An Initiative of the German Federal Ministry of Education and Research

Plastics in the Environment

sources • sinks • solutions

Fighting plastics in the environment

What is the effect of education, labels and fees?

Common products discharged into domestic wastewater by consumers.
Photo: © FiW e.V.

Measures against plastic pollution are urgently needed. Yet it remains unclear which instruments can be used to achieve these objectives. The Single-Use Plastics Directive represents an attempt to reduce the amount of single-use plastic products used by private consumers, primarily by means of providing information, e.g. with a specially developed label. Is this a promising strategy?

One of the entry routes of plastics into the environment: household drains

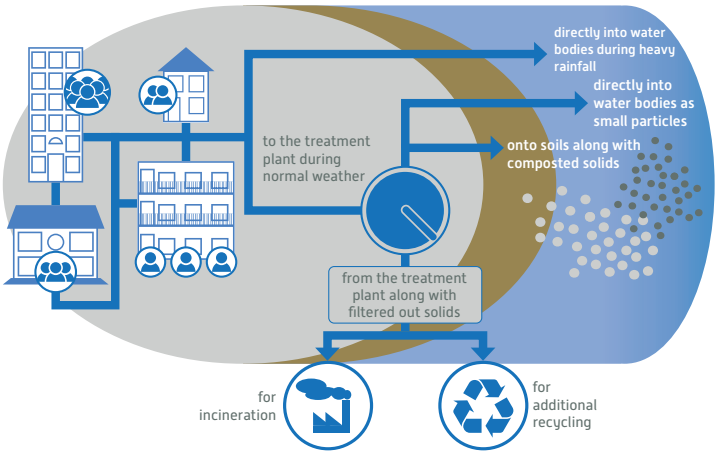
Many people properly dispose of plastic waste in the trash. Yet a release of waste into the wastewater is sometimes unavoidable. In many cases, improper disposal occurs through sinks, washbasins or toilets. Such plastic waste can enter the environment directly through wastewater or sewage treatment plants. In these cases it is impossible to track down the source.

An experiment involving 1,092 students recreates plastic disposal in private households

The experiment involved 273 municipalities, each with 4 households. All households were given a budget and decided to dispose of plastic-containing products and packaging properly or improperly 20 times. Proper disposal resulted in individual waste fees, while non-proper disposal resulted in additional wastewater fees for all households, depending on the amount of input in a municipality. For each individual, it was financially worthwhile to dispose of waste improperly. For the municipality as a whole, however, it resulted in the highest costs.

„Labels and fees do little to reduce the amount of plastics entering the environment. A comprehensive strategy is needed to combat plastic pollution."

InRePlast Team



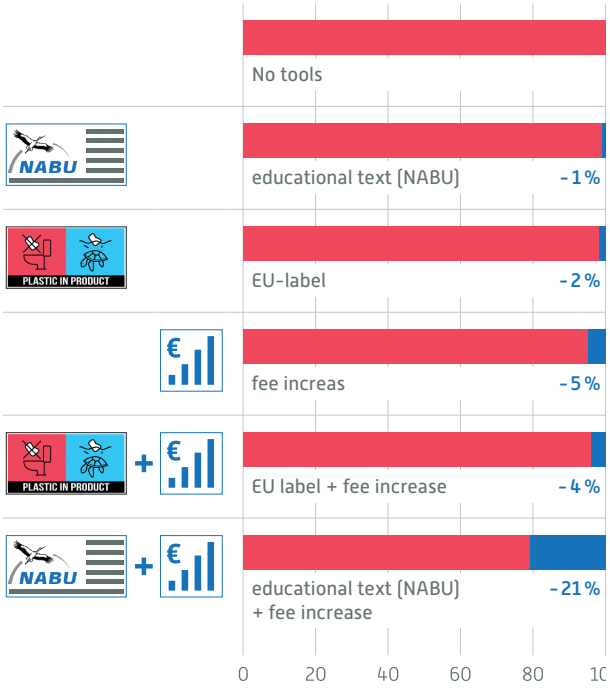
Products and packaging containing plastics enter waterways and soils through multiple pathways and spread over a wide area.
Graphic: © Maria Daskalakis; pixabay.com

1 References: https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32020R2151&from=DE
2 References: https://www.nabu.de/natur-und-landschaft/meere/muellkippe-meer/muellkippemeer.html

Research on the prevention of plastics entering wastewater

The interdisciplinary project „Environmental Policy Instruments to Reduce Plastic Pollution of Inland Waters via Drainage Systems“ examines and classifies the occurrence of plastic pieces of at least 1 mm in size in wastewater treatment plants and street drainage systems in the municipalities of Aachen, Roetgen, Simmerath and Stollberg. Surveys and a laboratory experiment support the analyses. Based on these findings, proposals for environmental policy instruments to prevent these plastic waste inputs are being developed.

Households in some municipalities were shown the label of the Single-Use Plastic Directive[1] or a short educational text by NABU[2] before making a decision regarding disposal. In other municipalities, higher wastewater fees were charged for high plastic input. In addition, a mix of these instruments was tested.



The experiment shows: individual measures alone hardly have any effect, only information + fee increase noticeably reduces the high input of plastics

Graphic: © Maria Daskalakis, pixabay.com

The issue of plastics is too multifaceted for informational or economic tools

The experiment covered specific pollution situations. There are other input reasons, pathways and polluter groups as well as unavoidable inputs due to the product design. Here, too, the instruments are not expected to improve the impact. Moreover, it is impossible to eliminate pollution or damages comprehensively, which is why economic instruments cannot be the first choice.

An effective strategy against plastic pollution targets products and packaging in three gradual steps.

Graphic: Maria Daskalakis; pixabay.com

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