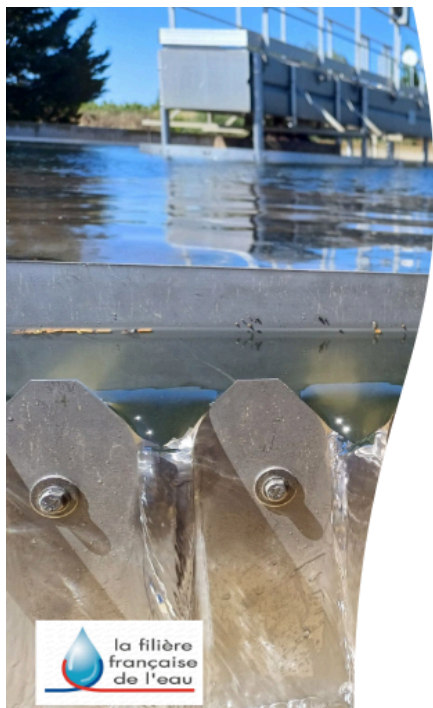




DERU 2 Directive Impact: Cost-Benefit Analysis for France

Executive Summary

September 2026

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Purpose of the Study

Planned within the framework of the Water Sector Strategic Contract, funded by 8 sector stakeholders (FP2E, SIAAP, Banque des Territoires, Syntec Ingénierie, Synteau, Les Canalisateurs, SIET, FNCCR) and conducted by a group of engineering firms (Altereo, SCE, BRLi, Egis Eau with coordination by Setec Hydratec), this study evaluates the technical, financial and environmental impacts of the new sanitation obligations resulting from the revision of the Urban Waste Water Treatment Directive (UWWTD 2). The study was conducted in liaison with the Water and Biodiversity Directorate (DEB), which was consulted and kept informed.

Drawing on multiple databases and various existing works and reports, it compares costs and benefits in order to provide factual elements on the French situation and formulate strategic recommendations for the implementation of UWWTD 2. **The CSF Eau study sheds particular light on the monetization of the associated benefits** of this new regulation, as well as **on the collection component, which until now had not been studied** for France.

A Directive Transforming Sanitation Policy in France

Directive UWWTD 2 (2024/3019/EU) shifts sanitation policy from a technical compliance approach to a **risk prevention, integrated management, and territorial resilience approach**. In this respect, it constitutes much more than a strengthening of discharge standards and must be tackled comprehensively. It imposes several major new categories of obligations on Member States, with progressive deadlines from 2033 to 2045. For France, the major areas of progress are:

- Integrated **Urban Wastewater Management Plans** (IUMP), with an indicative target to reduce discharges due to storm weather to 2% of the collected load, calculated relative to dry weather flow;
- Lowering the **mandatory collection threshold** to 1,000 Population Equivalent (PE) (vs. 2,000 PE today);
- **Enhanced tertiary treatment** of nitrogen and phosphorus beyond sensitive areas;
- Quaternary treatment of micropollutants (2045 deadline), funded in majority by Extended Producer Responsibility (EPR, to be established before 31/07/2027);
- **Energy neutrality** of treatment plants by 2045;
- **Circular economy**: reuse of treated wastewater (REUT), recovery of sludge and nutrients;
- **Improvement of access to public sanitation** (for all, particularly vulnerable and marginalized groups).

Note: Although having broadly implemented the requirements of UWWTD 1 from 1991, France still does not comply for 3% of its agglomerations: **78 agglomerations are subject to European infringement proceedings** and 610 are in a state of non-compliance. France must first catch up on this delay.

Costs and Benefits: An Economically Justified Directive with Major Benefits

The investment effort (CAPEX) is estimated at **€1.84 billion/year** (€25.6/inhabitant/year) over the 2028-2045 period, plus an additional **€0.185 billion/year** in operating expenditure (OPEX, excluding additional energy, assuming this will be offset by sobriety and efficiency gains: activated carbon for quaternary treatment, reagents for tertiary treatment, analytical monitoring). The dominant cost item (68%) is storm weather discharge management. This component also remains the one with the highest level of technical and regulatory uncertainty, notably due to the still unfinalized methods for calculating and monitoring the 2% criterion.

In comparison, annual benefits are estimated at **€3.08 billion/year** (€44.6/inhabitant/year), divided into 7 categories: preservation of ecosystem services (42%), coastal and bathing management (34%), reduction of eutrophication (12%), energy neutrality (7%), circular economy and small agglomerations (5%).

These benefits represent a low estimate, corresponding to the main benefits that could be monetized at the national level; benefits that are difficult to monetize, delicate to distribute, and non-extrapolable are not included in this evaluation. The French Water Sector recommends studying benefits at the local scale.

