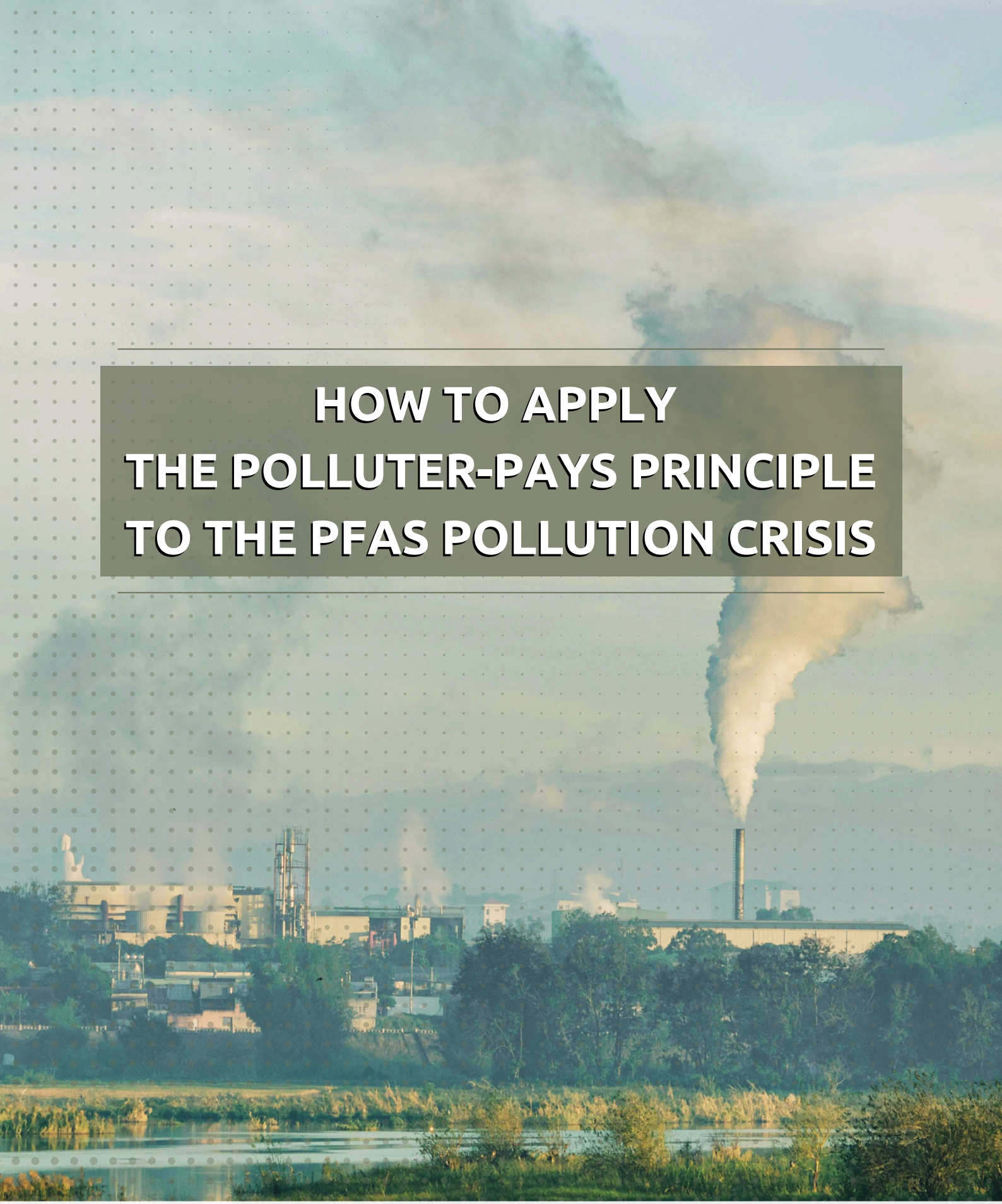

HOW TO APPLY THE POLLUTER-PAYS PRINCIPLE TO THE PFAS POLLUTION CRISIS

Observatoire du principe pollueur-payeur

ClientEarth

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Preamble

The PFAS pollution crisis is a complex challenge that demands a comprehensive, coordinated response, including a fully-fledged funding strategy. To effectively tackle this issue, a combination of policies and tools is essential. Given the significant costs associated with PFAS contamination, the application of the Polluter-Pays Principle (referred below as ‘PPP’) is essential to restore the balance to society and the ecosystems adversely affected by this crisis. This paper explores the various dimensions involved in implementing the PPP, emphasising the need for a robust and comprehensive approach: it outlines the necessary scope of the principle, identifies potential pitfalls, and includes a relevant case study. Our goal is to provide policymakers with practical insights on how to effectively apply the PPP to address the PFAS crisis.

Introduction

The Polluter-pays principle

Where does the PPP come from?

