

## **Discussion highlights: Workshop on the implementation of the Polluter Pays Principle**

Thematic workshop on 29 – 30<sup>th</sup> March 2022

These discussion highlights present the key messages and possible next steps mentioned during the thematic workshop. The workshop was co-convened by the OECD and the European Commission's Directorate-General for Environment. It is part of a series aimed to facilitate the implementation of the economics of the Water Framework Directive in European Member States.

These discussion highlights may not reflect the opinion of the OECD, the European Commission or their Member States.

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## The implementation of the Polluter Pays Principle

### Thematic workshop, 29 – 30 March 2022

### Discussion Highlights

The second thematic workshop of a series aimed to facilitate the implementation of the economics of the Water Framework Directive in European Member States gathered over 100 participants, including government representatives, Directorate Generals (European Commission), utilities and utilities associations, NGOs, and research institutions.

The workshop, co-convened by the OECD and the European Commission - DG ENV, focused on the Polluter Pays Principle. It aimed at:

1. Increasing attention to approaches targeting polluters outside the water and sanitation sectors; raising awareness of water charges inequality across sectors and users.
2. Identifying and disseminating good practices and emerging approaches related to assessing disproportionate costs.
3. Exchanging experiences and knowledge to promote a sustainable, effective and efficient application of the Polluter Pays Principle based on cost recovery assessment.
4. Reflecting on current instruments in place in Member States in relation to the new level of ambition of the European Green Deal.

Speakers with diverse backgrounds shared their experience related to the Polluter Pays Principle and the Water Framework Directive goals. Highlights of the discussions are provided below. The agenda, a background note and speakers' slides are available on the meeting webpage.

### Key messages

#### ***Session 1: How the Polluter Pays principle applies for diffuse pollution. The case of agriculture.***

- The Water Framework Directive has translated into a diversity of approaches and policy instruments to address diffuse pollution (Danish pesticide tax, French pesticide and nitrate fee and Dutch phosphate cap). Some instruments may not be fully aligned with the Polluter Pays Principle.
- Currently, there is a disconnection between water sector challenges and their solution in other sectors. Therefore, when addressing diffuse pollution (as well as other water challenges), a wider scale of analysis is required, where interlinkages with other sector, such as climate change mitigation and adaptation and territorial development, need to be considered. Decision makers in the water sector need to understand other sectors' goals and operation dynamics as well as external factors to identify opportunities for addressing water challenges.

#### ***Session 2: How the Polluter Pays principle applies for diffuse pollution. Extended producer's responsibility. The case of contaminants of emerging concern.***

- A European fund based on contributions from corporates which produce, import or market contaminants of emerging concern (CECs) could be a solution to address diffuse water pollution, under specific conditions. Extended Producer Responsibility (EPR) is most appropriate when it can spur innovation and minimise pollution at source.

- The water sector would benefit from closer collaboration with other sectors such as health and industry to transition from an end-of-pipe approach to a prevention approach for diffuse pollution.
- The geographical scale at which Cost Benefit Analysis are done has implications for the costs and benefits identified. For example, participants indicated the need to consider transboundary issues; think of hydro morphological measures and diffuse pollution.

### ***Session 3: The Polluter Pays principle in relation to disproportionate costs.***

- Member States experience similar issues when justifying disproportionate costs, which relate to data, methods and scale. Site specific data is required, which in general is lacking, in particular non-use value, the quantitative impact (benefits) of measures and reference values. Member States do not have a well-established methodology for assessing disproportionality, therefore there is no clarity on the criteria to use for justification. The geographic and temporal scale selected for carrying out the Cost Benefit Analysis affect the magnitude of disproportionate costs. In addition, the way climate change projections are factored in modify estimation for costs and benefits.
- Several options to justify disproportionate costs were mentioned. The current methodologies, tools and databases need improvement. Mobilising additional sources of funding from other sectors can reduce disproportionately.
- In relation to the next Programme of Measures and disproportionate costs justification, participants indicated several challenges: (1) keeping the motivation required to reach the level of ambition, (2) when increasing monitoring more issues may rise due to having access to updated or new data which was not previously available, therefore more exceptions may be required and (3) Member States have already implemented the most cost effective measures to reduce pollution, therefore the remaining ones may be more costly.
- Participants made it clear that lowering ambitions is not considered an option, as environmental problems will still remain.

