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InRePlast

Plastic in the environment

InRePlast – Environmental policy instruments to reduce plastic pollution of continental waters via drainage systems

Private households and businesses consistently contribute plastics to wastewater and thus to drainage systems through their actions either directly or via public transport routes. Currently, there is uncertainty regarding the quantity and nature of these plastics. At the same time, the legal instrumentation regarding the inputs of plastics into the drainage systems shows considerable deficits. Related to this, there is little knowledge on how to mitigate inputs by addressing consumers and businesses in a tailored manner.

In the project, the quantity and type of plastics discharged into the drainage systems of four municipalities were recorded within one year and a standard for corresponding investigations was developed. On this basis, an extrapolation for Germany was made by means of material flow analysis. In view of the regulatory deficits, instruments for reducing plastic discharge were developed in conjunction with legal and behavioral economic analyses.

A selection of the corresponding instruments was evaluated in comprehensive empirical studies and tested by means of field experiments in companies and households. Direct and indirect overall effects of such instrumentation were then modeled in the context of multi-agent systems. On this basis, target group-specific policy briefs were developed to inform policy-makers, practitioners and associations about the practical implementation options for reducing and measuring the input of plastics.

The project was implemented in close cooperation with the four municipalities. The aim of the project was thus to obtain for the first time an overview of the input of plastics via drainage systems into flowing waters, to develop instruments based on behavioral science and to make the corresponding findings accessible to politicians, practitioners and associations.

FiW played a major role in the recording of plastic inputs into municipal drainage systems. For this purpose, on the one hand the input into road runoff and on the other hand the input and the fate of the plastics in the connected wastewater treatment plants were investigated. From the plastics found, product rankings were compiled which show where plastic products in which material flow are the dominant emitters. Using the material flow balances of the plastics and composites found, projections were made for nationwide annual loads. On the basis of the product rankings from the four model wastewater treatment plants and the transport routes, a product catalog was finally compiled, which contains 149 specific products, sorted by product and material, which should be additionally covered by the EU's Single-Use Plastics Directive.

Project overview

PROJECT TITLE

InRePlast – Environmental policy instruments to reduce plastic pollution of continental waters via drainage systems

PROJECT PERIOD

2019 – 2021

PROJECT PARTNER

Department of Economic Policy; Innovation and Entrepreneurship
University of Kassel; Environmental Policy Working Group;
Department of Environmental and Energy Law;
Darmstadt University of Applied Sciences

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