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# Targeted consultation on options for a strategic approach to pharmaceuticals in the environment

Fields marked with * are mandatory.

## 1. About this consultation

This targeted consultation, aimed at stakeholders with specific relevant expertise, complements an open public consultation taking place as part of a study aimed at supporting the development of a European Union (EU) strategic approach to pharmaceuticals in the environment, and in turn at helping the EU achieve the United Nations Sustainable Development Goals, in particular SDG 6 ("Clean Water and Sanitation"), as well as objectives in EU legislation such as the "good status" objective in the Water Framework Directive. Adoption of the approach is to be followed by proposals for specific measures, as appropriate, which would be subject to full impact assessment. Experts are free to respond to both questionnaires, but are requested not to submit the same additional information twice over.

Pharmaceuticals can enter the environment during their production, use and disposal. The need for a strategic approach has been prompted by concern about risks to the environment itself, and possibly to human health via the environment. Any actions to address those risks must also ensure that humans and animals can continue to benefit from the appropriate use of pharmaceuticals and that the competitiveness of EU healthcare systems is maintained.

This targeted consultation aims to collect feedback and further information from stakeholders on 30 possible policy options identified on the basis of a review of the recent literature and preliminary consultation of stakeholders.

**A background paper, provided with this questionnaire, describes the options. We advise you to read the paper or the summary of it before answering the questions.** The full titles of the 30 policy options are presented in the introduction to the background document under the 10 action areas presented in that document and its summary. The full titles are also listed in this questionnaire but used in shortened form in the individual questions. In section 5.1, questions are posed in relation to effectiveness and timescale, Sections 5.2 and 5.3 ask about the costs and ease of implementing each option. Section 6 allows you to propose additional options.

Your responses will help the European Commission (EC) to identify and to narrow down options for further consideration. Thank you in advance.

## 2. Important note on the publication of answers

Please note that the responses received will be published on the EC's website, together with the identity of the contributor unless the contributor objects to the publication of personal data.

***1. Please indicate your preference as regards publication of your contribution**

- (●) My contribution may be published, mentioning my name or the name of my organisation as well as country of residence
- ( ) My contribution may be published anonymously

*Please note that, whatever option chosen, your answers may be subject to a request for public access to documents under Regulation (EC) N°1049/2001. Please also read the specific privacy statement attached.*

## 3. About the respondent

***2. Are you replying as:**

- ( ) An individual
- ( ) An EU institution
- ( ) A national/regional/local public authority
- ( ) A company
- (●) A business or workers' organisation
- ( ) An NGO, environmental or consumer group
- ( ) A research organisation
- ( ) Other

***3a. Please state your name or the name of your organisation (published)**

DVGW German Technical and Scientific Association for Gas and Water

***3b. Please provide an email address.** *Please note that your email adress will not be published, even if you accepted that your name and country are published.*

castell@dvgw.de

***5. How many members does your organisation or group represent?**

14.000

***6. Is your organisation registered in the Transparency Register of the European Commission?**

- (●) Yes
- ( ) No

***7. Please enter the identification number**

049954229126-63

***8. What is your main field of activity or main area of expertise or interest?**

- ○ Pharmaceuticals
- ○ Human healthcare (including pharmacy)
- ○ Veterinary care (including veterinary pharmacy)
- ◉ Water and waste water management
- ○ Waste management
- ○ Other

***9. What is your main country of residence or activities? (published)**

- ○ Austria
- ○ Belgium
- ○ Bulgaria
- ○ Croatia
- ○ Cyprus
- ○ Czech Republic
- ○ Denmark
- ○ Estonia
- ○ Finland
- ○ France
- ◉ Germany
- ○ Greece
- ○ Hungary
- ○ Ireland
- ○ Italy
- ○ Latvia
- ○ Lithuania
- ○ Luxembourg
- ○ Malta
- ○ Netherlands
- ○ Poland
- ○ Portugal
- ○ Romania
- ○ Slovak Republic
- ○ Slovenia
- ○ Spain
- ○ Sweden
- ○ United Kingdom
- ○ Other

## 4. Numbered list of options - full titles

The full titles of the 30 policy options are presented below under the 10 action areas presented in the background document (and summary). In section 5.1, questions are posed in relation to effectiveness and

timescale, Sections 5.2 and 5.3 ask about the costs and ease of implementing each option. Section 6 allows you to propose additional options. Please refer to the full title of each option when answering the questions.