### ***Session 4: The Polluter Pays principle and the new Zero Pollution ambition.***

- The revised list of surface and groundwater pollutants will be adopted in September 2022. It contains four groups: pesticides, pharmaceuticals, industrial and metals substances. Once the substances are listed, Member States are required to monitor them and reduce their pollution level to specific thresholds.
- Lack of coherence between Directives limits pollution prevention for water bodies. It challenges the ambition of the Zero Pollution Action Plan.
- In relation to circular economy initiatives, the new regulation on minimum requirements for water reuse for irrigation, to be applied by 2023, is expected to stimulate and facilitate water reuse in Member States.

## **Next steps**

Participants indicated as priority the following next steps:

- Sharing drivers and solutions on the best combination of instruments available to address diffuse pollution across policy areas such as agriculture, energy, climate adaptation and mitigation and other sectors, to incentive a change in farmers' practices.
- A dedicated workshop to explore the wider idea of dedicated European funds to cover the pollution costs from the main pollutants and polluting sectors such as pharmaceutical industry and agriculture.

- Common Implementation Strategy (CIS) to explore the geographic and temporal dimension and implication of economic instruments to address pollution. Such an analysis could include the tools used as well the methodologies, for example, Cost Benefit Analysis at transboundary scale.
- A dedicated workshop on the possibility of anchoring the Extended Producer Responsibility (EPR) to the Urban Wastewater Directive, to allow Member States to subsequently implement EPR in national laws.
- A dedicated workshop to exchange experience on dealing with transboundary benefits when assessing disproportionate costs.
- A dedicated workshop on methodologies for assessing impact of measures.
- A dedicated workshop on sharing good practices among Member States on options for circular economy in relation to re-use water.
- CIS to assess the costs of the missed opportunity for water reuse and sludge management due to water pollution.

## Session 1: How the Polluter Pays principle applies for diffuse pollution. The case of agriculture

Diffuse pollution is one of the main challenges for reaching the Water Framework Directive (WFD) goals by 2027. Despite improvements in water quality, Member States have not reached the required levels. In monitoring sites, pesticides (mainly approved insecticides and herbicides) are present in 13% to 30% of the surface waters, and 3% to 7% of ground waters (mainly atrazine, banned since 2004) (Nödler, Licha and Voutsas, 2013<sup>[1]</sup>). Since 2010, pesticides concentration is stable in European groundwater and surface water bodies (European Environment Agency, 2022<sup>[1]</sup>). Phosphate and phosphorus have decreased in waterbodies due to improvements in wastewater treatment and reduction of phosphorus in detergents. However, a slight increase has been observed in the past years (European Environment Agency, 2022<sup>[1]</sup>).

Diffuse pollution illustrates a deviation from the Polluter Pays Principle application in Member States. The cost of remediation, meaning the cost of treatment necessary to bring abstracted water up to drinking water quality standards, is covered by domestic water users rather than the polluters (or in some cases by irrigators). The WFD has translated into a diversity of approaches and policies instruments to address diffuse pollution (Danish pesticide tax, French pesticide and nitrate fee and Dutch phosphate cap), which in some cases may not be fully aligned with the Polluter Pays Principle, such as payments for ecosystems<sup>1</sup>.

The Scottish Environment Protection Agency has developed an approach to tackle diffuse pollution under its first, second and third River Basin Management Plan (RBMP), achieving 87% of water bodies with at least good water quality in 2021. Under this approach, priority catchments were selected, leading to 6 300 initial farm visits. The selection was based on evidences (water quality level, protected areas and designated areas). The buy-in from farmers was obtained through a combination of measures. At national level, legal minimum standards of performance were established, guidance was provided via communication materials and (subsidised) technical advice was available for farmers. At catchment level, experts monitored compliance with environmental regulation through farms visits. The compliance rate rose from 36% to 54% from the first to the second cycle of RBMP. Farmers had 12 months to fix any problem indicated in the evaluation report detailing breaches. The agro-environment climate scheme under the Rural Development programme provided targeted support to help farmers to go beyond the legal minimum. In many cases, the measures to reduce diffuse pollution required only changes in management practices such as livestock management and buffer zones extensions, which do not need major financial investments from farmers. However, it was needed to make the case between the river pollution level and farming practices to ensure buy-in from farmers.

Participants indicated that from a farmer's perspective soil quality is more relevant than water quality. Therefore, when addressing diffuse pollution from farming, the water community would benefit from including soil quality aspects to reach agreement on measures with the agricultural sector and in particular with the farming community.

