



Study on the feasibility of applying extended producer responsibility to micropollutants and microplastics emitted in the aquatic environment from products during their life cycle

Module 3 – Assessment of stakeholder positions on EPR

FINAL REPORT



EurEau

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1. Objectives & methodology

1.1 Module 3 objectives

The objective of module 3 is to analyse stakeholder arguments for and against the application of an EU-wide extended producer responsibility (EPR) scheme on products releasing micropollutants and microplastics in the aquatic environment. Based on the arguments against a potential EPR scheme, robust and well-founded counter arguments for EPR have been developed.

1.2 Methodology

A targeted stakeholder consultation was carried out for a period of two months, between January 2019 and February 2019. The aim of the stakeholder consultation was to collect the views from stakeholders on a potential EPR scheme on the products emitting micropollutants and microplastics into the aquatic environment. Where relevant, the analysis of stakeholder perspectives were also supported by information collected through an in-depth literature review e.g. for specific stakeholders groups that were less represented in the consultation. In addition, a workshop hosted by EurEau was held on 14 February 2019 to gather insights from policy makers and national authorities on possible solutions for the way forward.

The first step of the stakeholder consultation was to identify the priority stakeholder groups and contacts in relation to the product categories assessed. Table 1 summarises the main stakeholder groups and their relevance to the stakeholder consultation.

Table 1: Key stakeholder groups targeted for stakeholder consultation

Stakeholder group	Description and relevance for stakeholder consultation
Producers	Producers refers to individual companies and trade associations representing specific industrial sectors responsible for the manufacturing of products that emit micropollutants and microplastics into the aquatic environment. Key perspectives from producers included the potential technical and economic challenges and obstacles of EPR, notably in regard to financial burdens incurred e.g. impact of the final purchasing price of their products, investment costs, etc. and technical complexity in ensuring traceability and designating producer responsibility.
Water sector	Stakeholders from the water sector provided valuable insights on the technical and economic challenges related to the costs of additional treatment steps (end-of-pipe) treatment of micropollutants and microplastics released into the aquatic environment. Stakeholders from the water sector include actors that provide water services in relation to drinking and waste water treatment e.g. EurEau, national water services associations, etc.

Stakeholder group	Description and relevance for stakeholder consultation
Policy / governance	<p>Policy or governance stakeholders are those involved in the decision-making process, whether at international, EU, national or local levels e.g. national environment ministries, European institutions such as the European Commission, European Chemicals Agency (ECHA), the Organisation for Economic Co-operation and Development (OECD), etc. Policy stakeholders provided input related to legislative aspects such as the regulatory framework needed for successful implementation of EPR. Other aspects such as the consideration of national contexts and specificities e.g. national markets, national regulatory measures, etc. and coherence with international regulations and trade were also important factors investigated within this stakeholder group.</p>
NGOs	<p>NGOs (non-governmental organisations) representing the interests of citizens, the environment and scientific community provided important feedback on current initiatives and best practices as well as key concerns from the viewpoint of local communities and environmental consequences. Examples of key actors in this stakeholder group include the Pesticide Action Network, International Union for Nature Conservation, etc. as well as independent research and development organisations.</p>

Based on the above stakeholder groups, a list of approximately 40 relevant stakeholder organisations were identified (Table 2). The process for selecting stakeholders was based on several aspects, notably ensuring that the final stakeholder list reflected representativeness: coverage of all product categories assessed, proponents and opponents of a potential EPR scheme and the level of stakeholder interest and involvement e.g. presence and participation in related initiatives, events, political causes and publications. The final stakeholder list was developed in close cooperation with EurEau.

In a next step, a background document was prepared, which included a brief introduction, context of the study and a list of the key questions for discussion relevant to the stakeholder group targeted (see Annex). A first round of emails was sent to all stakeholder contacts with the background document, timeline for feedback, as well as a letter of support from EurEau, inviting them to participate in a phone interview or provide written feedback. Follow-up phone calls and reminder emails were sent where relevant to encourage maximum participation in the consultation process.

Detailed minutes of all interviews carried out were produced by the project team. For confidentiality reasons, the stakeholder feedback is in an aggregated manner, in order to maintain a certain level of confidentiality of responses, while allowing for overall conclusions from key stakeholder groups or positions.

2. Overview of stakeholder participation

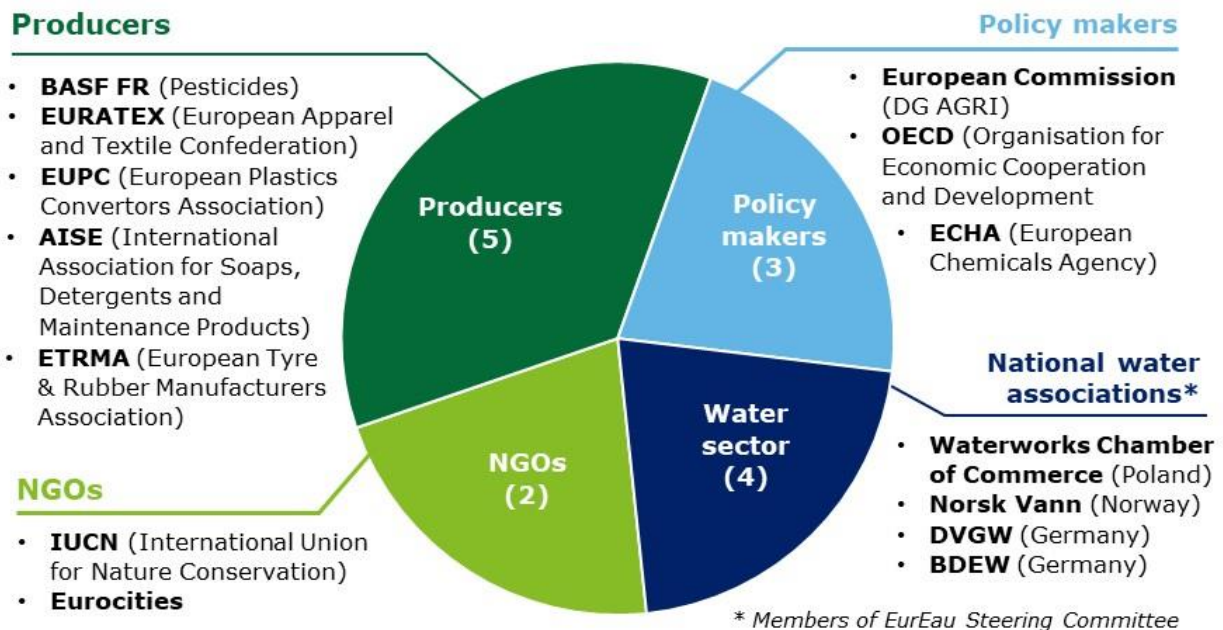
Stakeholders from all of the four main target groups participated in the stakeholder consultation. A total of 37 stakeholders were contacted as follows:

- Producers = 13
- Water sector = 10
- Policy/ governance = 5
- NGOs = 9

Furthermore, all of the product categories assessed by the study – with the exception of PFASs and pharmaceuticals – were represented in the stakeholder contributions. For PFASs and pharmaceuticals in particular, viewpoints were gathered from available literature such as position papers and company websites in order to complete the summary table on arguments against a potential EPR scheme. Finally, none of the consumer organisations contacted, responded to the invitation to participate in the stakeholder consultation.