**Whole life-cycle - knowledge base:** options for improving the understanding of risks from pharmaceuticals to the environment.

*1 Provide further EU funding for, and encourage Member States and industry to fund, research regarding the fate, behaviour and impacts of pharmaceuticals in the environment*

*2 Provide EU funding for, and encourage Member States and industry to fund, research on the role of antimicrobials/resistant microorganisms in the environment on the emergence and spread of antimicrobial resistance (AMR) and its link with human and animal health*

**Design:** option for designing greener substances.

*3 Develop information resources and EU/industry co-funding initiatives to promote the design of active pharmaceutical ingredients (APIs) that pose lower risks to the environment.*

**Authorisation:** options for ensuring the scientific robustness, consistency and transparency of risk assessments:

*4 Strengthen the environmental expertise of the European Medicines Agency (EMA, its scientific committees) and the national competent authorities.*

*5 Ensure that all environmentally relevant toxicological thresholds for pharmaceuticals placed on the market are systematically made publicly available in a standardised format*

*6 Develop a system for sharing comprehensive active-substance-based Environmental Risk Assessments (ERAs) at EU level*

*7 Ensure that ERA results are systematically considered in the overall benefit/risk analysis for the authorisation of HMPs*

*8 Ensure that ERAs adequately consider Persistent Bio-accumulative and Toxic substances (PBT) and endocrine properties for the APIs, as well as the toxicity and other properties of major metabolites, degradation products and excipients: a) for human pharmaceuticals, b) for veterinary pharmaceuticals.*

**Manufacturing:** options for promoting greener manufacturing processes:

*9 Under the Industrial Emissions Directive, review and revise Best Available Techniques Reference (BREF) documents relevant to emissions from the manufacturing of pharmaceuticals*

*10 Prepare a sectoral reference document under the European Eco-Management and Audit Scheme (EMAS) to promote increased adoption by pharmaceutical companies, and by their global suppliers, of good environmental manufacturing standards*

*11 Ensure that EU Good Manufacturing Practices (GMP) address discharges of active pharmaceutical ingredients (APIs), degradation products and excipients into the environment*

**Post-authorisation:** options for ensuring environmental risks are adequately taken into account and dealt with by mitigation actions where relevant

*12 Instigate an Environmental Risk Assessment (ERA) catching-up procedure for relevant pharmaceuticals for which there is still no or only an incomplete ERA*

*13 Require from the marketing authorisation holder (MAH) the update/revision of ERAs based on post-marketing monitoring data or newly published information*

*14 Link the need for a prescription to supply/obtain human pharmaceuticals (HMPs) to the results of ERAs, and provide guidelines for the enforcement of existing similar provisions for veterinary pharmaceuticals (VMPs)*

*15 Require Member States to designate the authority/authorities responsible at national level for the follow-up and reporting obligations linked to implementation of risk mitigation measures*

**Use:** options for:

- Ensuring environmental risks and impacts observed post-marketing are identified and reported

*16 Establish routine dialogue and information exchange between relevant Member State agencies and authorities to help ensure that API levels in the environment are safe for the environment and human and animal health*

*17 Ensure that environmental issues are a) introduced into the pharmacovigilance system for human pharmaceuticals (HMPs) and b) strengthened for veterinary pharmaceuticals (VMPs), particularly in relation to AMR*

*18 Include pharmaceuticals as relevant in the watch lists for monitoring surface and groundwater under the Water Framework Directive (WFD) a) along with AMR in relevant microorganisms when antimicrobials are included; b) without requiring monitoring of AMR*

- Promoting sustainable use of pharmaceuticals

*19 Encourage Member States to increase the consideration of environmental aspects during medical /veterinary education and advanced training of healthcare professionals including healthcare managers*

*20 Ensure the provision of information to the general public that encourages the sustainable use of pharmaceuticals, in particular antimicrobials*

*21 Develop recommendations or requirements regarding the size and form of packaging for pharmaceuticals to facilitate their efficient use*