The PPP stems both from the legal concept of liability[1] and from the early 20th-century neoclassical economic theory[2] according to which the internalisation of economic activities' negative environmental and societal externalities should serve as an incentive for polluters to reduce their impact.

"*Polluter-pays*" was first used as a catchphrase by the OECD. It started to promote its implementation in public policies in 1972, initially to prevent states from subsidising companies for pollution reduction[3]. It stated that the polluter should bear the expenses of carrying out the pollution prevention and control measures introduced by public authorities.

The PPP was set out as an economic principle and as the most efficient means of allocating the costs of pollution prevention and control measures so as to encourage the rational use of scarce environmental resources. In economic terms, this constitutes the internalisation of negative environmental externalities.[4]

Since 1972, the scope of the PPP has gradually increased. The principle was extended among others to cover accidental pollution, to indicate that polluters should pay for the environmental damage they caused, irrespective of whether the pollution giving rise to the damage was below legal limits. More recently, it extended from pollution control at the source towards control of product impacts during their whole life cycle (extended producer responsibility). This extended responsibility is based on the assumption that producers have the greatest control over product design and thus over the product's recyclability or toxicity. In sum, the application of the PPP involves preventive, control and remedial measures.[5]

The PPP is well established in OECD and European Union countries, where it has been influencing environmental regulation for more than 40 years. In the European context, as Europe sought to incorporate common solutions to reduce environmental pollution, the PPP emerged in the 1968 "Declaration of Principles" on air pollution control, adopted by the Committee of Ministers of the Council of Europe. Principle 6 on financing states: "*The cost incurred in preventing or abating pollution should be borne by whoever causes the pollution. This does not preclude aid from Public Authorities*."[6] Moreover, the European Community took up the OECD recommendation in its first Environmental Action Program (1973-1976) and then in a Recommendation of 3 March 1975 regarding cost allocation and action by public authorities on environmental matters.

The PPP was later introduced into EU law in 1987 through Article 191(2) of the Treaty on the Functioning of the European Union.[7] It underlies European environmental law, alongside the precautionary principle

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[1] The state of being legally responsible or answerable for one's actions, omissions, or obligations, creating a duty to provide a remedy, often monetary damages, for harm caused. It applies across civil (torts, contracts) and criminal law, linking a person to a legally enforceable outcome.

[2] Alfred Marshall, Principles of economics, MacMillan, 1890 and Arthur Cecil Pigou, The Economics of Welfare, Macmillan, 1920.

[3] Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies of the OECD, adopted on 26 May 1972.

[4] European Court of Auditors, Special Report, The Polluter Pays Principle: Inconsistent application across EU environmental policies and actions, 2021, pp. 6-7.

[5] OECD, Extended Producer Responsibility: A Guidance Manual for Governments, 2001.

[6] Resolution (68) 4, adopted by the Ministers' Deputies on 8th March 1968, approving the "Declaration of Principles on air pollution control".

[7] Article 191(2) of the 2007 Treaty on the Functioning of the European Union (TFEU) establishes that *"Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the*

and the principles that preventive action should be taken and that environmental damage should be rectified at source as a priority.

At the international level, it was introduced through international agreements such as the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) in 1990 and by the UN in the 1992 Rio Declaration on Environment and Development (Principle 16). It is recognised today in several international conventions – multilateral or regional – with both environmental or/and economic objectives.

Implementation in EU law and policies

Article 191(2) of the Treaty on the Functioning of the European Union legally obliges the EU legislator to underpin Union policy on the environment by the PPP.

It has been deployed in several key legislation of European environmental law, such as the Waste Framework Directive (2008/98/CE),[8] the Industrial Emissions Directive (2010/75/EU),[9] the Water Framework Directive (2000/60/CE)[10] or the Environmental Liability Directive (2004/35/EC), which has the purpose to establish a framework of environmental liability based on the PPP to prevent and remedy environmental damage. Under this Directive, the "operator" has duties to take preventive and remedial action and must bear the costs of such action, with some exceptions, such as some environmental damages covered by specific provisions in international treaties or when it is not possible to establish a causal link between the activities of individual operators and diffuse pollution.

According to CJEU jurisprudence, the PPP as developed under the Environmental Liability Directive encompasses holding those who have caused environmental damages financially liable, as an incentive to adopt preventive measures.[11]

Without prejudice to explicit provisions in EU law, Member States have discretion to establish different methodologies and rules for demonstrating the causation link between the behaviour of an operator and environmental harm. Member States may establish regimes of strict liability, reversals of the burden of the proof and legal presumptions for this purpose.

Nevertheless, for the application of the PPP to take place, there must be a causal link between the environmental damage and the activity of the operator; otherwise, the attribution of liability is regulated by national law.[12]

In 2021, the European Court of Auditors analysed the application of the PPP in the EU. The auditors found that "*the Polluter Pays Principle is reflected and applied to varying degrees in the different EU environmental policies and its coverage and application was incomplete*" and recommended the

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Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay."

[8] See the analysis of the European Court Auditors, op. cit. Paragraphs 26 to 31.