*Note: the €/inhabitant/year metric is used for indicative purposes to make the orders of magnitude clear. It does not prejudge the distribution of funding between the various sources: all costs will not be borne by the user (micropollutant EPR is funded by producers, stormwater falls under general local authority budgets, and residents not connected to collective sanitation are not affected by certain items). **Benefits related to climate resilience, long-term health effects, diffuse recreational uses, and heritage effects on aquatic environments remain partially undervalued at this stage.***

Cumulative benefits exceed costs starting from 2045 (positive "scissor effect," provided actions are taken without delay - see chart below). The resulting IRRs are minimum IRRs, as not all benefits could be monetized. Furthermore, the additional cost of inaction is estimated at a minimum of €0.1 billion/year (additional costs for drinking water treatment, biodiversity degradation, tourism losses, European fines).

Key Transposition Issues

Transposition into French law will have to resolve several structural questions:

- **Precision regarding the "maximum 2% discharge (to the receiving environment) during storm weather" criterion:** according to the directive's terms, this is a non-binding indicative target, covering discharges due to storm weather and calculated relative to dry weather flow (*note that the current French 5% criterion is calculated relative to storm weather flow: the two criteria are not calculated on the same basis*). Source control water management (nature-based solutions, de-paving) is a major lever to achieve this target, but it requires a partnership approach extending beyond sanitation authority alone (urban planning, roads, green spaces, private developers). Insufficient pace on these actions risks steering choices toward storage/restitution infrastructure, which is less relevant in the long term.

Its translation into French law (calculation method, monitoring, reference duration) and its implementation in IUMPs will dictate the compliance cost—between €12 and €27 billion depending on whether aiming for 5% or 2%. Uncertainty on this criterion alone represents the directive's largest budget item.

- **National zoning of priority areas:** it defines the scope of application for IUMPs, quaternary treatment, and investment prioritization. This is the first regulatory act to be issued.
- **Rapid and effective setup of micropollutant EPR** to finance at least 80% of CAPEX and OPEX for quaternary treatment (~€5 billion investment + €200M/year operation in total). It is necessary to swiftly define the competent EPR organization and the authorization of the Water Agency to fulfill this role.

The major contribution to water funding will remain the "water pays for water" system. This does not mean, however, that all funding must pass through the user: UWWTD 2 mobilizes three complementary sources:

1. water tariffs (user fees),
2. taxes and public subsidies (Water Agencies, general budget for stormwater),
3. micropollutant EPR applying the polluter-pays principle.

The borrowing capacity of local authorities constitutes an additional limiting factor, particularly for smaller ones.

- **Central role of Integrated Urban Wastewater Management Plans (IUMP):** beyond their own cost (~€300M), IUMPs represent the planning and programming tool determining the success of the entire directive—stormwater management, action prioritization, collection/treatment coordination, nature-based solutions (NBS). IUMPs also serve as the main lever for territorial prioritization and investment sequencing to avoid over-sizing or premature investments.
- **Carbon footprint of the directive:** A decarbonization strategy should be integrated when selecting solutions. As an illustration, under the assumptions of this study, chemical reagents for quaternary treatment (granular activated carbon) generate between 179,000 tCO₂eq/year (low range) and 474,000 tCO₂eq/year (high range), with the latter exceeding the 200,000 tCO₂eq saved through energy neutrality. These values are, however, heavily dependent on the feasibility of reactivating granular activated carbon after use. Developing a European reactivation network for this consumable would significantly reduce emissions associated with this treatment step. This analysis calls for a systematic Life Cycle Assessment (LCA) approach and prioritizing nature-based solutions, energy sobriety, and low-carbon intensity solutions.

Recommendations

The cost of inaction is higher than the cost of action. In order to capture all expected benefits, it is necessary to plan and define the various obligations as early as possible, implement all planned provisions, and refine certain evaluations.

Need to swiftly establish the "rules of the game": prompt and ideally simultaneous publication of all regulatory texts will enable timely implementation, action planning, and faster emergence of associated benefits.

No.	Recommendation
1	Publish all priority areas and applicable rules simultaneously , by 31/07/2027 at the latest (transposition date). Otherwise, local authorities will not be able to commit based on incomplete obligations alone.
2	Smooth out works to avoid an investment wall in the mid-2030s (UWWTD 1 backlog, aging infrastructure, UWWTD 2 impact); prioritize planning for non-compliant UWWTD 1 agglomerations.
3	Complete national databases (collection and treatment) through collaborative work with stakeholders; establish a regular, pragmatic, and non-time-consuming reporting process.
4	Specify the terms of the 2% criterion and its monitoring (e.g., transition to 5% by load then 2% in priority areas, in connection with current French regulations and based on IUMP and sensitive area conclusions), accounting for climate change.
5	Define clear and simple calculation rules: - dry weather calculation method, - energy neutrality calculation, - tertiary treatment definition
6	Specify terms for agglomerations between 1,000 and 2,000 PE requiring collection system implementation (inhabitant/ha ratio + techno-economic calculation) while maintaining the option for local assessments for communities desiring them.
7	Decline the energy neutrality target at the local level by allowing local authority pooling to facilitate inter-territory collaboration.
8	Provide additional financing mechanisms for strict stormwater infrastructure works (not covered by sanitation service budgets).