**Waste collection and disposal:** options for ensuring appropriate collection and disposal of unused pharmaceuticals and pharmaceutical waste:

*22 Promote better enforcement of EU legislation with regard to the implementation of waste collection schemes for human and veterinary pharmaceuticals, including through extended producer responsibility*

*23 Ensure that the CLP Regulation does not exclude pharmaceuticals in medicinal products, and that its provisions are consistent with the Waste Framework Directive*

**Waste treatment and reuse:** options for promoting more effective treatment of waste water, manure and sludge.

*24 Establish EU guidelines for appropriate wastewater management in hospitals and healthcare centres*

*25 Require monitoring of antimicrobials and AMR microorganisms in the effluent and organic waste from potential "hotspots" such as large waste water treatment plants, hospitals, pharmaceutical manufacturing sites and intensive livestock farms*

*26 Develop EU funding opportunities for research, development and implementation of advanced water treatment technologies to ensure that levels of pharmaceuticals, including antibiotics, and of AMR microorganisms, are reduced*

*27 Encourage Member States to establish innovative mechanisms for investing in advanced (waste and drinking) water treatment*

*28 Take additional measures, e.g. set quality standards or risk assessment requirements, to ensure that the concentrations of relevant pharmaceuticals and AMR microorganisms in manure, sewage sludge, and irrigation water are safe before it can be spread on agricultural fields*

*29 Encourage Member States to revise their Codes of Good Agricultural Practice and revise relevant best available techniques under the IED at EU level to include provisions for the handling of manure containing pharmaceuticals/AMR microorganisms*

**Whole life-cycle – overall management:** option for promoting better overall management of pharmaceutical emissions into soils and the aquatic environment

*30 Prepare guidance under the Common Implementation Strategy (CIS) for the Water Framework Directive (WFD) to support better Member State action against pharmaceuticals in the aquatic environment*

# 5. Detailed questions on possible options

## 5.1 Effectiveness of options

**10. How effective do you think the options listed above (in section 4) and in the background document would be in terms of mitigating risks from pharmaceuticals in the environment, in particular by way of reducing the presence of pharmaceuticals in the environment that could have harmful effects on or via the environment?**

| | Very effective | Moderately effective | Slightly effective | Not effective | Don't know |
|---|---|---|---|---|---|
| 1 Research on pharmaceuticals in the environment | ◉ | ○ | ○ | ○ | ○ |
| 2 Research on pharmaceuticals and AMR | ◉ | ○ | ○ | ○ | ○ |
| 3 Promote greener pharmaceuticals design | ◉ | ○ | ○ | ○ | ○ |
| 4 Strengthen environmental expertise of EMA and national authorities | ◉ | ○ | ○ | ○ | ○ |
| 5 Toxicological thresholds for pharmaceuticals publicly available in standardised format | ◉ | ○ | ○ | ○ | ○ |
| 6 System for sharing substance-based ERAs at EU level | ◉ | ○ | ○ | ○ | ○ |
| 7 Benefit/risk analysis of ERA results in HMP authorisation | ◉ | ○ | ○ | ○ | ○ |
| 8a ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: HMPs | ◉ | ○ | ○ | ○ | ○ |
| 8b ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: VMPs | ◉ | ○ | ○ | ○ | ○ |
| 9 Review and revise BREF documents | ○ | ◉ | ○ | ○ | ○ |
| 10 Prepare EMAS ref. document | ○ | ○ | ◉ | ○ | ○ |
| 11 Ensure GMP addresses discharges | ○ | ◉ | ○ | ○ | ○ |
| 12 ERA catching up procedure | ◉ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| 13 Update/revision of ERAs | ◉ | ○ | ○ | ○ | ○ |
| 14 Link need for prescription to supply HMPs to the results of ERAs | ◉ | ○ | ○ | ○ | ○ |
| 15 National authorities for follow-up and reporting obligations | ◉ | ○ | ○ | ○ | ○ |
| 16 Routine dialogue and information exchange on API levels | ◉ | ○ | ○ | ○ | ○ |
| 17a Introduce environmental issues in pharmacovigilance for HMPs | ◉ | ○ | ○ | ○ | ○ |
| 17b Strengthen environmental issues in pharmacovigilance for VMPs | ◉ | ○ | ○ | ○ | ○ |
| 18a Relevant pharmaceuticals in WFD watch lists: with AMR microorganisms | ◉ | ○ | ○ | ○ | ○ |
| 18b Relevant pharmaceuticals in WFD watch lists: without AMR | ○ | ◉ | ○ | ○ | ○ |
| 19 Increased consideration of environmental aspects in education and training | ◉ | ○ | ○ | ○ | ○ |
| 20 Information to encourage sustainable use of pharmaceuticals | ◉ | ○ | ○ | ○ | ○ |
| 21 Packaging pharmaceuticals for efficient use | ◉ | ○ | ○ | ○ | ○ |
| 22 Enforcement of waste collection schemes, including through EPR | ◉ | ○ | ○ | ○ | ○ |
| 23 CLP includes pharmaceuticals in products, in line with Waste FD | ◉ | ○ | ○ | ○ | ○ |
| 24 EU guidelines on waste water from hospitals | ◉ | ○ | ○ | ○ | ○ |
| 25 Monitoring of antimicrobials and AMR microorganisms at discharge “hotspots” | ◉ | ○ | ○ | ○ | ○ |
| 26 EU funding for advanced water treatment technologies | ○ | ◉ | ○ | ○ | ○ |
| 27 Innovative MS mechanisms for investment in advanced water treatment | ○ | ◉ | ○ | ○ | ○ |
| 28 Safe concentrations of pharmaceuticals and AMR microorganisms in waste(water) for agricultural use | ○ | ◉ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| 29 Revised Codes of Good Agricultural Practice and BAT under IED | ○ | ○ | ◉ | ○ | ○ |
| 30 Guidance under CIS for WFD | ○ | ○ | ◉ | ○ | ○ |