[9] See the analysis of the European Court Auditors, op. cit. Paragraphs 19 to 25.

[10] The Article 9 of the Water Framework directive states that "*Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.*"

[11] "*As regards, second, the objectives pursued by Directive 2004/35, it is apparent from reading recitals 2, 8 and 9 together that the directive, pursuant to the 'polluter pays' principle, seeks to hold operators financially liable where, on account of occupational activities posing a potential or actual risk for human health or the environment, they have caused environmental damage, so as to induce them to adopt measures and develop practices to minimise the risks of such damage.*" [Case C-297/19, Naturschutzbund Deutschland — Landesverband Schleswig-Holstein eV v Kreis Nordfriesland, para. 74]

[12] Para. 59 of Case C-534/13.

Commission to "*assess the scope for strengthening the integration of the Polluter Pays Principle into environmental legislation".*

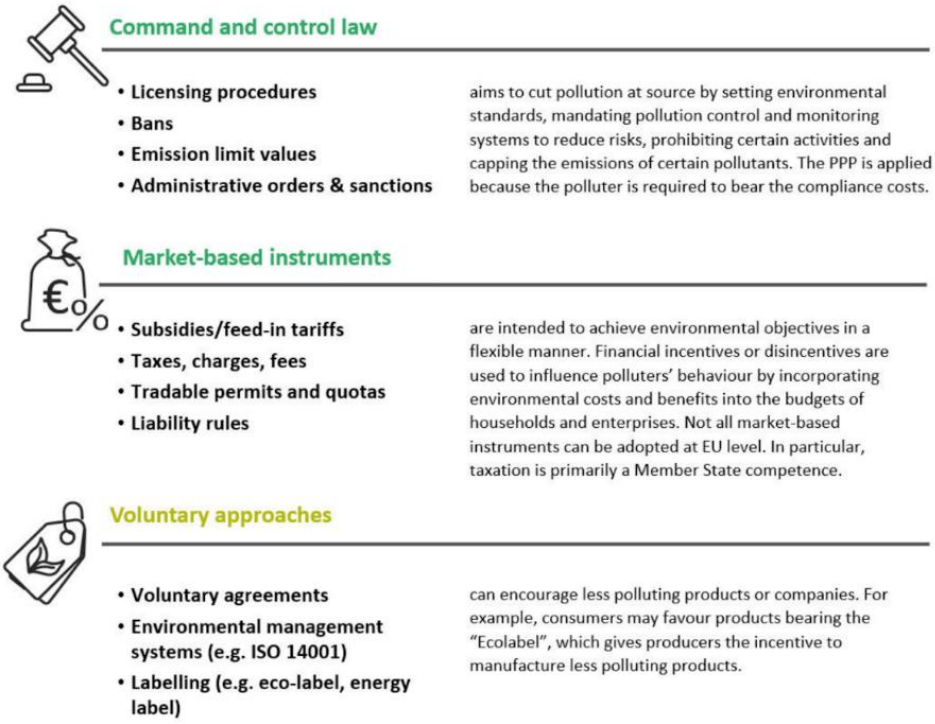
The Commission followed up by launching a fitness check, the final results of which are yet to be published.

What measures and instruments are used to implement the PPP?

The PPP can be applied "a priori", that is, before any pollution has occurred, through taxes, market-based instruments, extended producer responsibility or compensation schemes, including risk-pooling mechanisms. It can also result in the "a posteriori", retroactive coverage of pollution costs, through litigation, administrative claims, or other available legal avenues.

A larger understanding of the PPP includes command and control mechanisms,[13] when they lead to the internalisation of pollution costs by polluters.

Figure 2 – Instruments for implementing of the PPP



Source: ECA, adapted from the European Commission's "Principle of EU Environmental Law, The Polluter Pays Principle".

Ending subsidies to polluting activities (environmentally harmful subsidies) can also be considered as falling under the PPP.[14]

[13] Such as in the European Court of Auditors Special Report, op.cit, or the EU Commission Fitness check on the polluter pays principle.

[14] For example, the EU Fitness Check on the Polluter-pays principle covered both the implementation of the PPP in EU Policies and the EHS.

The case of PFAS pollution

Estimated costs of PFAS pollution

The costs associated with PFAS pollution are staggering, with estimates suggesting that clean-up expenses in Europe could exceed €100 billion per year.[15] Globally, it could even surpass the global GDP.[16] According to the Nordic Council of Ministers, health-related expenditures alone range between €52 and €84 billion per year.[17] These figures likely underestimate the true burden, as additional evidence on the health impacts of PFAS has emerged since the study's publication in 2019.[18] In addition, these numbers only account for pollution that can be measured and monetised. Indirect social costs (lost wages, reduced quality of life, increased stress, etc.) are extensive, yet hard to capture in a cost-benefit assessment.[19]

While the average market price of PFAS is about €19 for each kilogram, the price spikes to about €18,734 per kilogram when societal costs are factored in. Overall, these costs far exceed the expected benefits of keeping PFAS on the market.[20]