Of the 37 stakeholders contacted, 19 contributed to the study: 14 were interviewed or provided written feedback (Figure 1). The remaining stakeholder contributions (5) reflected input by EurEau members (national water associations), which were provided throughout the duration of the study, and not only within the context of the stakeholder consultation. For example, review and input on project deliverables, provision of data and literature sources, discussions during project meetings, participation in the EurEau stakeholder workshop, etc. These contributions were also taken into account in the final summary on stakeholder feedback (chapter 3). The final results of stakeholder participation are summarised in Table 2.

Figure 1: Stakeholder interviews¹

























¹ Interviews in the figure refers to inputs collected through the specific stakeholder consultation process e.g. phone interview or written questionnaire feedback. As such, input provided from EurEau members in the context of project meetings or workshops are not included in the graphic.

Table 2: Status of stakeholder participation

Legend:

 Interview /Provided written feedback	 No response/ Did not wish to participate
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	Organisation	Type	Status
1	ACR+ (Association of Cities and Region for Sustainable Resource management)	NGO - local governance	
2	AISE (International Association for Soaps, Detergents and Maintenance Products)	Producer	
3	ANEC (European Association for Consumer Representation in Standardisation)	NGO - consumers	
4	AquaFin (Belgian national association representing waste water treatment)	Water sector	
5	BASF (Producer of chemical-based products)	Producer	
6	BDEW (German Association of Energy and Water Industries)	Water sector	
7	Belgaqua (Belgian national association representing drinking water and waste water treatment)	Water sector	
8	BEUC (European Consumer Organisation)	NGO - consumers	
9	CEJA (Young Farmer's association)	Producer	
10	Copa Cogeca (European farmers' association)	Producer	
11	DANVA (Danish Water and Wastewater Association)	Water sector	
12	Der DBV (German farmers' association)	Industry association	
13	DVGW (German Technical and Scientific Association for Gas and Water)	Water sector	
14	ECHA (European Chemicals Agency)	Policy - governance	
15	EC (European Commission)	Policy - governance	
16	EFPIA (European Federation of Pharmaceutical Industries and Associations)	Producer	
17	EMA (European Medicines Agency)	Policy - governance	
18	EPR Club / ACR+ (Platform for exchange and debate about EPR in Europe)	NGO - local governance	
19	ETRMA (European Tyre & Rubber Manufacturers Association)	Producer	
20	EUPC (European Plastics Convertors Association)	Producer	
21	EURATEX (European Apparel and Textile Confederation)	Producer	

Organisation	Type	Status
22 Eurocities (Network of large cities in Europe)	NGO - local governance	
23 EUROFEU (European Manufacturers of Fire Protection Equipment)	Producer	
24 ECPA (European Crop Protection Association)	Producer	
25 FEAD (European Federation of Waste Management and Environmental Services)	Water sector	
26 FoodDrinkEurope (European food and drink industry association)	Producer	
27 IGWP (Polish Waterworks Chamber of Commerce)	Water sector	
28 IBMA (International Biocontrol Manufacturers' Association)	Producer	
29 IUCN (International Union for Nature Conservation)	NGO - environment	
30 Norsk Vann (Norwegian national water association)	Water sector	
31 OECD (Organisation for Economic Cooperation and Development)	Policy - governance	
32 PAN (Pesticide Action Network)	NGO - environment	
33 Svenskt Vatten (Swedish Water Association)	Water sector	
34 UBA (German Environment Agency)	Policy - governance	
35 Verbraucherzentrale Nordrhein-Westfalen (German consumers' association)	NGO - consumers	
36 Water UK (UK Water Association)	Water sector	
37 WWF (World Wildlife Fund)	NGO - environment	

3. Summary of key stakeholder feedback

This chapter presents the principal messages gathered from the stakeholder consultation, which are grouped according to the topic addressed. Based on stakeholder feedback and literature where relevant, the chapter concludes with a summary table of the main arguments for and against an EPR scheme on products emitting micropollutants and microplastics into the aquatic environment (Table 3).

3.2 Understanding of EPR

As highlighted in Module 1, extended producer responsibility is interpreted and implemented in a wide variety of ways, which can impact the overall position on a potential EPR scheme in the context of products that release micropollutants and microplastics. During the course of the stakeholder consultation, several stakeholders provided their overall understanding of extended producer responsibility, its principles and overall objectives, summarised as follows:

- EPR schemes are intended to reduce negative environmental impacts throughout the product life cycle with two primary goals:
 - (1) Incentivise the design of products with lower negative environmental impact e.g. ecodesign; and
 - (2) Ensure effective end-of-life collection, increase collection rates, improve end-of-life treatment and incentivise recycling and recovery.
- The aim of EPR is to:
 - (1) Establish financial instruments (incentives for producers); and
 - (2) Uphold the principle that those who cause environmental damage are held financially and legally accountable.
- EPR was first implemented to ensure the funding and recycling process of products put on the market. These products are collected, treated or recycled with the aim of being incorporated or made into new products. To this end, the rationale behind the implementation of EPR was to promote recycling at international level. EPR is thus a tool that can be used to efficiently achieve environmental policy objectives, by extending the producer's financial and material obligations.
- EPR is a concept whereby the producer (in most cases), is held financially responsible. EPR can be implemented in many different ways. In particular, it is important to distinguish between voluntary and mandatory application of EPR, as each approach has different implications, requirements, scope, etc.
- Since EPR is interpreted in many different ways, it does not have one unique definition. For some, "extended" can be seen as increased stress and additional financial and administrative burdens, which could imply the need to re-define the concept of extended producer responsibility and raise awareness of its benefits and objectives. EPR has already proven not only feasible, but effective in improving solid waste management practices.