**11. If you considered an option as slightly, moderately or very effective, over what timescale(s) would you see it having an effect? (Please select all timescales that apply if, e.g. there is more than one effect.)**

| | Soon, i. e. within 6 months | More than 6 months away, but less than 2 years | After 2 years or more |
|---|---|---|---|
| 1 Research on pharmaceuticals in the environment | ○ | ○ | ◉ |
| 2 Research on pharmaceuticals and AMR | ○ | ○ | ◉ |
| 3 Promote greener pharmaceuticals design | ○ | ○ | ◉ |
| 4 Strengthen environmental expertise of EMA and national authorities | ○ | ○ | ◉ |
| 5 Toxicological thresholds for pharmaceuticals publicly available in standardised format | ○ | ◉ | ○ |
| 6 System for sharing substance-based ERAs at EU level | ○ | ◉ | ○ |
| 7 Benefit/risk analysis of ERA results in HMP authorisation | ○ | ◉ | ○ |
| 8a ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: HMPs | ○ | ◉ | ○ |
| 8b ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: VMPs | ○ | ◉ | ○ |
| 9 Review and revise BREF documents | ○ | ○ | ◉ |
| 10 Prepare EMAS ref. document | ○ | ○ | ◉ |
| 11 Ensure GMP addresses discharges | ○ | ◉ | ○ |
| 12 ERA catching up procedure | ○ | ○ | ◉ |
| 13 Update/revision of ERAs | ○ | ○ | ◉ |
| 14 Link need for prescription to supply HMPs to the results of ERAs | ◉ | ○ | ○ |
| 15 National authorities for follow-up and reporting obligations | ○ | ◉ | ○ |