No.	Recommendation
9	Accelerate IUMPs, network works, and rural–urban complementarities , building upon master plans for sanitation and stormwater and Water Agency contracts.
10	Anticipate employment and training needs to address FTE or engineering skill shortages across the entire Water sector value chain.
11	Integrate a decarbonization strategy when selecting solutions. Under the assumptions (conservative on this aspect) of this study, the carbon footprint of UWWTD 2 appears negative if granular activated carbon is not reactivated; LCA of chemical reagents and adoption of alternatives (bio-based/reactivable carbon, ozonation, UV) are necessary.
12	Prospective studies regarding benefits : launch three to four key studies to solidify the Cost-Benefit Analysis (CBA): LCA of chemical reagents (including GAC), study of the UWWTD 2 attribution coefficient on the INERIS value, validation of N & P fluxes based on NAIADES.
13	Structure CBAs into a 3-level portfolio (macro-national, by obligation family, by river basin) and carry out localized CBAs by river basin for the 6 water agencies, and if possible at the local scale.
14	Drive a national sanitation plan similar to or complementing the Water Plan.
15	Reconnect the general public with natural water—rivers, groundwater, and oceans—through efficient sanitation services and easily accessible information.

The Water Sector Strategic Committee (CSF Eau) would like to thank the monitoring committee, composed of Laurent Viviani (member of the CSF Eau Board, Carso Group), Jean-Pierre Hangouet (SUEZ Group) and Patrick Faisques (Permanent Delegate of the sector, VEOLIA Group), as well as Frédéric Maurel (Syntec Ingénierie / Setec Hydratec), coordinator of the study, all the writers (Béatrice de Abreu (BRLi), Benoît Marduel (Altereo), Emmanuel Rochais (SCE), Michel Allari (Egis)), the twenty or so members of the steering committee and all the contributors who shared their expertise, data and reports.

This study was funded by:



Banque des Territoires :

À propos de la Banque des Territoires La Banque des Territoires est l'un des métiers de la Caisse des Dépôts. Elle réunit les expertises internes à destination des territoires. Porte d'entrée unique pour ses clients, elle œuvre aux côtés de tous les acteurs territoriaux : collectivités locales, entreprises publiques locales, organismes de logement social, professions juridiques, entreprises et acteurs financiers. Elle les accompagne dans la réalisation de leurs projets d'intérêt général en proposant un continuum de solutions : conseils, prêts, investissements en fonds propres, consignations et services bancaires. En s'adressant à tous les territoires, depuis les zones rurales jusqu'aux métropoles, la Banque des Territoires a pour ambition de maximiser son impact notamment sur les volets de la transformation écologique et de la cohésion sociale et territoriale. Les 37 implantations locales de la Banque des Territoires assurent le déploiement de son action sur l'ensemble des territoires métropolitains et ultra-marins. Agir ensemble pour développer des territoires plus verts et plus solidaires. BanquedesTerritoires.fr

Les Canalisateurs

Les Canalisateurs, organisation professionnelle membre de la Fédération Nationale des Travaux Publics, fédère 350 entreprises de toutes tailles, spécialisées dans la pose et la réhabilitation de réseaux d'eau potable, d'eaux usées et pluviales, d'irrigation, de gaz et fluides divers, qui emploient 35 000 salariés. 2e syndicat de spécialité de la FNTP, l'organisation a pour objectif de défendre et promouvoir les intérêts de ses membres qui œuvrent pour la modernisation et la rénovation de ces infrastructures, garantissant ainsi la préservation de ce bien commun essentiel à tous. Son organisation en délégations régionales lui permet de maintenir des liens de proximité et de disposer d'une vision locale.

www.canalisateurs.com / <https://www.linkedin.com/company/canalisateur>

CARSO

CARSO a été créé en 1992 par une scission du Centre National des Sciences de France en tant que spécialiste de l'identification des polluants organiques (dioxines). Basée en France, l'entreprise a élargi au fil des ans son expertise pour couvrir une large gamme de services de tests de sécurité publique. Avec plus de 3 300 employés, 80 sites en Europe et 70 millions de tests réalisés chaque année, le groupe CARSO est aujourd'hui un des leaders européens dans le domaine des prestations analytiques au service de l'industrie dans les secteurs agroalimentaire, santé & environnement, pharmaceutique et cosmétique, hygiène industrielle & santé du bâtiment, énergie & mines et expertise judiciaire. CARSO est une société d'ARCHIMED (www.archimed.group).

www.groupecarso.com

FNCCR

La Fédération nationale des collectivités concédantes et régies est une association de collectivités locales entièrement dévolue à l'organisation et à l'amélioration continue des services publics locaux (énergie, eau, numérique, déchets).