Across Europe, new PFAS hotspots are being discovered, and the associated health and remediation costs are routinely externalised onto individuals and local authorities.[21] As a result, water bills are rising, some residents can no longer drink tap water, and others are forced to buy bottled water or stop consuming home-grown vegetables and eggs. This situation leads to a "double injustice": citizens and municipalities are not only exposed to toxic chemicals but must also shoulder the financial and social consequences, ranging from medical expenses, testing and monitoring contamination and rising costs of living to falling property values that leave them trapped in contaminated areas. These issues also disproportionately affect vulnerable populations and low-income communities, who are more exposed to PFAS contamination due to their proximity to polluted areas or through occupational exposure.[22]

Is the PPP currently applied to the PFAS crisis?

Up to now, although the PPP is included in many European laws, it has not yet been translated into systematic EU-wide payment mechanisms that would enable the prevention, monitoring, anticipation or acceleration of pollution clean-up.

In this context, litigation has played a key role in defining its practical application. National courts across Europe have developed case law that shapes the scope of PFAS polluters' responsibilities through the lens of environmental liability. This includes decisions on what types of sanctions are proportionate to

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[15] The Forever Lobbying Project.

[16] Ali Ling, Estimated scale of costs to remove PFAS from the environment at current emission rates, Science of the Total Environment, Volume 918, 25 March 2024.

[17] Gretta Goldenman et al., The cost of inaction, Nordic Council of Ministers, 17 March 2019.

[18] For example, trifluoroacetic acid (TFA), a very small and highly mobile PFAS, is now subject to a classification proposal as it is suspected to damage fertility and the unborn child. The HBM4EU report from June 2022 also suggests that studies with PFDA, PFHxS and PFDoDA indicate developmental neurotoxic effects. For more information, see the PFAS-tox database.

[19] IOM (Institute of Medicine), Cost of Environmental-Related Health Effects: A Plan for Continuing Study, The National Academies Press: Washington, DC, 1981.

[20] For example, the PFAS industry claims that the chemicals' use in consumer goods and industrial applications values the U.S. fluoropolymer segment at $2 billion a year. The NGO ChemSec has also calculated that while the average market price of PFAS is €19 per kilogram, the accurate price would be €18,734 per kilogram if the societal costs were included.

[21] Alissa Cordner et al.,The True Cost of PFAS and the Benefits of Acting Now, Environmental Science and Technology, 7 July 2021.

[22] Daniela Richterová et al., PFAS levels and determinants of variability in exposure in European teenagers – Results from the HBM4EU aligned studies (2014–2021), International Journal of Hygiene and Environmental Health, January 2023.

compensate for PFAS-related damage - ranging from financial penalties[23] to criminal sentences[24]. Courts have also clarified the burden of proof required for residents of contaminated areas to claim compensation,[25] as well as the admissibility of technical evidence which can be used to trace PFAS pollution back to specific companies.[26] In addition, a recent French law introduced a PFAS clean-up fee for water discharges (see case study below).

While these examples mark an important first step toward improving the implementation of the PPP, they also expose the EU's lack of a consistent, harmonised approach. However, recent EU developments, such as the Water Resilience Strategy (4 June 2025) and the Chemicals Industry Action Plan (8 July 2025) have acknowledged the need for decisive action. In particular, while providing clarifications on how it aims to regulate PFAS, the European Commission affirmed that the clean-up must be guided by the PPP, with public funds reserved only for orphan sites where no liable entity can be found.

Putting the PPP in practice to help address the PFAS problem raises several questions: who should pay, how much, and under what circumstances?

[23] In 2022, the Flemish government reached a settlement with 3M over the remediation of the Zwijndrecht site: the company committed to pay €571 million to clean the area around its factory, to compensate local residents and farmers and to cover medical costs. For more information, see "Chemical company 3M to pay 571 million euros to clean up PFOS pollution", Belga, 6 July 2022.

[24] Former leaders from Miteni, Mitsubishi Corporation, and ICIG were sentenced to prison terms ranging from 2 years and 8 months to 17½ years. Civil damages totaled over €75 million euros, including over €56 million awarded to Italy's Ministry of the Environment, €6.5 million to the Veneto Region, and compensation for nearly 300 civil parties composed of private individuals and public entities. The judgment also recognised the joint liability of the convicted executives for future cleanup and environmental restoration costs. See the full judgment here.

[25] In a decision from 2023, the Supreme Court in Sweden ruled that drinking water containing PFAS levels far exceeding the approved threshold value, was a defective product within the meaning of the Swedish product liability act, which implements the European Product Liability Directive. According to the court, evidence of elevated PFAS levels in the claimants' blood - without having to prove a related illness - suffice to constitute a personal injury under Swedish tort law. See the full judgment here.