| | | | |
|---|---|---|---|
| 16 Routine dialogue and information exchange on API levels | ○ | ◉ | ○ |
| 17a Introduce environmental issues in pharmacovigilance for HMPs | ○ | ◉ | ○ |
| 17b Strengthen environmental issues in pharmacovigilance for VMPs | ○ | ◉ | ○ |
| 18a Relevant pharmaceuticals in WFD watch lists: with AMR microorganisms | ○ | ○ | ◉ |
| 18b Relevant pharmaceuticals in WFD watch lists: without AMR | ○ | ○ | ◉ |
| 19 Increased consideration of environmental aspects in education and training | ○ | ○ | ◉ |
| 20 Information to encourage sustainable use of pharmaceuticals | ○ | ◉ | ○ |
| 21 Packaging pharmaceuticals for efficient use | ○ | ◉ | ○ |
| 22 Enforcement of waste collection schemes, including through EPR | ○ | ◉ | ○ |
| 23 CLP includes pharmaceuticals in products, in line with Waste FD | ○ | ◉ | ○ |
| 24 EU guidelines on waste water from hospitals | ○ | ○ | ◉ |
| 25 Monitoring of antimicrobials and AMR microorganisms at discharge “hotspots” | ○ | ◉ | ○ |
| 26 EU funding for advanced water treatment technologies | ○ | ○ | ◉ |
| 27 Innovative MS mechanisms for investment in advanced water treatment | ○ | ○ | ◉ |
| 28 Safe concentrations of pharmaceuticals and AMR microorganisms in waste(water) for agricultural use | ○ | ○ | ◉ |
| 29 Revised Codes of Good Agricultural Practice and BAT under IED | ○ | ○ | ◉ |
| 30 Guidance under CIS for WFD | ○ | ○ | ◉ |

**12. Please provide a brief explanation for your answers on the options, including any proposals for modifying them. Please also explain why you selected certain timescales. When responding, please indicate the number of the option you refer to.**

*1500 character(s) maximum*

All measures involving changes of practices should be straightforward and their effects should be visible in the very short term. Since pharmaceuticals are not entirely biodegradable, once present in the water cycle, they can gradually accumulate and could pose a risk to drinking water resources and aquatic ecosystems. Technologies currently used in waste water treatment plants are not designed to remove pharmaceuticals and their metabolites. Advanced treatment processes exist but they are expensive, energy intensive and often substance-specific: they rarely come out well in cost effectiveness and environmental performances analysis. Innovative technologies and solutions that address these drawbacks are being developed. DVGW recognises that these may prove useful for tackling specific pharmaceuticals or addressing specific local conditions in the long term. The most sustainable and preferred solution however is to prevent pharmaceuticals from entering the water cycle in the first place. Their release should be addressed as a priority at the source, meaning along the different steps that precede their emission, discharge or loss into the aquatic environment.
An important issue to tackle the problem is the role of the pharma industry. A longlife product stewardship has to be accepted. This stewardship should include suppor to find sustainable take-back-schemes for non-used medicines, offering financial support for monitoring schemes to surveil environment etc.

## 5.2 Costs of implementing options

**13. What do you consider the costs of implementing these options would be? Please consider only the direct costs to relevant stakeholder(s) who have to take the relevant measure(s), not "knock-on" costs to other stakeholders that might follow implementation. Please consider the costs in relation to the likely overall budget of the stakeholder; the last line allows you to consider the costs to all stakeholders instead of by stakeholder group (or in addition). The term "Public authorities" includes regulators and public healthcare providers.**

**1 Research on pharmaceuticals in the environment**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**2 Research on pharmaceuticals and AMR**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**3 Promote greener pharmaceuticals design**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**4 Strengthen environmental expertise of EMA and national authorities**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ◉ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**5 Toxicological thresholds for pharmaceuticals publicly available in standardised format**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ○ | ○ | ◉ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ○ | ◉ |

| | | | | | |
|---|---|---|---|---|---|
| Water and waste treatment industries | ○ | ○ | ○ | ○ | ◉ |
| Individual citizens | ○ | ○ | ○ | ○ | ◉ |
| All stakeholders | ○ | ○ | ○ | ○ | ◉ |

**6 System for sharing substance-based ERAs at EU level**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**7 Benefit/risk analysis of ERA results in HMP authorisation**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**8a ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: HMPs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**8b ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: VMPs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**9 Review and revise BREF documents**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**10 Prepare EMAS ref. document**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ◉ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**11 Ensure GMP addresses discharges**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**12 ERA catching up procedure**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ◉ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**13 Update/revision of ERAs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**14 Link need for prescription to supply HMPs to the results of ERAs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ◉ | ○ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**15 National authorities for follow-up and reporting obligations**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ◉ | ○ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**16 Routine dialogue and information exchange on API levels**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**17a Introduce environmental issues in pharmacovigilance for HMPs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**17b Strengthen environmental issues in pharmacovigilance for VMPs**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ◉ | ○ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**18a Relevant pharmaceuticals in WFD watch lists: with AMR microorganisms**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**18b Relevant pharmaceuticals in WFD watch lists: without AMR**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**19 Increased consideration of environmental aspects in education and training**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**20 Information to encourage sustainable use of pharmaceuticals**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**21 Packaging pharmaceuticals for efficient use**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**22 Enforcement of waste collection schemes, including through EPR**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ◉ | ○ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**23 CLP includes pharmaceuticals in products, in line with Waste FD**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ○ | ◉ | ○ |