3.3 Existing measures at EU level

Feedback regarding whether existing EU measures are sufficient to control the release and presence of micropollutants and microplastics into the aquatic environment was divided

among stakeholders. With few exceptions, those who felt that existing measures at EU level are sufficient were mainly producers, whereas stakeholders from the water services sector viewed existing measures as insufficient.

Sufficient existing legislative framework

Most producer viewpoints reflected the argument that since certain sectors are already heavily regulated to ensure the safe production, use and disposal of their products, additional measures would not be necessary. Producers felt that they already carry significant regulatory responsibility as required through national and EU legislations for their products placed on the market. For example the research and financial implications for registering substances through the REACH Regulation or through project-specific legislations. Examples of specific legislations that were cited by producers during the stakeholder consultation included:

- **REACH Regulation:** Requires that the ingredients used in specific mixture substances are safe for use and for the environment before they can be placed on the market;
- **CLP (Classification Labelling and Packaging) Regulation:** Specific restriction on the use of CMR (carcinogenic, mutagenic or toxic for reproduction) substances in consumer products (however, the restriction does not apply to substances used in professional products);
- **Industrial Emissions Directive (IED)** (previously the integrated pollution prevention and control Directive): Regulates industrial emissions from manufacturing processes;
- **Environmental quality Standards (EQS) of the Water Framework Directive (WFD):** On good chemical status for a clean aquatic environment to ensure minimum water quality to protect human health and the environment
- **Drinking water quality standards (Drinking Water Directive):** Drinking water standards establishes a very low threshold for the concentration of active substances used in pesticides at 0.1 mg. This is not the case for arsenic, a widely known toxic substance, which has a much a higher threshold with a concentration limit of 10 mg;
- **Detergents Regulation:** Places biodegradability requirements for all surfactants placed on the market;
- **Biocidal Products Regulation:** Need for a special approval process for active substances, including an assessment of the effect of the substance on the environment.

One producer noted that if no EPR scheme currently exists for the so-called products that emit substances into the environment, it is because there is no sufficient evidence demonstrating the need for one. Another stakeholder from the manufacturing sector also added that it is the **responsibility of distributors** to ensure that the final end-user is sufficiently informed on how to use and dispose of the product properly. To illustrate this point, the example of a car accident was provided, whereby, it would be unfair to put full responsibility on the car manufacturer as other parameters such as the driver's behaviour, lack of proper road infrastructure and quality, lack of effective regulation also causes accidents.

For a stakeholder representing the water services in Norway, no extra or end-of pipe treatment measures has been implemented to tackle the micropollutant and microplastic problem. As such, existing measures are currently sufficient in the specific case of Norway, since the competent authority has not yet identified the need to establish end-of-pipe solutions. The polluter-pays principle and the source-control principle are therefore still

applying. However, several examples from different European Member States indicate that existing measures are not enough, since end-of-pipe solutions are already being established.

Insufficient existing legislative framework

Feedback received from water sector stakeholders (drinking water, waste water) pointed to an insufficient and ineffective legislative framework at EU level, which has led to the current problem of micropollutants and microplastic in Europe's water bodies, especially from the view of a circular economy. Existing measures in European water policies, especially in the field of environmental protection are a valuable basis. Despite well-placed intentions, strict procedures and objectives of existing EU and national policies, **implementation remains weak**. Although measures have been effective to a certain extent in reducing the release of some hazardous substances into the environment e.g. lead, mercury, etc., other types of hazardous substances continue to be emitted into the water cycle, particularly emerging substances and microplastics. There is a real **need for innovation**, efforts to explore new ideas and to investigate what is more or less working. Certification and labelling could contribute to the efforts needed, however their impact remains limited.

Regarding end-of-pipe solutions, according to a stakeholder from the NGO sector, in the majority of EU MS, there are no standards at national level for treating hazardous substances once they end up in WWTPs. Some standards are established and respected at the local level e.g. requiring WWTPs to reach a certain removal rate for micropollutants are insufficient because such measures concern only a small portion of WWTPs, indicating that the vast majority of WWTPs are not required to specially remove certain micropollutants and microplastics, leading us to an increasingly urgent situation. For water service stakeholders, **end-of-pipe treatment in drinking water production or waste water treatment is seen as the second option** to achieve the quality standards of the Drinking Water Directive and the Urban Waste Water Directive. The option of end-of-pipe-treatment must always be applied in parallel with control at source measures since end-of-pipe-treatment will not be able to solve the problem for all sizes of treatment plants – in terms of ensuring the quality of nutrients and guaranteeing that the organic matter to be delivered back to agriculture soil complies with circular economy principles.

Finally, for one producer in particular, a key weakness of the existing EU legislative framework is the **lack of a strong and transparent enforcement system**, notably in regards to **imports**. Therefore, any update in existing or new measures would only be useful if there was also an effective enforcement system at EU level to support it.

3.4 Other measures

In addition to input on the effectiveness of existing EU regulatory framework, stakeholders also provided feedback on how other measures are contributing to or could be further optimised to reduce the release of hazardous substances into the aquatic environment.

EU initiatives

Policy stakeholders referred to recent and on-going initiatives at EU level such as buffer zones and projects on plastic additives and alternative substances:

- **Buffer zones in agriculture**, are applied between an agricultural field and a watercourse to prevent run-off of potential hazardous substances, are not a part of control at source measures, however can be effective in preventing hazardous substances from entering water ways.
- The EU provide MS with a considerable amount of **financial support towards more sustainable farming practices**, notably the organics sector. For example, the EU funds the entire transition from conventional to organic farming and also provides an annual incentive as a premium for organic farming. Further, the EU sets minimum standards and conditionality requirements, including environmental standards (sustainable use of pesticides directive). Other obligations include agricultural practices like crop rotation and minimal soil coverage during winter seasons. There are penalties applied when farmers do not respect existing legislations. Rewards are also applied to encourage good behaviour – for example to reduce the use of nitrogen and pesticides.
- In 2016, the European Chemicals Agency (ECHA) launched the **two-year plastic additives initiative**, with the cooperation of 21 industry sector organisations, to characterise the uses of plastic additives and the extent to which the additives may be released from plastic articles. The project generated an overview of 428 additives in plastics used in high volumes in the EU, and looked at how use and exposure information could be used to focus the regulatory work by authorities under REACH. The substances are divided into: antioxidants; flame retardants; nucleating agents; plasticisers; heat and UV/light stabilisers; and pigments. The work included the development of a method for comparing the release potential of different additives. Companies can use the method to determine which registration dossiers they should update as highest priority and to identify where safe use information communicated down the supply chain needs to be further improved. For substances of very high concern, ECHA has launched several initiatives to further encourage the use of alternative and safer chemicals. For example, the recent **Strategy to support substitution of chemicals of concern** as well as a workshop to present and discuss the actions implemented in 2018 and 2019 in relation to ECHA's strategy to promote substitution to safer chemicals through innovation.