[26] In a legal case brought by a municipal water company in Uppsala against the Swedish Armed Forces, fingerprinting was used to link the contamination to a nearby military site, effectively ruling out other potential sources. As a result, the Armed Forces were held responsible for the €3.5 million cleanup.

How to properly apply the PPP to the PFAS pollution crisis

Given the extent and the complexity of the PFAS pollution crisis, the implementation of the PPP must involve both the application of existing legislation (especially the Environmental Liability Directive and the Water Framework Directive) and the creation of new instruments.

The following recommendations address both of these aspects in a cross-cutting manner.

What? (are the pollutions that need to be addressed)

1) The PPP should apply to legacy, present and future pollution

- While the assessment of PFAS pollution is still ongoing, it is essential and urgent to allocate substantial financial resources to deal with **legacy pollution with a comprehensive approach** that targets their persistence, bioaccumulation, mobility, diffuse character and toxicity as well as the sources of releases and emissions.
  ⇒ There, the main goal for PPP implementation should be to **cover the costs incurred and continuing to accrue as a result of the pollution (see Table under paragraph 9)** and avoid the situation where impacted communities are burdened with most of the expenses.

- Regarding the **current and ongoing pollution**, resulting from **today's production and use** of PFAS intended for industrial applications and consumer goods manufacturing, the focus of the PPP instruments design should be their efficiency as incentives for companies to prevent pollution.
  ⇒ These payment mechanisms must therefore be implemented in support of a **phase-out approach** and **coordinated with command and control measures**.

- **Future pollution** should also be considered in the implementation of the PPP.
  ⇒ In this case, the attention should be put on covering the costs of the actions needed to reduce the risk of pollution and of applying the precautionary principle.

2) The PPP should apply to both legal and illegal pollution

Exposure to hazardous chemicals can cause **long lasting, sometimes irreversible harm** to human health and the environment. That is **regardless of whether the pollution is technically legal**.

From a legal standpoint, several principles of EU law, found for example in the context of the corporate duty due diligence or under human rights law,[27] support the need to extend the PPP to **legal but unacceptable** pollution.

[27] The duty of care, long rooted in English and Dutch tort law, requires operators to act with reasonable care to avoid foreseeable harm to others. This duty does not disappear simply because a polluter meets regulatory standards; if harm is foreseeable and preventable, the duty persists and can subject an individual or company to liability. In the same vein, a duty of diligence has been increasingly codified in national corporate law (e.g., the French Loi de Vigilance) and in the EU (Corporate Sustainability Due Diligence Directive). It requires companies to identify, prevent, and mitigate risks to human rights and the environment across their value chains, including indirect or downstream impacts. This reinforces the notion that legal compliance is not sufficient where significant harm is proven. Additionally, private actors are indirect holders of human rights' obligations. That comes from the fact that states have positive obligations to protect individuals from violations by private actors, including companies. As a consequence, the state can be held responsible if it fails to regulate or supervise private conduct that infringes on internationally protected human rights, such as the right to health, or the

In the area of chemical pollution, this issue is particularly relevant: many harmful chemicals, including PFAS, cause damage but remain unregulated, or partially regulated.

3) The PPP should apply to both actual or potential (risk of) pollution

Polluters should be responsible not only for the costs of actual damage, but also for the costs of preventing, monitoring and controlling potential harm from risky activities. This idea is supported by the **prevention** and **precautionary principles,** which says that action should be taken to prevent environmental harm, even if there is uncertainty about the risks. Applying these principles to the PPP means that polluters must take **early action** to avoid possible damage - and pay for those preventive measures.

In this way, those who create a risk also bear the financial burden of that risk. Importantly, this includes **addressing not only the hazard but also the exposure**.

Who? (attributing responsibility)

1) The PPP should apply to direct polluters or to contributors

An inherent difficulty to the implementation of the PPP is to pinpoint the responsible actor. In many contexts, it is not only the direct polluter who should avoid damage but also those having contributed to it.[28]

The CJEU has addressed this difficulty in several cases, including in the context of the implementation of the environmental liability directive or of the waste framework directive. In the *Mesquer* case for example, following an accidental discharge of heavy fuel oil from a tanker (C-188/07), the Court considered that liability could extend not only to the direct polluter but also to the producer of the fuel, the seller, and the charterer of the oil tanker, given their respective contributions to the creation of the waste and the associated risk of pollution (para. 77). A producer may be held liable under the PPP only to the extent that their conduct contributed to the risk of pollution occurring (para. 82).

This interpretation highlights that the **polluter's responsibility to pay should apply to all actors whose actions may contribute to the chain of events** that lead to environmental harm. Even if they are not the direct source of the pollution.

This issue is particularly pronounced in the case of PFAS pollution, which is diffuse and often difficult to attribute to a specific site or company.

2) PPP instruments should target both PFAS producers and PFAS users

The primary parties responsible for PFAS pollution are, of course, the producers, i.e. the chemical manufacturers. Nevertheless, to prevent any circumvention strategies and to cover the entire PFAS lifecycle and supply chain, it is essential to establish polluter-pays mechanisms that target both producers and users of PFAS. This means, in particular, that importers, including those selling online, would be affected.