**24 EU guidelines on waste water from hospitals**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |
| Water and waste treatment industries | ○ | ○ | ◉ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**25 Monitoring of antimicrobials and AMR microorganisms at discharge "hotspots"**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ◉ | ○ | ○ |

**26 EU funding for advanced water treatment technologies**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ◉ | ○ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**27 Innovative MS mechanisms for investment in advanced water treatment**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ◉ | ○ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**28 Safe concentrations of pharmaceuticals and AMR microorganisms in waste(water) for agricultural use**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ◉ | ○ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ◉ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Water and waste treatment industries | ○ | ◉ | ○ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ◉ | ○ | ○ | ○ |

**29 Revised Codes of Good Agricultural Practice and BAT under IED**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ○ | ◉ | ○ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ○ | ◉ | ○ |

**30 Guidance under CIS for WFD**

| | High costs | Moderate costs | Low costs | No costs | Don't know |
|---|---|---|---|---|---|
| Public authorities | ○ | ○ | ◉ | ○ | ○ |
| Pharmaceutical and healthcare industry | ○ | ○ | ○ | ◉ | ○ |
| Water and waste treatment industries | ○ | ○ | ○ | ◉ | ○ |
| Individual citizens | ○ | ○ | ○ | ◉ | ○ |
| All stakeholders | ○ | ○ | ○ | ◉ | ○ |

**14. Please provide a brief explanation for your answers on the costs of the options. Please also specify how you think costs should be distributed among stakeholders. When responding, please indicate the number of the option you refer to.**

*1500 character(s) maximum*

The polluter pays principle should be applied when calculating and allocating the costs. For this reason DVGW supports the Commission idea to evaluate the application of the Extended Producers Responsibility also to pharmaceuticals products as it has been applied already to other products.

## 5.3 Ease of implementing options

**15. How easily do you think these options could be implemented? Please consider the relevant aspects of feasibility; leave blank any aspect you consider not relevant. Capacity-related is intended to cover resource availability and logistical aspects.**

**1 Research on pharmaceuticals in the environment**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**2 Research on pharmaceuticals and AMR**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**3 Promote greener pharmaceuticals design**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**4 Strengthen environmental expertise of EMA and national authorities**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |

| | | | | |
|---|---|---|---|---|
| Social acceptability | ◉ | ○ | ○ | ○ |

**5 Toxicological thresholds for pharmaceuticals publicly available in standardised format**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ◉ | ○ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**6 System for sharing substance-based ERAs at EU level**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**7 Benefit/risk analysis of ERA results in HMP authorisation**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**8a ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: HMPs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**8b ERA adequately considers PBT, endocrine properties, metabolites, degradation products and excipients: VMPs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**9 Review and revise BREF documents**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**10 Prepare EMAS ref. document**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ○ | ○ | ◉ |
| Technical | ○ | ○ | ○ | ◉ |
| Capacity-related | ○ | ○ | ○ | ◉ |
| Social acceptability | ○ | ○ | ○ | ◉ |

**11 Ensure GMP addresses discharges**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**12 ERA catching up procedure**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**13 Update/revision of ERAs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**14 Link need for prescription to supply HMPs to the results of ERAs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ○ | ○ | ◉ | ○ |

**15 National authorities for follow-up and reporting obligations**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |

| | | | | |
|---|---|---|---|---|
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ○ | ◉ | ○ | ○ |