Voluntary industry initiatives and measures

Producers highlighted several voluntary initiatives to demonstrate their efforts in addressing micropollutants and microplastics:

- Cross-sector industry research projects and agreements: Initiatives include for example research on quantification and testing methods, which aims to quantify and identify the point of release of certain micropollutants and microplastics. For microplastics in particular, a range of on-going projects are being implemented e.g. phase-out of microbeads, alternative practices for managing surface water from roads, prototypes to test textile resistance and the potential impacts of washing. A company in the research sector is currently exploring the possibility of a system that can downgrade old tyres into monomers. An EPR scheme could finance this type of research and technology investment, however it does not solve the problem of microplastics being released into the environment. Other actions include raising awareness and address microplastics issues such as Operation Clean Sweep® (OCS), an international program that strives to prevent plastic pellet, flake and powder loss and to ensure that these materials do not end up in the environment. Finally, research is also being carried out on filtration technologies for effluents treatment.

Regarding the use of **alternative substances**, according to the stakeholders interviewed, industry research projects have not currently identified a suitable alternative that would maintain necessary tyre performance in regards to ensuring minimum safety requirements e.g. friction and road holding between tyres and roads.

- The European Tire and Road Wear Particles (TRWP) Platform, launched in July 2018, serves as a multi-sectorial stakeholder roundtable. The aim of the initiative is to share intelligence, build up solid scientific knowledge and engage all relevant parties to explore a balanced and holistic approach to TRWPs mitigation options.
- ADIvalor² is a private non-profit eco-organisation tasked with several missions on the collection, recycling and recovery of agri-plastics waste. It is funded by several companies and sectors, reflecting the notion of shared responsibility. In 2016, a working group was created on pesticide metabolites in drinking water.
- EcoTLC is a mandatory EPR scheme for textiles in France³. The EPR scheme has now been established for 11 years and is organised to collect and sort garments, which are then sold as second-hand. The scheme targets business operators that place garments into the market (mainly distributors and retailers). A fee is paid based on the amount of product that is placed on the market. EcoTLC has participated in several policy and industry debates – including some of the challenges based on the France experience, notably that a well-established EPR system can only be effective if there is a **well-defined product category**. The system has been successful in raising awareness, however it has been less effective in several other areas, notably in terms of addressing what happens to the garments once they are collected. In general, they are disposed of via incineration because at the moment, there is still no other viable solutions to treating garments at their end-of-life.

² www.adivalor.fr

³ www.ecotlc.fr

3.5 Relevance of a potential EPR scheme

Concerning the relevance of a potential EPR scheme, none of the producers interviewed felt that EPR would be relevant nor applicable in their respective sectors, whereas responses were more nuanced and varied amongst interviews from other stakeholder groups.

An EPR scheme is not relevant, nor applicable

For many of the producers interviewed, the **diffuse nature** of these substances makes identifying the products and overall responsibility extremely complicated. This was supported by the argument that the **lack of concrete data on the impacts of micropollutants and microplastics** and uncertainty behind a direct link between their products and the presence of potentially hazardous substances in the environment is not straight-forward nor sufficiently proven scientifically. The fact that there is currently no standardised test method to measure the quantity and distinguish the sources of certain substances found in WWTPs further exacerbates the problems that stem from a lack of a harmonised information base and concrete data. Potential EPR schemes on micropollutants and microplastics should be put in this context, which implies the necessity of a thorough preliminary analysis and impact assessment addressing all the specificities and needs related to each of the different micropollutants/ microplastics concerned. For example, microplastics is a very wide term that covers a large range of different kinds of materials, with very different properties and behaviour. This affects both how such particles reach the aquatic environment, the treatment required to capture them and at which stage it is more effective to intervene. Therefore, EPR should be considered separately for each type of micropollutant and microplastic as they reflect different types of substances, sources and emission pathways.

Other responses from producers pointed to **end-of-pipe solutions**, where there would be more potential to tackle the micropollutant and microplastic problem. Before considering the possibility of EPR for a certain product/ source of micropollutants/ microplastics emissions, one producer mentioned that it is essential that advanced treatment is available, additional costs for the treatment can be identified and put in relation to treatment efficiency, so that the mitigation pathway of enhanced wastewater treatment can be evaluated against other mitigation options. For another producer of products emitting microplastics in particular, EPR is not currently a feasible solution because the performance of existing WWTPs should already be able to capture microplastic particles. Interestingly, another manufacturer stated the opposite – that there is currently no advanced waste treatment technology that can efficiently and completely remove microplastics, therefore producers cannot be expected to pay for a technology or treatment process that does not yet exist.

Similarly, another producer mentioned that more efforts should be targeted at **the use phase**. Consumers need to be better educated on the potential impacts of their consumption behaviour. Producers, on the other hand, are already well-aware of their responsibility and are implementing good practices to reflect this. For EPR on microplastics stemming from the agricultural sector, its applicability and effectiveness is doubtful due to the characteristics of microplastics use in agriculture, notably their release into the environment, which usually occurs during the use phase and with **the final user**. Further, not only are microplastics difficult to identify, but also hard to recover (i.e. difficult and

expensive to physically identify and recover once they are present in the aquatic environment).

An EPR scheme that would incentivise ecodesign and improve effective end of life collection would not be applicable in the case of tyres and road particles because product design is made considering the **trade-off between tyre abrasion and performance**. This is a phenomenon which directly results from the tyre grip on roads and which cannot be reduced without negatively impacting the overall tyre performance. Additionally, the release of microparticles from tyre abrasion is influenced by several external factors and not solely by tyre design, for example, driver behaviour, overload and overflow due to weather conditions.

Finally, according to a stakeholder in the policy-making and governance sector, the micropollutants and microplastics evaluated in the current study are being released from products that were not originally intended to be recycled and reused (with the exception of a few active pharmaceutical ingredients that could be recycled and reused in product formulation and for which research is on-going to develop these technologies), implying that an EPR scheme may not be the most appropriate solution for these substances.

An EPR scheme is relevant and applicable

All water sector stakeholders supported the relevance and applicability of an EPR scheme, particularly due to an overall **greater need for producer responsibility**. It is important to establish EPR schemes in order to put the polluter-pays-principle to practice. Otherwise, it will be the principle that the community pays. Manufacturers who produce products, which contain substances that are likely to end up one way or another in the environment and especially in the water cycle must be made aware and accept their responsibility as stipulated under the polluter pays principle.