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right to life (also protected in the EU). Already in *López Ostra v. Spain* (1994), the European Court of European Rights (ECtHR) found that Spain violated Article 8, which seriously interfered with the applicant's right to respect for her home and private life. The jurisprudence *Fadeyeva v. Russia* (2005) further shows that even pollution within legal limits can violate rights if it disproportionately affects individuals' health or living conditions.

[28] Case C-378/08, Agusta [2010].

How? (should the PPP apply)

1) PPP instruments should be implemented together with phase-out measures

In economic theory, the PPP allows for simultaneous preventive, control and remedial action. Nevertheless, as stated by the Special Rapporteur on the human rights to safe drinking water and sanitation,[29] "*[The PPP] logically applies to reversible impacts. Irreversible impacts must be avoided through dissuasive fines that clearly exceed the possible benefits of causing the damages. In any case, this principle must be applied from the outset as a preventive instrument, charging the costs of the risk prevention measures to the cause of the risk".* He recommends applying the PPP within the framework of the more general "Principle of no deterioration", which is, notably, already included in the Water Framework Directive.

More broadly, it is important to keep in mind that any monetary estimate is likely to be underestimating the full, long-term costs of PFAS pollution, for various reasons:

- The impacts of PFAS contamination are not yet comprehensively known, and among the known impacts, not all can be measured and monetised.
- The methods used to measure costs, particularly social and societal costs, are questionable in that they produce highly variable results; the risk is therefore that the actual costs will not be internalised due to the choice of a method that underestimates them.[30]
- Valuation methods may not take into account cases of irreversible pollution, uncertainty and threshold effects.

Due to these inherent limitations of the PPP understood as a cost internalisation approach, the PPP should not be considered as a standalone policy. It is particularly necessary to combine various public policy levers and instruments in the case of PFAS pollution, which requires monitoring, control, substitution and phase-out measures for environmental, sanitary but also economic reasons – since the cost of PFAS pollution far exceeds the expected benefits of using PFAS.

2) Several instruments must be combined to avoid loopholes

Various types of polluter pays instruments can and should be studied and mobilised to cover all cases of PFAS pollution:

- **Taxes or Fees**, such as those applicable to chemical manufacturers, importers or users, industrial plants or to water and wastewater treatment. For instance, since 1 July 2017, Sweden levies a special chemical tax on certain electronic articles manufactured or imported. The purpose of this measure is to reduce the presence of hazardous substances in households, and to promote the use of more environmentally and health-friendly alternatives[31].

  Another example is the new fee in France on PFAS water pollution - see the case study below.

[29] Water and economy nexus: managing water for productive uses from a human rights perspective, Report of the Special Rapporteur on the human rights to safe drinking water and sanitation, Pedro Arrojo Agudo to the UN General Assembly 31 july 2024.

[30] "The general failure of proper external cost internalisation", in the Submission from the European Environmental Bureau to the PPP fitness check, August 2023.

[31] Swedish Chemicals Agency (KEMI), Proposal for changes of the chemical tax to replace hazardous substances in electronics, 18 May 2021

- **EPR schemes**, such as the one provided for in the revised Urban wastewater directive, that could evolve to include PFAS among the substances covered by the scheme. Various waste EPR schemes could also eventually include PFAS pollution costs within the waste prevention and end-of-life costs of the products covered (textiles, packaging, EEE,…).
- **Risk-pooling funds** and **standardised environmental liability insurances**: these instruments are particularly necessary to cover cases of bankruptcy.[32] Pooled funds should also be mobilised to cover the cost of cleaning up orphaned sites, in addition to public funds. Health compensation programs, such as the one created in the United States for firefighters PFAS injuries, can also be funded through a PPP taxation scheme.[33]

3) The PPP must be strictly applied and enforced

In order to be effective, the PPP must be properly applied and enforced. This means it must:

- **Take up the challenge of transposition and harmonisation through an EU strategy**

The European Court of Auditors Special Report on the Polluter Pays Principle highlights several key weaknesses in the implementation of the PPP, concluding that it "*is reflected and applied to varying degrees in the different EU environmental policies and its coverage and application [is] incomplete.*" To tackle this issue, which is not specific to the PFAS case, we recommend adopting a coordinated EU strategy covering the whole perimeter described above (points 1-5).

- **Avoid the pitfall of insolvency through risk-pooling funds and insurance schemes**

Beyond the challenges of transposition and harmonisation, most PPP provisions lack financial mechanisms to ensure that polluters pay in cases of insolvency. In many cases, public funds, including EU funds, are used for cleaning up pollution, when the costs should be borne by the operators that caused it. Furthermore, in the case of PFAS pollution, remediation costs are particularly high, as stated above in the introduction. Instruments mentioned in point 7 are therefore crucial for the actual implementation of the PPP to PFAS pollution.