**16 Routine dialogue and information exchange on API levels**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**17a Introduce environmental issues in pharmacovigilance for HMPs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**17b Strengthen environmental issues in pharmacovigilance for VMPs**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**18a Relevant pharmaceuticals in WFD watch lists: with AMR microorganisms**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |

| | | | | |
|---|---|---|---|---|
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**18b Relevant pharmaceuticals in WFD watch lists: without AMR**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**19 Increased consideration of environmental aspects in education and training**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |
| Technical | ◉ | ○ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**20 Information to encourage sustainable use of pharmaceuticals**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |
| Technical | ◉ | ○ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**21 Packaging pharmaceuticals for efficient use**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |

| | | | | |
|---|---|---|---|---|
| Technical | ◉ | ○ | ○ | ○ |
| Capacity-related | ◉ | ○ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**22 Enforcement of waste collection schemes, including through EPR**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**23 CLP includes pharmaceuticals in products, in line with Waste FD**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**24 EU guidelines on waste water from hospitals**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**25 Monitoring of antimicrobials and AMR microorganisms at discharge "hotspots"**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |

| | | | | |
|---|---|---|---|---|
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**26 EU funding for advanced water treatment technologies**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ○ | ◉ | ○ | ○ |

**27 Innovative MS mechanisms for investment in advanced water treatment**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ○ | ◉ | ○ |
| Capacity-related | ○ | ○ | ◉ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**28 Safe concentrations of pharmaceuticals and AMR microorganisms in waste(water) for agricultural use**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**29 Revised Codes of Good Agricultural Practice and BAT under IED**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| | | | | |

| | | | | |
|---|---|---|---|---|
| Legal | ○ | ◉ | ○ | ○ |
| Technical | ○ | ◉ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ◉ | ○ | ○ | ○ |

**30 Guidance under CIS for WFD**

| | Very easily | Moderately easily | Not easily | Don't know |
|---|---|---|---|---|
| Legal | ◉ | ○ | ○ | ○ |
| Technical | ◉ | ○ | ○ | ○ |
| Capacity-related | ○ | ◉ | ○ | ○ |
| Social acceptability | ○ | ◉ | ○ | ○ |

**16. Please provide a brief explanation for your answers on the implementation of the options. When responding, please indicate the number of the option you refer to.**

*1500 character(s) maximum*

We know too little on the environmental impacts of most API and HMP/VMP since ERAs are not available. DVGW supports the idea of speeding up the catching up of ERAs and an extended post-authorisation ERA. In terms of social acceptability for enhanced requirements fpor ERAs we want to stress that from the consumers perspective there is no social acceptability for traces of pharmaceuticals in drinking water nor in the water resources.

## 6. Further information

***If you are responding to both this and the open public consultation, please do not provide the same additional information twice over.***

**17. What aspect of the issue (of pharmaceuticals in the environment) concerns you most?**

*500 character(s) maximum*

The growing presence of pharmaceuticals in water resources calls urgently for a coherent strategy. This strategy has to take the precautionary as well as the polluter pays principle into account. The current focus on end-of-pipe-technologies has to be reversed into a whole-life-cycle-perspective with a focus on emission control.

**18. If you are aware of any options already being implemented in your own country, please mention them and provide details.**

*1500 character(s) maximum*

Various public authorities and stakeholder groups including DVGW prepare consumer information promoting the waste disposal (instead of toilet flushing) of unused pharmaceuticals.

**19. Please feel free to suggest further options, in addition to those included in this questionnaire or mentioned in your answer to Q.18, to address the impacts of pharmaceuticals in the environment. Please indicate the phase of the lifecycle of the option(s) and likely effectiveness, costs and degree of feasibility.**

*1500 character(s) maximum*

**20. We invite you to suggest information sources on pharmaceuticals and the environment (titles of publications and web links are appreciated) in order to increase the evidence base on the topics addressed in this questionnaire.**

*1500 character(s) maximum*

DVGW-Information Wasser Nr. 54: Arzneimittelrückstände im Wasserkreislauf; eine Bewertung aus Sicht der Trinkwasserversorgung (see attached file)

If you wish to submit additional documentation (up to three pages), please upload your file here.

The maximum file size is 1 MB

**ded388e0-11b2-4326-be43-35c8b876e1fb/W_Info_54.pdf**

## Background Documents

Background_Paper.pdf (/eusurvey/files/41a5e4c1-9091-4f11-adf1-e6b92bc1fe05)

Study report (/eusurvey/files/472cd6f7-1c2b-470d-8b6f-582d3a6bcd0b)

Summary_Background_Paper.pdf (/eusurvey/files/f520d2e2-fd04-4651-a5d2-1600fe178f90)

## Contact

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