Due to the complexity of addressing diffuse pollution, transitional measures or instruments are considered by Member States. For example, Payments for Ecosystem Services can be considered a transitional instrument to reduce diffuse pollution in the long term and they can be a cost effective solution in the short term for water suppliers. However, this instrument should be included in a wider territorial strategy to ensure its effectiveness and structural changes, even after its removal. Another strategy can be progressively increasing pollution standards. For example, in some countries, at the beginning of the diffuse pollution strategy, the government paid farmers for measures implemented on top of compliance rules to stimulate higher standards. In a short time period (around 5 years), these higher levels become

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<sup>1</sup> PES are fully aligned with the PPP when *additional* eco-system services are clearly defined and monitored.

the new standards and farmers had to comply. Previous support is supposed to enhance the rate of compliance when new standards are put in place.

Equity concerns are a common challenge for Member States when addressing diffuse pollution. They can rise when putting in place economic instruments. For example, fairness issues can appear when adding charges on diffuse pollution to the water bill for irrigators to reduce transaction costs. This may not be aligned with the Polluter Pays Principle because (1) all irrigators are paying the charge regardless of their pollution and (2) other polluters such as livestock farms may not be covering their diffuse pollution costs. However, putting in place a more pragmatic solution (for example diffuse pollution charges for irrigators) can be more cost effective than a more precise charge requiring higher level of baseline data and monitoring. Passing diffuse pollution treatment costs to domestic water users through the water bill can compromise affordability.

During the session, participants indicated that only a few countries have put in place economic instruments to address diffuse pollution. Charges on polluters and taxes on inputs are the most common instruments. In relation to taxing fertilisers, several difficulties were highlighted: (1) imported food may not internalise pollution costs, making EU products less competitive and moving pollution outside of Europe; (2) organic farming can produce diffuse pollution from nutrients and it is not covered under this instrument; (3) fertilisers use is not strictly equivalent to pollution, it depends on farming practices and pedo-climatic factors; and (4) in the short term fertilisers use elasticity is low, farmers need to use a minimum to ensure their production under conventional farming practices. Also, participants indicated that legislation and regulatory instruments are needed in combination with economic instruments to tackle diffuse pollution.

External factors to the water and agricultural sector influence pesticides use and indirectly water quality. For example, increase and volatility in energy prices will impact on synthetic pesticides and fertilizers prices in the near future (as well as food commodities). Similarly, higher environmental expectation from citizens as translated by the Zero Pollution Ambition Plan of the Green Deal may impact positively water bodies' pollution.

Participants indicated that countries are addressing diffuse pollution collectively mainly at catchment level or through food territorial plans and food branding/labels. Labelling requires collaboration between farmers and the administration to provide information to consumers.

Currently, there is a disconnection between water sector challenges and their solution in other sectors. Therefore, when addressing diffuse pollution, a wider scale of analysis is required, where interlinkages with other sectors' objectives such as climate change adaptation and mitigation and territorial development are considered and aligned. Decision makers in the water sector need to understand other sectors' goals and operation as well as external factors affecting them to identify opportunities for addressing water challenges. For example, the additional treatment needed to tackle diffuse pollution produces supplementary greenhouse emissions, which need to be taken into account when putting in place national and regional mitigation strategies.

Participants indicated as priority the following next steps:

- Sharing drivers and solutions on the best combination of instruments available to address diffuse pollution across policy areas such as agriculture, energy, climate adaptation and mitigation and other sectors, to incentive a change in farmers' practices.

### ***Resources shared by participants***

- Netherlands, the Task force Agricultural Water Management: <https://agrarischwaterbeheer.nl/content/task-force-agricultural-water-management>

- EurEau: <https://www.eureau.org/documents/drinking-water/briefing-note/4433-briefing-note-on-cooperation-projects-between-water-operators-and-farmers/file>
- Netherlands, food chain initiatives for more sustainable dairy production:
- <https://www.rijkeweidevogelfonds.nl/>
- Netherlands, bringing together the water and agriculture sector:  
<http://www.davidpublisher.com/index.php/Home/Article/index?id=33416.html>

## Session 2: How the Polluter Pays principle applies for diffuse pollution. Extended producer's responsibility. The case of Contaminants of Emerging Concern

Addressing Contaminants of Emerging Concerns comes at a cost. A relevant question in the context of this thematic workshop relates to the allocation of this cost. Extended Producer Responsibility posits that corporates that put harmful substances on the market should be held accountable for the costs of remediation. In that case, corporates and their customers – not water users – cover the cost of pollution control. Participants highlighted that Extended Producer Responsibility should not be applied for point source pollution, which is best addressed through the Industrial Emission Directive.