Organisme représentatif, elle regroupe à la fois des collectivités (communes, communautés, métropoles, syndicats, départements, régions...) qui délèguent les services publics et d'autres qui les gèrent elles-mêmes (régies, SEM, coopératives d'usagers...). Elle rassemble plus de 800 collectivités regroupant 60 millions d'habitants en France continentale mais également dans les zones non-interconnectées et les territoires ultramarins. »

FP2E

La Fédération Professionnelle des Entreprises de l'Eau regroupe les entreprises assurant la gestion des services d'eau et d'assainissement en France après mise en concurrence. Ses adhérents sont : Veolia, Suez, Saur, Sogedo et Aqualia France. En cohérence avec sa raison d'être, la FP2E s'efforce d'apporter aux différentes parties prenantes (élus, associations de consommateurs, autorités publiques, ONG, journalistes...), un éclairage professionnel sur les thématiques de l'eau, en particulier les enjeux émergents au plan sanitaire et ceux liés à l'adaptation au changement climatique.

SIAAP

Le SIAAP (Syndicat Interdépartemental pour l'Assainissement de l'Agglomération Parisienne) est le service public industriel qui traite 71/7, 24H/24 les eaux usées, pluviales et industrielles de l'agglomération parisienne. Grâce à ses 481 km de collecteurs, ses 6 usines d'épuration et à l'action de ses 1800 agents, il contribue à protéger l'équilibre écologique de la Seine et de la Marne et à préserver l'environnement pour plus de 9 millions de Franciliens.

SIET

Le SIET est le syndicat professionnel qui rassemble les industriels exerçant une activité de conception, de fabrication, distribution des équipements du traitement et de l'analyse de l'eau. Syndicat membre de l'UIE (Union des industries et entreprises de l'eau), le SIET accompagne ses adhérents dans le suivi des évolutions réglementaires du secteur et porte leur voix auprès des institutions. Site web : www.siet-info.com

SYNTEAU

Le Synteau, Syndicat national des entreprises du traitement de l'eau, est une association professionnelle qui rassemble des entreprises de toutes tailles spécialisées dans la conception et la construction d'installations de traitement de l'eau : usines d'eau potable, traitement des eaux usées municipales et industrielles. Le Synteau, membre de l'UIE (Union des industries et entreprises de l'eau), fédère ses adhérents autour de projets communs et assure leur représentation auprès des institutions publiques et privées, tant aux niveaux français qu'europpéen. Site web : www.synteau.com

Syntec-Ingénierie :

Avec près de 400 entreprises adhérentes et 13 délégations régionales, Syntec-Ingénierie est la fédération professionnelle de l'ingénierie. Elle fédère les entreprises de prestation intellectuelle scientifique et technique au cœur des enjeux environnementaux, industriels et d'aménagement des territoires. Syntec-Ingénierie a pour missions de porter la voix de la profession, d'être l'interlocuteur de confiance de la puissance publique et des donneurs d'ordres privés, d'anticiper les changements et être force de propositions, et enfin d'accompagner les entreprises d'ingénierie dans les grandes transitions. En janvier 2024, Syntec-Ingénierie s'est dotée d'une feuille de route stratégique à horizon 2029 en 4 axes : transition écologique et énergétique, transition numérique, nouvelle donne industrielle et talents. Avec [Un autre monde est atteignable](#), Syntec-Ingénierie entend fédérer toute la profession en vue d'accélérer les grandes transitions.

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Planned as part of its strategic sector contract 2024-2027, the cost-benefit impact study of directive 2024/3019/EU (UWWTD 2) in France covers 5 of the 6 pillars of UWWTD 2 (excluding Art. 15 Circular Economy) and 2 cross-cutting axes (benefits and recommendations).

Launched in January 2025 and conducted by 5 engineering consultancies, it draws upon multiple databases and various pre-existing or ongoing works and reports.



About CSF Eau:

Created on May 28, 2018, by the Prime Minister and attached to the National Council of Industry, CSF Eau is a tripartite body bringing together the State, businesses, and employee representatives. Its mission is to establish a strategic dialogue to guide the industrial recovery of the sector, formalized in a 2024-2027 sector contract.

Chaired by Xavier Girre (SUEZ), the committee brings together public and private stakeholders in drinking water, sanitation, and wastewater reuse. It relies on the association "La filière française de l'eau" for the operational implementation of its initiatives.

In France, the sector unites over 5,000 companies, 125,000 direct and indirect jobs, and generates a turnover of 22 billion euros, 36% of which comes from exports. This recognized expertise currently serves 128 million people with drinking water and 112 million with sanitation worldwide.