Two stakeholders from the NGO and water sector, respectively, considered EPR as a relevant solution for products that release micropollutants and microplastics into the aquatic environment, especially if applied as a **complementary measure** along with regulation, phase-out, other source-control measures and end-of-pipe solutions. If producers are making concerted efforts on their side, micropollutants will be present at lower concentrations in the water cycle. Consequently, less fossil fuels would be needed to treat water and it would also be less costly for WWTPs.

3.6 Effectiveness of a potential EPR scheme

Stakeholders were asked about the factors that would be important to consider for the operational effectiveness e.g. financial mechanism, scope and coverage, etc. of a potential EPR scheme.

Producers mentioned the following factors in regards to the effectiveness of an EPR scheme:

- Alternative substances cannot be considered as a viable solution for certain products, especially for products which require a certain level of performance in regards to human health and safety.
- Sufficient data and information on aspects such as the level of contamination at waste water treatment plants and sites, emission sources and the impacts of substances, is lacking to ensure a well-established, fair and justified solution.

- A thorough impact assessment and cost benefit analysis addressing the specificities of each type of micropollutant and microplastic should be foreseen before the definition of any EPR scheme. Without solid findings from a cost-benefit analysis, a fee system established under EPR for example would not be possible.
- EPR for microplastics treatment is not the most effective way to reduce their release, as the major entry pathway is the use stage.

Feedback on the effectiveness of a potential EPR scheme from water sector stakeholders covered issues such as scope, costs and funding:

- Measures within an EPR scheme can cover a wide range of possible compensation models. Covering costs for additional treatment in drinking water production or waste water treatment can be an approach, notably by ensuring that producers are financially responsible for restoring drinking water resources once they have been contaminated by hazardous substances. Co-financing for the monitoring of water resources and feasibility studies are other possibilities.
- All actors concerned across the production value chain should be actively engaged in the EPR scheme. This includes not only producers, but also online-based producers, distributors and retailers.
- Any new financial mechanism will influence prices. When costs and benefits are estimated, the costs of micropollutants in the environment and for end-of-pipe treatment (which are also being financed by consumers) must be sufficiently highlighted. A financial tool such as imposing a tax or similar measure on products would risk shifting producers (financial) responsibilities onto the shoulders of patients, consumers etc.

Policy and NGO stakeholders provided the following feedback concerning the effectiveness of a potential EPR scheme:

- For EPR to be effective, we need to be able to determine if there is an available alternative substance that provides the same technical function and performance, but that can also keep the costs of products (production) down.
- One of the key elements needed in order to implement an efficient EPR scheme for micropollutants and microplastics is to **assess the supply chain of each substance** that is considered a micropollutant or microplastic, then identify whether or not there are existing measures and technologies to treat these substances at their end-of-life. If these measures (control at source and end-of pipe measures) are not efficient, nor effective, then EPR could be considered as an additional measure to tackle these pollutants. It could be established based on for example, an "eco-contribution", which is calculated based on the amount of substance used, the conception of products (composition and design) as well as the mitigation measures implemented on-site by industries (eco-contribution scales depending on the efficiency of mitigation measures.). If the objective of the EPR scheme is to upgrade WWTPs by integrating technologies to treat more efficiently micropollutants and microplastics, the EPR would be less relevant.
- It is important to note that the starting point for EPR implementation should be **based on existing systems**, otherwise the EPR scheme would be difficult to implement in an efficient manner. For example, there are existing EPR schemes for textiles and car tyres. We can imagine expanding the scope of these existing EPR schemes to more effectively cover end-of-life management. However, if there are no existing measures

to tackle these substances, the best way forward is to implement a mandatory tax system, managed by industries, which would be easier to apply.

- For EPR to be effective, **information on costs is essential**. This would be the basis for determining how the costs could be fairly distributed amongst the actors concerned. In Switzerland, ozone or activated coal investment cost is paid by public taxes so in this case, the entire population contributes. In Germany, one of the regions initiated a crowdfunding system to finance wastewater treatment operational costs. Another possibility is to require producers to finance the investment costs to upgrade WWTPs.

3.7 Potential legislative framework for an EPR scheme

Regarding the potential legislative framework for an EPR scheme, most of the producers interviewed felt that the **regulatory framework is already quite exhaustive and demanding**. As such, there is already a clear legislative framework governing safe and sound production practices, product use and end-of-life. The application of EPR through existing legislation is immature because more information is needed on these substances before targeting specific sectors and producers. Regarding the **precautionary principle** in particular, it is obviously an important principal, however in practice, the precautionary principle should be carefully considered because, if implemented incorrectly, it could have unintended negative consequences on the economy. For example, in the case of genetically-modified organisms (GMO) in Europe, significant public funding was spent on research that finally concluded that the health and environmental risks of GMOs are low. However, the findings came too late because the public perspective had already changed. Consumers continue to refuse purchasing of GMO-based products, which has been a big hit to the industry.

Stakeholders from the water sector felt that the introduction of an EPR scheme at EU level would be best placed within the **chemicals authorisation process**. The water industry heavily relies on stringent EU policy on chemicals authorisation to ensure the quality of water sources. Another suggestion included the introduction of EPR as part of wider EU policy, for example via a Directive, which would allow more flexibility, but which should adhere closely to **principles of the EU Water Framework Directive (WFD)**.

Moreover, viewpoints from the water sector reflected the argument that the **legislative framework must be established at EU level** e.g. REACH, Pesticides regulation, Biocidal products regulation, pharmaceuticals legislations, etc. as Micropollutants and microplastics is an EU-wide problem and must be addressed at EU level – in other words, environmental issues should be approached at the broadest scale possible. Mandatory measures are more effective and efficient than voluntary agreements in this area. Problems caused by micropollutants and microplastics are often local or regional. The advantages of an EPR scheme at EU level is that producers are often EU-wide, therefore economic incentives would be more effective at EU level than at national level. Applicability within a European context has many question marks, associated with the Brexit situation for example, therefore initiatives would be further supported if backed up by European institutions. A level playing field is essential for ensuring economic development in Europe.

Other stakeholders pointed to the recently adopted **Single Use Plastics Directive**, which could present some potential opportunities to transpose EPR approaches at national level, and also provide some insights for the case of micropollutants and microplastics.