In Germany, the problem of trace substances can be reduced to a small number of harmful substances, which come from two main industries, notably agriculture (pesticides – herbicides and insecticides) and the pharmaceutical industry. Based on a case study in North Rhine Westphalia, 14 out of the 20 main substances come from these two industries. The three main substances account for more than 81% of total harm and the 10 main substances for 95%.

The German Association of Energy and Water Industries presented their proposal for a fund for financing the treatment of Contaminants of Emerging Concerns. The fund is based on contributions from manufactures and importers of Contaminants of Emerging Concerns for the entire country. Payments into the fund are calculated according to the relative harmfulness of the trace substances. Based on continuous testing, the payment will be adjusted according to the level of trace substances inputs (and new substances appearance). The fund would be used to cover wastewater treatment companies' expansion required to eliminate trace substances, as well as drinking water suppliers' measures to reduce trace substances. The fund would not prescribe any particular technology; therefore polluters would be free to decide the measures to reduce trace substances pollution.

Participants suggested that this type of fund should be applied at European scale, to cover transboundary implications. In addition, other elements should be explored in relation to the fund: (1) to ensure that importers in the EU market contribute to the fund, and (2) to include contaminant sediments as well as other pollution elements in water. In addition, the following limits were indicated: (1) no environmental standards exist for all substances, (2) how to include new substances into the fund, and (3) how to set the fund contribution to incentivise pollution reduction among polluters.

The French water industry presented experience with Extended Producer Responsibility in France. Waste water treatment costs are rising due to historical pollution and Contaminants of Emerging Concern. In addition, users have growing health and environmental concerns, which translate in higher expectations for water quality. French utilities created an industry-wide coordination group to assess the state of play of the sector, develop new ideas and propose solutions to identified challenges. Three options were identified: (1) to balance the current system to ensure cost recovery and enough funding through economic and regulatory instruments (taxes and Extended Producer Responsibility); (2) to create an international fund for water to cover the costs; and (3) to revisit the current economic model by changing its foundation (indicators and funding mechanism) to reflect the current and future challenges (demography, population density, legacy and new pollution, ecological transition, etc.).

Participants indicated that the water sector needs to collaborate with other sectors such as health (DG SANTE) and industry to be able to move from an end-of-pipe approach to prevention. In addition, participants highlighted that Extended Producer Responsibility should consider the pathway of the pollution, and not only the value chain.

As regards pharmaceutical pollutants, health authorities should be informed of the additional costs paid by water users, as well as the additional costs for society in the long term due to supplementary and cumulative environmental and health issues. Solutions which reduce pollution emitted into water bodies,



without compromising the health and treatment results for patients, need collaboration between health authorities, the pharmaceutical industry and the water sector. Education campaigns among medical practitioners and consumers to reduce overconsumption for non-vital medication. Workshop participants mentioned: (1) increasing control on over-the-counter medication, (2) taking into account environmental impacts for non-vital medication approval including monitoring procedure for the substances through the product cycle, (3) current treatment (including wastewater treatment) capacity for the substances, (4) considering contaminants potential cocktail effects and (5) assessing the additional costs required for treatment. However, changing the composition of pharmaceutical products requires several years (more than 6 years on average), from research to market access. It is a similar situation for changing the composition of medication already on the market.

Therefore, a strategy to reduce pollutants into the water should have several components, considering different timescales. In the Netherlands, the introduction of a levy on pharmaceuticals to pay for additional treatment of specific substances has been considered. According to the discussion, charging pollution costs on patients who have to take a particular medicine is not viable from a health perspective, because it encourages them not to use the medicine. In this case, the consumer, meaning the patient, may not be the best entry point for economic instruments due to health and equity concerns. However, the levy should target medicines which have less harmful alternatives. In addition, when considering the levy, it is important to note that most pharmaceutical products are produced outside Europe; this requires measures which can incentivise manufacturers to change the compositions in countries having less stringent regulation.

The discussion highlighted that due consideration should be given to the geographical scale at which Cost Benefit Analysis are performed. Several costs or benefits only materialise at specific geographical scales. For example, participants indicated the need to consider transboundary scale in some instance. This challenge applies to hydro morphological measures as well as diffuse (and point source) pollution. For example, morphological measure for the Haringvliet locks in the Netherlands, which involved opening the lock to allow fish to migrate upstream, would not have been carried out due to its high costs, if only downstream benefits had been taken into account. However, the assessment took into account the benefits upstream as well.

