies to favour alternative materials and recycling. On the private sector side, it is important that development co-operation providers provide financing for the adoption of new technologies and approaches favouring eco-design and the phasing out of substances of concern. In addition, development co-operation providers can foster the creation and adoption of new technologies for recycling, waste management and clean up by promoting technology transfer and the development of innovations responding to local contexts and needs.

Promoting mutual learning and developing guidance for more effective development cooperation in this area

Development co-operation providers could encourage opportunities for mutual learning and for sharing best practices, both at the country level and at the international level.

Figure 9. Increasing the impact of development financing to curb plastic pollution is possible



Further reading

Agnelli, A. and P. Tortora (2022), "The role of development co-operation in tackling plastic pollution: Key trends, instruments, and opportunities to scale up action", *OECD Environment Working Papers*, No. 207, OECD Publishing, Paris, <https://doi.org/10.1787/721355cb-en>.

Soós, R., A. Whiteman and G. Gavgas (2022), "The cost of preventing ocean plastic pollution", *OECD Environment Working Papers*, No. 190, OECD Publishing, Paris, <https://doi.org/10.1787/5c41963b-en>.

Cornago, E., P. Börkey and A. Brown (2021), "Preventing single-use plastic waste: Implications of different policy approaches", *OECD Environment Working Papers*, No. 182, OECD Publishing, Paris, <https://doi.org/10.1787/c62069e7-en>.

OECD (2022), *Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/de747aef-en>.

OECD (2022), *Global Plastics Outlook: Policy Scenarios to 2060*, OECD Publishing, Paris, <https://doi.org/10.1787/aa1edf33-en>.

OECD (2022), "Declaration on a Resilient and Healthy Environment for All", OECD/LEGAL/0468, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0468> (accessed on 30 November 2022).

OECD (2021), "Towards G7 action to combat ghost fishing gear: A background report prepared for the 2021 G7 Presidency of the United Kingdom", *OECD Environment Policy Papers*, No. 25, OECD Publishing, Paris, <https://dx.doi.org/10.1787/a4c86e42-en>.

OECD (2021), *Policies to Reduce Microplastics Pollution in Water: Focus on Textiles and Tyres*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/7ec7e5ef-en>.

OECD (2019), *Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences*, <https://doi.org/10.1787/9789264307452-en>.

OECD (2018), *Improving Markets for Recycled Plastics: Trends, Prospects and Policy Responses*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264301016-en>.





This Policy Highlights is based on the OECD publications *Global Plastics Outlook (vol I): Economic Drivers, Environmental Impacts and Policy Options* and *Global Plastics Outlook (vol II): Policy Scenarios to 2060*.

The global community is far from achieving its long-term objective of ending plastic pollution, unless significantly more stringent and coordinated policies are implemented rapidly. A key question in this context is: what is the cost associated with different policies aimed at ending plastic pollution? And how can the international community support countries that have less financial resources to live up to the challenge of ending plastic pollution?

The various reports under the *OECD Global Plastics Outlook* provide a forward looking perspective to address this issue. The *Global Plastics Outlook (vol I)* quantifies current trends (up to 2019) in plastics use, waste generation and leakage, and identifies four policy levers to curb the environmental impacts of plastics. The *Global Plastics Outlook (vol II)* presents a set of coherent projections on plastics to 2060, including plastics use and waste as well as the environmental impacts linked to plastics. By identifying two policy packages to bend the plastic curve and assessing the regional costs for each of them, the Outlooks allow for a better understanding of the diversified economic consequences of adopting more stringent policies and of the additional financing needs required.

CONTACTS

Environment and Economy Integration Division,
OECD Environment Directorate

Shardul Agrawala, Head of the Environment and
Economy Integration Division:
Shardul.AGRAWALA@oecd.org

Elisa Lanzi, Modelling Lead:
Elisa.LANZI@oecd.org

Peter Börkey, Circular Economy Lead:
Peter.BORKEY@oecd.org

Rob Dellink, Trade and Environment Lead:
Rob.DELLINK@oecd.org



For more information:

 <http://oecd.org/environment/plastics>

 @OECD_ENV

 OECD_ENV