3.8 Challenges and barriers

The key challenges mentioned by stakeholders for a potential EPR scheme on products emitting micropollutants and microplastics into the aquatic environment included:

- **Gaps in scientific knowledge** concerning the impacts and effects of micropollutants and microplastics, their emission sources, pathways and levels of concentration in water bodies; which makes the **traceability of hazardous substances** and chemicals in the environment to a specific producer and/ or sector extremely difficult.
- The **lack of stakeholder engagement and acceptance**:
 - This is particularly the case for producers, who tend to place more importance on the technical performance or efficiency of their products, rather than the eventual environmental and human health impacts and/ or who do not acknowledge that their products release substances that could have detrimental impacts (due to lack of data, contradictory information, etc.);
 - Some stakeholders indicated that many regulations are already in place so if an additional EPR scheme is added, it may raise further resistance from the manufacturing sector;
 - Decision-makers are another key stakeholder group that need to be further involved in terms of **raising awareness and priority on the political agenda**.
- In addition to lack of concrete information on their impacts and effects, the **increased efficiency, performance or potency of certain active substances** used in pesticides is also becoming quite concerning, as this could mean increased risks to the environment, even if the quantity of pesticide products placed on the EU market is more or less stable. For pharmaceuticals on the other hand, the quantity placed on the market has increased over the years.
- **Existence of free-riders**: refers to certain products/ producers that manage to bypass relevant regulatory requirements, notably importers/ imported products, online platforms, etc. For example, textiles are being imported from Asia that contain substances not allowed in Europe.
- Although viable and safer **alternative substances do exist, they are generally more expensive**, which usually means that the price of the final product will also increase. This would have a significant impact on sectors such as agriculture and on consumers. One could also even imagine a scenario where the price for certain EU products increase to such an extent that buyers will **increasingly look to non-EU markets and imported goods** – which cannot be as effectively controlled. It is important to ensure that **consumers are aware** of the potential impacts of the products they consumer as they play a key role in driving product design and more sustainable production practices.
- Europe has the highest environmental and chemical use standards in the world, however, **control and enforcement is a major weak point**.
- There is a **wide-range of definitions and understanding of extended producer responsibility**, which can be challenging because a key factor for a successful EPR scheme is a well-defined and established system for all the actors involved.

3.9 Opportunities and success factors

The key opportunities and success factors identified by stakeholders included:

- For EPR to be generally accepted by all concerned, it needs to be demonstrated, based on concrete evidence that it is the most effective solution. In other words, implementing an EPR scheme must be based on an **analytic approach**: detailed assessment to identify the causes and costs, developing targeted actions and then designating responsibilities. If producers “pay” without knowing what the impact of their fee is and what it is based on, then the EPR scheme has no sense. In this sense, **transparency is crucial**.
- **Raise public and political awareness and interest**, including information on the rationale and benefits of extended producer responsibility. There is a real opportunity to encourage changes in consumer behaviour.
- **Stakeholder collaboration and dialogue** is very important in order to further advance discussions. This includes not only the involvement of major manufacturing sectors but also organisations such as EurEau, the European Crop Protection Association, FP2E (French water sector federation), etc. Similarly, it is important to find a solution that is acceptable for all stakeholders. The involvement of the different stakeholder groups concerned can be diverse – and can range from financing additional monitoring in the water catchment areas to providing information and recommendations on best practices. What is important is to remain flexible and open-minded to other perspectives and ideas.
- Ensure that the **financial mechanism sufficiently compensates treatment costs** in drinking water production or waste water treatment by considering aspects such as the overall treatment objective and efficiency rates (what substance treat and how much), which can vary.
- Further encourage the **uptake of viable and available alternatives** – such as biodegradable plastics – for which an EU new standard is currently available.
- In some cases, producers are required to submit substances under both REACH requirements and other applicable legislation. In the case of pharmaceuticals, depending on the substance and its intended use, companies may have to comply with requirements under the Directive on human medicinal products. There are certainly **areas for improved synergies and harmonisation** in terms of the information generated through REACH and other relevant legislation such as the Water Framework Directive and product-specific legislation.

3.10 Options for the way forward

Regarding possible solutions and options for the way forward, feedback was mixed among the different stakeholder groups and reflected a wide-range of suggestions as summarised in the following:

- An EPR scheme could be applied if restricted to substances that are found in WWTPs and for which their pathways to WWTPs are well-known. EPR is just one of many possible tools that could be employed, however it must be adapted and applied based on what the overall objective to be achieved is.

- For microplastics, one of the main contributors to their release are from car tyre abrasion, however it is a very **diffuse source**. In urban areas, microplastics are collected by WWTPs and can end up in sludge. In some countries, sludge is used as fertilisers and therefore microplastics ends up in the soil, however incineration is a more expensive option and cannot today fulfil the ambitions of a circular economy to recycle nutrients and organic matter to agricultural soil. A solution could be to incinerate the sludge, instead of spreading it on the soil. Producers and/ or consumers could be required to pay a fee based on tyres placed on the market or during the purchase of a car tyre. This money could be used for waste water treatment in WWTPs.

In addition to EPR, Europe needs to enact a **combination of different solutions and supporting measures** such as a speed reduction on roads, ecodesign criteria for more resistant, less noisy tyres, capacity of tyre abrasion, tyre labelling and implementing a fee based on driving behaviour.

- For some pollutants, EPR schemes could be an option to incentivise measures at the **design phase**, where an alternative exists or to increase the collection of the particles with additional treatments steps. However, this should be thoroughly assessed for each category of micropollutants, considering their pathways through the environment and the efficacy of existing treatments to remove them.
- **Lessons learnt** from the waste sector where EPR is more common should be carefully considered. Existing EPR models can provide insights on how a potential EPR scheme could work for micropollutants and microplastics. For example, energy producers are required to pay CO₂ taxes according to the amount of the pollutant emitted (e.g. greenhouse gas). Emissions are measured, and the concrete charge to pay is calculated based on this (price of Mg of CO₂ emitted). The impact on the environment is defined based on how the substance is treated at its end of life. In order words, impacts based on whether coal, gas, oil, biomass, renewable energy, etc. is used for the incineration process.
- Although **labelling has its limitations**, it can be used as an additional measure to further address the micropollutants and microplastics problem. For example, organic food labelling is increasingly sought out and popular with consumers, indicating its effectiveness in raising awareness on the issue. When potential contaminants are transparently indicated on products, consumers could be less motivated to purchase such products, which could then encourage producers to design more environmentally-friendly products.
- Other options that could address the micropollutant problem in the context of the pharmaceutical sector is to ensure that **unused medicines are more effectively collected** to avoid being thrown away in the environment.