Participants indicated the following next steps as priority:

- Additional research and consultation to explore the opportunity of (a) European fund(s) to cover the pollution costs from the main pollutants and polluting sectors such as pharmaceutical and agriculture. Some participants indicated their interest in exploring the idea of a compulsory financing mechanism for producers of micro pollutants to finance additional waste water treatment capacity. Other participants advocated for compensating sectors affected by pollution (such as those that handle sediments).
- CIS could explore the geographic and temporal dimension and implication of economic instruments to address pollution.
- A dedicated workshop on the possibility of anchoring the Extended Producer Responsibility to the Urban Wastewater Directive, to allow Member States to subsequently implement it in national laws.

### ***Resources shared by participants***

- OECD (2019), Pharmaceutical Residues in Freshwater: Hazards and Policy Responses, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/c936f42d-en>.

### Session 3: The Polluter Pays principle in relation to disproportionate costs

Members States share common issues when attempting to justify disproportionate costs. Firstly, justifying disproportionate costs requires to mobilise important human, financial and technical resources. As an illustration, for its second River Basin Management Plan, France had to carry out 710 Cost Benefit Analyses corresponding to waterbodies or group of waterbodies. Secondly, to justify exemptions, site specific data is required, which in general is lacking. In particular, participants highlighted the lack of data in relation to non-use value, the quantitative impact (benefits) of measures and reference values. Thirdly, Members States do not have a well-established methodology for assessing disproportionality, therefore there is no clarity or consistency on the criteria to use for justification.

France has developed a methodology for the economic analysis of disproportionate cost, based on a tool that facilitates the use of economic analysis at sub-sovereign level. Water agencies use it when preparing the Programme of Measures. The tool is a spreadsheet which links environmental measures, their benefits and costs based on reference values. It was updated in 2014. The tool does the calculation based on the water body information inputted (physical data such as water volume and population). Market benefits are estimated based on wastewater treatment costs saved and non-market benefits are based on population density and population willingness to pay for recreational activities or interest in natural heritage. A 20% error margin is applied based on the assumptions that costs are overestimated and benefits are underestimated. Several difficulties were reported when using the tool: (1) choosing the relevant population to which the benefit unit is applied and (2) accounting for non-quantifiable benefits. Currently, the tool is being updated for the fourth River Basin Management Plans by a group of practitioners and environmental economists. The main goals are to update values for existing benefits and new monetised benefits, make the assessment more robust, and make the tool more user friendly.

The Netherlands indicated that implementing all measures and achieving all objectives in one cycle would be practically impossible due to lack of staff, and to disproportionate cost and affordability issues: a 30% to 40% increase in levies would be required to cover the costs of measures. A less brutal – and more socially acceptable – increase would suffice, if additional delays were provided to achieve WFD objectives. For the third Programme of Measures, EUR 1 500 million will be disbursed between 2021 and 2027 on top of the measures under the Urban Waste Water Treatment Directive and Nitrate Directive. Discussions with the agriculture sector are exploring measures to avoid disproportionate costs. Subsidies to farmers have been identified as a potential source of funding; however only 10% of the measures are eligible. Measures will increase 2.4% on average costs (up to 17% for arable farming) for farmers, further affecting farmers' revenues.

Progress has been made in relation to the ecological status. However, it is not reflected in official data, because of the “one out – all out” rule. It was suggested that exemptions could be attributed per substances instead of per water body, which would increase the number of water bodies in good status.

Several solutions to address disproportionate costs were mentioned. Most of all, pollution prevention and avoidance are the best strategy to reduce disproportionate costs in the future. Mobilising additional sources of funding from other sectors can reduce disproportionality, for example subsidies and eco-schemes from the new CAP. However, careful design of financial support is required to align with the Polluter Pays Principle, if public budgets, including EU funds – and not polluters - are used for remediation activities.

Participants highlighted the difficulty to bring additional sources of funding from other sectors due to misaligned sectoral objectives and trade-offs. Agriculture is a case in point. Further, the discussion highlighted the need to link measures required to reach good status with political agendas such as climate change, to increase opportunities for funding and action.

In relation to the next Programme of Measures, participants indicated the difficulty to keep the motivation required to comply with the WFD. Monitoring capacities improves, more issues may rise due to updated or new data; therefore more exemptions may be required. In addition, Member States have already implemented the most cost effective measures to reduce pollution, therefore pending challenges are likely to be more costly.

Participants suggested the following next steps:

- Further exchange of experience on dealing with transboundary benefits when assessing disproportionate costs.
- A dedicated workshop on methodologies for assessing the impact of measures.