- **Enforce regulation at the EU and national level with adequate upstream funding**

Besides, the effectiveness of the EU's regulation on chemicals is often compromised by the lack of enforcement at national level.

To give an example related to a specific part of EU Chemicals law, in its 2023 Enforcement Project Report in the context of the REACH Regulation (1907/2006/EC), the ECHA Enforcement Forum of EU member state enforcement authorities, found that **40% of companies** subject to the REACH Authorisation regime (manufacturing or using substances of very high concern) and checked by authorities **were non-compliant**– and this figure covers only a portion of all the companies using hazardous chemicals.

Without an adequate level of inspections, oversight, and enforcement of obligations related to the collection of information and reporting, it is easy for operators to pollute the environment and for such

[32] These instruments are also promoted in the context of the Environmental Liabilty Directive: Article 14 of the ELD requires Member States to "*encourage the development of financial security instruments and markets in order to enable operators to use financial guarantees to cover their responsibilities*". Nevertheless, the Court of Auditors found that only 7 Member States require financial security for some or all environmental liabilities, whilst 20 do not. A report by the European Parliament on Improving the Financial Security in the Context of the Environmental Liability Directive concludes that the effective implementation of the Environmental Liability Directive necessitates such liabilities to be insured and therefore recommends that the Commission and Member States carry out the measures to increase the availability of, and demand for, insurance for ELD liabilities.

[33] S.4013 - Firefighter PFAS Injury Compensation Act of 2024.

pollution to dissipate, making it harder both to remediate and to attribute the causation link to individual operators. The insufficient allocation of resources and capacities to the enforcement of chemicals laws in Europe is an important hurdle to the application of the PPP.

Additional resources to better enforce EU regulation are therefore crucial, and they should come from upstream funding instruments, such as taxes or fees on PFAS production and PFAS use. Monitoring and control costs should also be included in EPR schemes.

- **Use the dissuasive effect of criminal penalties**

Lifting the corporate veil in specific instances is also an important measure to ensure polluters pay. The Vicenza Court of Assizes' judgment[34] convicting 11 corporate directors to prison sentences and civil damages for PFAS contamination in the Veneto region sets a powerful example for other Member States and PFAS producers and users across Europe. The court notably imposed joint liability for future cleanup and environmental restoration.

How much? (should the polluters pay)

1) Financial burden must cover all direct and indirect societal costs: prevention, control, health, remediation…

As already pointed out (Introduction 2.2), monetary estimates are likely to be underestimating the full, long-term costs of PFAS pollution. Nevertheless, it is necessary to aim for completeness in identifying the costs to be covered by the PPP instruments:

Prevention costs	Substitution costs
	R&D for PFAS alternatives
	Regulatory and enforcement costs
Monitoring / control costs	Source controls at industrial facilities through wastewater and air emission treatment
	Monitoring PFAS in water, soil, air and biota as well as human biomonitoring
	R&D for PFAS detection
Remediation costs	Decontamination of polluted sites (soils and infrastructure)
	Water decontamination
	PFAS destruction (High-temperature incineration, supercritical water oxidation, electrochemical oxidation, or hydrothermal alkaline treatment)
	R&D
Social costs	Health-related costs
	Supply costs (e.g., provision of temporary uncontaminated water supply)
	Indirect social costs: lost wages, mental health impact, reduced quality of life, increased stress, productivity loss…

[34] E. Chase Dressman, Italian Court Sentences 11 Over Crimes Related to PFAS Contamination, Taft Law, 07 March 2025.

2) Ensuring proportionality

The link between the need to adopt proportionate policies and the PPP was first established by the CJEU in the *Standley* case (Case C-293/97). The Court held that financial burdens arising from pollution must be allocated fairly and reasonably, based on each polluter's actual contribution to the environmental damage. In simple terms, polluters should pay in proportion to the expected or actual harm caused by their activities.

This jurisprudence should however not be interpreted as endorsing a narrow or purely individualised understanding of proportionality. Particularly in the context of PFAS pollution, the scale of environmental and public health harm is so vast that the cost-benefit balance is drastically skewed. In such cases, applying the PPP in a proportionate way will likely lead to a significant financial burden for the responsible actors.

Importantly, proportionality must be assessed not only at the "micro" level - focusing on the local emissions of a single facility and its impacts on the local environment and people - but also at the "macro" level, considering the broader, irreversible and systemic pollution to which a polluter contributes, at present and in the future. Moreover, the polluter's knowledge of the risks should play a key role in the assessment. In the case of PFAS, many companies were aware of the serious environmental and health hazards long before regulatory action was taken.

In this regard, the Miteni trial marks a significant shift in the legal approach to PFAS pollution associated harm. The case moves beyond civil liability and enters the realm of criminal accountability. It reflects the view that criminal sanctions can constitute a just and proportionate response to severe environmental harm. When pollution reaches a scale that disproportionately affects society as a whole, a proportionate application of the PPP may justifiably include a high price, including personal criminal liability, including imprisonment for those responsible.