3.11 Arguments for and against a potential EU-wide EPR scheme

Table 3: Summary of key arguments for and against a potential EPR approach

Arguments AGAINST EPR scheme	Arguments FOR EPR scheme
<p>Topic: Responsibility</p>	
<p>A. The producer is not always the polluter, in particular, for products that release micropollutants and microplastics mainly during their use or end-of-life phase.</p>	<p>Consumers and the water services sector are currently bearing the increased water treatment costs associated with the presence of micropollutants and microplastics in the aquatic environment – rather than industry. In this context, EPR could provide the basis for setting an appropriate financing mechanism for water pricing in accordance with the polluter pays principle by ensuring that producers are also held financially accountable and responsible. An EPR scheme can contribute towards the reduction and shift of financial and physical responsibility for treating difficult-to-treat drinking or waste water from local authorities and public utility services (and citizens’ in regards to their water bills) to producers, in order to ensure a fair and just distribution of costs between producers, the water sector and citizens. The decision of who shall bear the costs not only determines who has to contribute to a measure and how much, but also has significant effects that could lead directly and indirectly to further reduction of pollution. In all cases, cost recovery as stipulated by Article 9(1) of the EU Water Framework Directive – whether it is established within an EPR scheme or not – should not result in a situation where industry is not held financially responsible and only citizens, public authorities and the water sector bear the costs.</p> <p>An EPR system based on a full life-cycle approach and a harmonised method to identifying and designating producer responsibility at EU level would ensure that all actors across the different supply chains of these substances are held accountable. Life cycle thinking allows for the consideration of long term environmental and social issues and avoidance of short term decisions that can lead to environmental degradation – such as over-fishing or water pollution. By improving entire systems rather than single parts of systems, decisions that fix one environmental problem but can cause another unexpected or costly environmental problem (like mitigating air pollution yet increasing water pollution) can be avoided. Focusing on one specific life-cycle stage as suggested by some producers would prevent life cycle thinking, which helps to avoid shifting problems from one life cycle stage to another, from one geographic region to another and from one environmental medium (air, water or soil) to another.</p>
<p>Topic: Technical aspects</p>	

Arguments AGAINST EPR scheme	Arguments FOR EPR scheme
<p>B. It is too complicated due to a lack of sufficient data to identify the main emission sources and the relevant producers of the associated products due to the diffuse nature of the substances concerned.</p>	<p>EPR principles can be applied in a variety of approaches. For example, it can be used as a driver for additional research and monitoring activities that are needed in order to establish a consensual knowledge base concerning the traceability of substances and products. In this case, major industrial sectors could contribute for example to a collective dedicated fund that could be used to pay for EU wide data collection, monitoring and assessment related to targeted substances and the actors involved. EU funds such as LIFE or Horizon Europe could finance projects on developing and implementing efficient monitoring systems.</p>
<p>C1. There are currently no viable, alternatives for certain substances which are safer and/ or less harmful to human health and the environment.</p>	<p>The absence of viable alternatives and the low recyclability or reuse potential of a particular substance is not a justified argument for producers to be exempt or exonerated from their responsibility regarding the negative environmental impacts caused by their products. As mentioned earlier, EPR can be used to drive research and innovation, targeting all stages of a product's life-cycle. As such, funds collected from a dedicated EPR scheme could also be used to help cover treatment costs. Moreover, by taking into account the full cost coverage of the end-of-life of products, extended producer responsibility schemes could provide incentives that could have both short-term effects (such as substitution of micropollutants or relevant products with already available alternatives) and medium to long-term effects (such as research and development of new environmentally friendly approaches or substitutes). For example, an EPR approach that incorporates an incentive system that applies a flat wastewater charge for discharging micropollutants but which offers the possibility of exemption and/ or reduction if certain efficiencies or targets are reached or which offers the opportunity to offset potential investment costs. By holding producers responsible for the full costs caused by their products, companies will be incentivised to design products that can be more easily recycled or prepared for reuse or less costly to treat at its end-of-life.</p>
<p>C2. An EPR scheme that would incentivise ecodesign would not be applicable for products such as car tyres in the case of tyres and road particles because product design is made considering the trade-off between tyre abrasion performance and minimum safety requirements.</p>	
<p>C3. The low recyclability and reuse potential of the substances/ products concerned would make it difficult to apply EPR principles.</p>	
<p>Topic: Effectiveness and efficiency</p>	

Arguments AGAINST EPR scheme	Arguments FOR EPR scheme
<p>D. End-of-pipe solutions offer the most effective way forward. Advanced treatment technologies exist to adequately treat these substances.</p>	<p>Traditional drinking and wastewater treatment plants are not specifically designed to treat new and persistent substances, which results in their release into the aquatic environment where they are often left untreated. End-of-pipe solutions in the form of advanced treatment does not provide any incentive to prevent or reduce the release of potentially hazardous substances, nor does it adhere to the polluter pays principle.</p> <p>The additional treatment steps required to tackle micropollutants and microplastics in drinking water production and wastewater often entail the use of advanced treatment technologies, which entail increased costs and technical limitations:</p> <ul style="list-style-type: none"> • <u>Increased energy demand</u>: Advanced treatment technologies and technology combinations assessed result in an increased use of energy and therefore emissions during energy production. • <u>Use of harmful chemicals</u>: Some treatment technologies such as oxidative treatments require chemicals that can cause some environmental impact during production and use and a risk that new potentially toxic contaminants will form as a result of certain technologies used. • <u>Need for increased training & skills</u>: additional competence requirements (and associated labour costs) may be needed in order to operate and monitor certain advanced treatment technologies. This is a particular challenge for smaller treatment plants. • <u>Generation of by-products/ transformation products</u> with potentially adverse effects • <u>Higher space requirements and sludge production</u> for treatment technologies such as powder activated carbon, which usually require multiple tanks and pumping systems. • <u>Reduced sludge quality and circular economy options</u>: If sludge is too contaminated for the recycling to agricultural soil, there are currently no end-of-pipe technologies that can sufficiently remove these pollutants and at the same time fulfil the ambitions in a circular economy to recycle several nutrients and organic matter to agricultural soil. • <u>Varying removal efficiencies</u>: the efficiency rates of different advanced water treatment technologies vary greatly depending on the technology, the way in which the technique is implemented and the substance targeted. Even if advanced treatment technologies implemented result in higher removal efficiencies, there is no guarantee that they will continue to be effective for treating future new and emerging substances including substances formed spontaneously when mixed together in the aquatic environment.
<p>E. Any additional (financial) charges put on producers would increase the final purchasing price of products. In the case of pharmaceuticals, putting the financial burden on the</p>	<p>Many of the most problematic substances present in the aquatic environment in terms of risks to the environment and human health and difficulty in removal through traditional drinking and waste water treatment are not those that stem from "life-saving drugs" often referred to by pharmaceutical companies, rather widely available and consumed medicines such as painkillers, antidepressants, contraceptives,</p>