### ***Resources shared by participants***

- France, Tool guidance document <http://temis.documentation.developpement-durable.gouv.fr/document.html?id=Temis-0080405>
- European Court of Auditors, The Polluter Pays Principle: Inconsistent application across EU environmental policies and actions <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=58811>
- Taskforce on Agricultural Management, <https://agrarischwaterbeheer.nl/content/task-force-agricultural-water-management>

## Session 4: The Polluter Pays principle and the new Zero Pollution ambition

The Zero Pollution Action Plan includes targets to achieve the objectives within the different EU laws (related to air, water, marine and others). A revised list of surface and groundwater pollutants will be adopted in September 2022. It contains four groups: pesticides, pharmaceuticals, industrial and metals substances. Once the substances are listed, Member States are required to monitor them and reduce their presence to the specific thresholds. The Commission is not planning to set rules and guidelines to identify the polluters of each substance.

Lack of coherence between Directives limits pollution prevention for waterbodies, and consequently, may affect the achievement of the Zero Pollution ambition. For instance, participants pointed out the discrepancy between Registration, Evaluation, Authorisation and Restriction of Chemical (REACH) EU Regulation and the WFD objectives. Under the REACH regulation, substances' toxicity needs to be proven before use can be limited or banned; therefore remediation will be required ex post to remove pollution from water bodies.

The Zero Pollution Action Plan emphasises the circular economy. Three sets of initiatives were mentioned, which align with WFD ambition. First, Cyprus<sup>2</sup> and the south of Spain (Murcia) were identified as models of waste water reuse, in particular for agriculture. The new Regulation on minimum requirement for water reuse for irrigation, to be applied by 2023, is expected to stimulate and facilitate water reuse in Member States. Second, Ireland is upgrading the first facility to recover phosphorous from wastewater, as part of the Ringsend Wastewater Treatment Plant Upgrade Project, treating approximately 40% of the total public Irish wastewater. The project aims to sustainably treat wastewater for 2.4 million p.e. while achieving the standards of the Urban Wastewater Treatment Directive. The agricultural sector is the target for the phosphorous recovered from the treatment. Third, in the navigation sector, initiatives exist for reusing sediments removed from water bodies to maintain safe navigation. The sediments are re-used in several production processes like construction. Participants highlighted the need to ensure consistency between the definition of pollution in the WFD and the Zero Pollution Action Plan as well as the alignment of the Waste Directive and the possibility of using products from waste water treatment.

Participants suggested the following next steps:

- Sharing good practices among Member States as regards water re-use.
- CIS to assess missed opportunities for circular economy due to water pollution (water reuse and sludge management).

### **Resources shared by participants**

- Netherlands, projects working on circular agricultural economy: <https://www.vruchtbarekringloop.nl/>
- Ireland, the Phosphorous recovery project information, <https://www.water.ie/news/works-progress-on-the-rin/>

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<sup>2</sup> Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

- Netherlands, recovery of substances from wastewater projects: <https://www.kwrwater.nl/en/onderzoek/sustainability-water-cycle-en/sustainable-resources/>
- E-flow management and wastewater, Dinar, A., & Tsur, Y. (2021). The Economics of Water Resources: A Comprehensive Approach. Cambridge: Cambridge University Press. doi:10.1017/9781316678640
- Circular economy for water: <https://www.eureau.org/documents/waste-water/briefing-note-1/3010-briefing-note-on-water-and-the-circular-economy-package/file>
- Sediment management examples of circular economy and NBS, <https://sednet.org/workshop-navclimate-sednet-10-11-feb-2021-2/> Other examples can be accessed via the SedNet website [www.sednet.org](http://www.sednet.org)

## References

- European Environment Agency (2022), *European Environment Agency, Indicators, Pesticides in rivers, lakes and groundwater*, <https://www.eea.europa.eu/ims/pesticides-in-rivers-lakes-and> (accessed on 2022). [2]
- IEA (2022), *IEA*, <https://www.iea.org/data-and-statistics/charts/share-of-russia-in-european-union-and-united-kingdom-gas-demand-2001-2021> (accessed on 2022). [3]
- Nödler, K., T. Licha and D. Voutsas (2013), “Twenty years later – Atrazine concentrations in selected coastal waters of the Mediterranean and the Baltic Sea”, *Marine Pollution Bulletin*, Vol. 70/1-2, pp. 112-118, <https://doi.org/10.1016/j.marpolbul.2013.02.018>. [1]