Case study - Analysis of a proposed PPP instrument for PFAS water discharges

The French PFAS law (Loi n°2025-188 - February 27th, 2025) aims to "*protect the public from the risks associated with perfluoroalkyl and polyfluoroalkyl substances*".

It includes:

- A **ban** on several uses of PFAS (waxing products, cosmetics, clothing textiles, footwear and their waterproofing agents) that covers production, exports and imports.
- Provisions for **a zero-PFAS target** in industrial water discharges
- The anticipation of EU WFD regarding the **monitoring** of PFAS in drinking water
- Provisions for **improved public information**
- A **partial implementation of the PPP** through the introduction of a levy on PFAS discharges into wastewater.

Here, we will focus on the polluter-pays aspect of the law, i.e. Article 4, which introduces a levy on PFAS wastewater discharges.

> *"La redevance due par une personne exploitant une installation soumise à autorisation en application de l'article L. 512-1 et dont les activités entraînent des rejets de substances perfluoroalkylées et polyfluoroalkylées est assise sur la masse de substances perfluoroalkylées et polyfluoroalkylées rejetée par an en raison de ces activités dans l'eau, directement ou par un réseau de collecte. Le seuil de perception de la redevance est fixé à cent grammes. Le tarif de la redevance est fixé à 100 euros par cent grammes.*
>
> *La liste des substances perfluoroalkylées et polyfluoroalkylées sur lesquelles est assise la redevance prévue au premier alinéa du présent IV bis est définie par décret."*
>
> *"The fee payable by a person operating a facility subject to authorisation pursuant to Article L. 512-1 and whose activities result in the discharge of perfluoroalkyl and polyfluoroalkyl substances is based on the mass of perfluoroalkyl and polyfluoroalkyl substances discharged per year as a result of these activities into water, either directly or through a collection network. The threshold for charging the fee is set at one hundred grams. The fee is set at 100 Euros per hundred grams. The list of perfluoroalkyl and polyfluoroalkyl substances on which the fee provided for in the first paragraph of this IV bis is based is defined by decree."*

Article 4 key parameters*	**Comments & points for attention**
Type of fee: a "**levy"**	The new PFAS levy is based upon an existing scheme: an industrial water pollution fee is already levied on other pollutants (phosphorus, nitrites, nitrates, etc.). These fees contribute to the budget of water agencies, which help local authorities to clean up water pollution.
Object: "**wastewater discharges"**	Not all discharges/sources of pollution are addressed (e.g., in air), nor legacy pollution. There is a risk that the provision could be technically circumvented through the conversion of aqueous discharges into gaseous discharges.
Target: "**Industrial plants subject to authorisation"**	Industrial installations subjected only to declaration or registering will not be subjected to the levy.
Scope: "**A list of substances to be defined by decree**"	The scope of the decree depends on the government's political will and risks being limited. For example, if TFA is taken out of the list, the impact of the levy would be strongly reduced. The current delays in adopting the decree show the decree's subjectivity to political dynamics.
Amount of the levy: **100 euros per 100 grams**	Although estimates of the amounts that will be collected vary widely and need to be updated with the new data on wastewater discharges, their magnitude is not close to covering the actual wastewater cleaning costs.

Nota bene: The levy has not yet come into force and these parameters may be modified by subsequent legislation. As part of the 2026 Finance Act, a series of amendments were passed, including a reduction in the fee base for the treatment of aqueous waste, which could significantly reduce both the revenue from the fee and its impact. However, as of January 2026, the 2026 Finance Act has not yet been definitively adopted and these amendments are not currently applicable.

Conclusion

While the PPP has existed for more than 50 years, the PFAS crisis starkly illustrates how critical it remains – and how damaging its improper, or lack of, application can be. Today, the clean-up and health costs of PFAS pollution are staggering, growing, and overwhelmingly borne by citizens.

Because the PPP is enshrined in the EU Treaties, EU policymakers must ensure its effective implementation, as acknowledged in the Water Resilience Strategy and the Chemicals Industry Action Plan. Properly enforcing the PPP is complex, requiring integrated and holistic action.

This paper clarifies who should pay – direct polluters and contributors; for what – past, present, and future pollution, whether legal or illegal; and how much – enough to cover all direct and indirect costs. It also underscores the necessity to combine multiple PPP tools with robust phase-out measures.

Estimates suggest that the global costs of PFAS pollution exceed GDP: if polluters were to bear the full bill, they would face bankruptcy. This alone demonstrates the urgency of turning off the tap and preventing further pollution by implementing a broad universal restriction covering the production and use of all PFAS, for both consumer and industrial uses, with derogations as few, as narrow, and as short-lived as possible.

While this paper outlines the key criteria any PPP application must meet, the case study provided and a recent analysis from Notre Affaire à Tous offer complementary, practical insights through real-world examples. We encourage readers to explore these contributions for a concrete understanding of what effective PPP implementation could look like.