Arguments AGAINST EPR scheme	Arguments FOR EPR scheme
<p>manufacturer would lead to increased prices for medication for patients, which is socially unacceptable. Making the manufacturer responsible for environmental damage would stifle investment in life-saving drugs.</p>	<p>antiparasitics, etc. Such medicines frequently have viable alternative substances available that are less toxic for the environment.</p> <p>In addition to the counter arguments presented under points A, B and C, it is important to note that EPR as a tool is often implemented as a complimentary measure or along with supporting measures for maximum effectiveness and in order to fully address all stages of a product's life cycle. This includes measures such as information provision and awareness raising, labelling and in some cases the use of more "hard instruments" such as government support in the form of subsidies to help offset the price of medications for consumers. In fact, this is already the case in many European countries through various social welfare and public health regimes.</p> <p>Furthermore, the uncertainty of the impacts and effects of active pharmaceutical ingredients found in the aquatic environment on humans and other organisms indicates that the issue could also be seen as a potential public health concern. Several studies highlight the rapidly increasing consumption of drugs over the years to come, which could lead to higher concentration levels of potentially dangerous substances. Although there is currently no danger to human drinking water the rising quantities of substances calls for immediate actions to protect the environment including water sources.</p>
<p>Topic: Governance & legislative framework</p>	
<p>F. EPR schemes for products releasing pollutants would be extremely complex to manage and would involve significant administrative burdens (e.g. additional reporting and authorisation requirements). The manufacturing sector is already heavily regulated and any additional requirements would raise further resistance from the sector.</p>	<p>The application of EPR principles does not have to be complex or administratively complicated as it could be integrated into the existing EU regulatory framework. For example, via the chemicals authorisation process under REACH or product-specific legislation such as the Biocidal Products Regulation or the Directive on the use of human pharmaceutical products. EU legislation is constantly being reviewed, re-adapted and evolving to reflect the current situation, advances in technology, etc. to ensure that it remains fit for purpose, responds to current societal needs and addressing underlying problems. In addition, continuing on-going stakeholder discussions and information exchanges focused on concrete impacts and data based on the increasing number of studies and initiatives on how the presence of micropollutants effects drinking water and wastewater treatment requirements and costs as well as the potential effects on human health and the environment are part of the efforts needed to raise awareness and provide relevant information to all stakeholders concerned.</p>
<p>G. Existing measures are sufficient for addressing the problem of micropollutants and microplastics. Voluntary measures can address the</p>	<p>Existing measures have proven to be insufficient in tackling the increasingly concerning problem of micropollutants and microplastics. Recent studies have found a wide-range of micropollutants, including emerging substances and microplastics in drinking and waste water. The situation will become increasingly concerning and serious, aggravated by increasing population and consumer demands, if no concrete action</p>

Arguments AGAINST EPR scheme	Arguments FOR EPR scheme
<p>issue effectively, therefore, additional legislative requirements are unnecessary.</p>	<p>is taken in time to combat the problem. Water treatment operators and citizens are currently paying for the additional steps needed to ensure that water quality meets requirements under relevant legislation such as the Drinking Water Directive and the Water Framework Directive, whereas in most cases producers are not being held accountable. Further, voluntary measure has its limitations and cannot fully combat the problem, particularly in terms of engaging the participation of all major industries (and polluters) and addressing the problem of free-riders. The current free-rider and license to pollute situation currently observed in the EU is creating an uneven playing field. Finally, water pollution is a transboundary phenomenon and should be addressed as such, at EU level, highlighting that it is an issue of human health. The advantages of an EPR scheme at EU level is that economic incentives are more at EU level compared to national level especially in regards to ensuring a level playing field, a basis for economic development in Europe.</p>

4. Annex

Stakeholder interview template

STAKEHOLDER QUESTIONNAIRE & INTERVIEW GUIDANCE

Study on Feasibility of Extended producer responsibility for micropollutants and microplastics released into the water cycle

INTRODUCTION & CONTEXT

Deloitte Sustainability (France) is conducting a study for EurEau on “Exploring the feasibility of Extended Producer Responsibility (EPR) schemes for micropollutants and microplastics emitted in the aquatic environment from products during their life cycle”. The objective of the study is to analyse and identify the most effective approach – both in terms of practical feasibility and legislative applicability – for applying an EPR scheme to products releasing pollutants and microplastics into the aquatic environment during their life cycle. The following product categories are being assessed – pharmaceuticals, pesticides and biocides, products containing perfluoroalkylated substances, textiles and car tyres. An important part of the analysis is to gather key stakeholder feedback on the practical and legislative feasibility of EPR, with the aim of providing an in-depth overview of different stakeholder perspectives. The results of the stakeholder consultation will present findings on the pros and cons of an EPR approach, the feasibility and applicability at EU level, lessons learned and options for the way forward. All responses will be kept confidential so that any information included in the study deliverables does not identify you as the respondent.

KEY QUESTIONS & DISCUSSION POINTS

- *What is your understanding of EPR? Do you think EPR is a relevant and applicable solution in the context of products that release micropollutants and microplastics into the aquatic environment?*
- *What is the role of different stakeholders in addressing the health and environmental risks associated with the release and presence of micropollutants and microplastics in the aquatic environment? What would be the main impacts be on specific stakeholders?*
- *Are existing measures e.g. control at source, quality standards, current treatment technologies, voluntary industry initiatives, etc. sufficient?*
- *What would be the most relevant & applicable EU legislation to consider for the legal framework of an EPR scheme at EU level? What would be the advantages, disadvantages and overall implications of applying an EPR scheme at EU versus national level?*
- *Are you aware of any other measures that are being (or could be) applied to address the micropollutants and microplastics problem?*
- *What would be the main challenges and barriers to consider for the effective application of a potential EPR scheme for micropollutants and microplastics? What are important success factors, lessons learned and best practices?*
- *How could an effective financial mechanism be established under an EPR scheme to ensure that operational treatment costs are covered while ensuring that prices for water services remain affordable and producers are incentivised to take into account environmental considerations e.g. improve product design, use of alternative substances, etc. ?*
- *What costs should an EPR scheme cover? Do you have specific information on costs that would need to be considered in an EPR approach e.g. treatment costs, costs for producers, etc.?*
- *How could a potential EPR scheme address issues such as free-riders, to ensure a fair and level playing field in regards to the distribution of costs and responsibility across the different sectors and producers involved?*