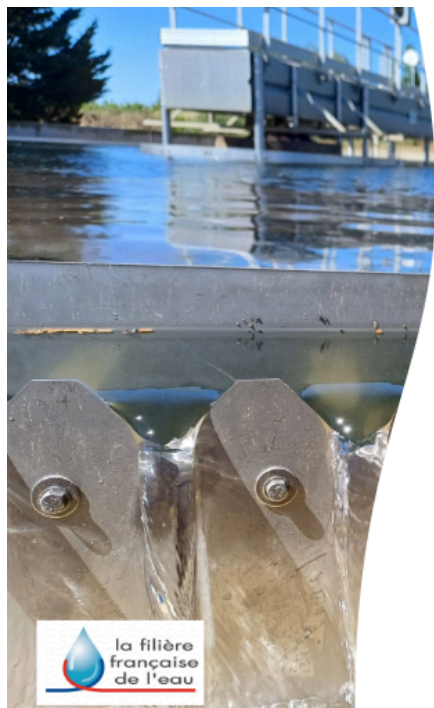




DERU 2 Directive Impact: Cost-Benefit Analysis for France

DERU 2 Directive Impact: Cost-Benefit Analysis for France

Summary

September 2026

Synthesis

1. Context and purpose of the study

The European UWWTD 2 directive (2024/3019/EU of November 27, 2024) recasts the 1991 directive on urban wastewater treatment. It imposes new obligations on Member States, with transposition into French law scheduled by mid-2027.

The study, included in the CSF Eau / State sector contract signed in 2024, was funded by 8 actors in the French water sector (FP2E, SIAAP, Banque des Territoires, Syntec Ingénierie, Synteau, Les Canalisateurs, SIET, FNCCR) and carried out by 5 engineering offices (Altereo, SCE, BRLi and Egis Eau with the coordination of Setec Hydratec).

It aims to:

- **quantify the technical and financial impacts** of the new obligations on French collection and treatment systems;
- **evaluate the expected benefits** (environment, health, economy) and compare them with the costs;
- **formulate recommendations** to inform transposition and implementation choices.

The study was carried out in 3 phases: a scoping, data collection and preliminary analysis phase (completed in October 2025); a technical and financial analysis and cost-benefit analysis phase (completed in February 2026); and a synthesis and report writing phase (May 2026).

The data used are mainly the SANDRE/Roseau databases (4,566 plants), INSEE data, the IGEDD report (2025), the INERIS study (2020) on micropollutants, the European Commission's Impact Assessment (2022), supplemented by specific collection from Syntec-Ingénierie members and data from members of FP2E and FNCCR (on a sample of 165 systems; the collection was carried out anonymously, on past data, and used in an aggregated manner), on which the study focuses particularly.

2. New regulatory obligations

The table below summarizes the six categories of obligations introduced by the UWWTD 2, with their deadlines and scope of application in France.

Article	Obligation	Threshold AA = Sanitation Agglomerations STEU = Wastewater Treatment Plants	Deadlines
Ann. V	Integrated Urban Wastewater Management Plans (IUMP) + indicative objective 2% discharges due to storm rain	AA ≥ 100,000 PE (systematic); AA ≥ 10,000 PE (if risk)	Plans 2033; objective 2% → 2039/2045
Art. 3	Collection and secondary treatment from 1,000 PE	AA ≥ 1,000–2,000 PE	2035
Art. 7	Enhanced N & P tertiary treatment	AA ≥ 10,000 PE in sensitive areas and AA ≥ 1,000 in case of identified risks (environmental or health issues)	2033 (20 %) → 2045 (100 %)
Art. 8	Quaternary micropollutant treatment + EPR (80%)	STEU ≥ 150,000 PE (then > 10,000 PE in at-risk areas)	2033 (20 %) → 2045 (100 %)
Art. 11	Energy neutrality of WWTPs	≥ 10,000 PE	2030 (20 %) → 2045 (100 %)
Art. 15	Circular economy: Water reuse, sludge/nutrient recovery	All systems	Evaluation from 2028

Starting point: sanitation services perform annual operations to maintain the level required for UWWTD 1 compliance: sanitation master plans, operation and renewal of facilities, consideration of developments. However, 3% of the 24,500 French agglomerations (within the meaning of UWWTD) are lagging behind UWWTD 1: 78 in active European litigation, 610 in breach of obligations, and prove to be an unfavorable basis for transposition. Furthermore, UWWTD 2 compliance work will sometimes impose temporary degraded operation.

The rapid definition of rules by the State and planning are two essential points for meeting this directive's deadline.

3. Results - Impact on collection

3.1. Integrated Urban Wastewater Management Plans(IUMP)

IUMPs are made mandatory for agglomerations $\geq 100,000$ PE (before 2033), then $\geq 10,000$ PE in combined or mixed networks, or located in a health/environmental risk area (before 2039). They must be revised every 6 years.

The average cost of producing IUMPs is estimated at **~€5.5 excl. tax/PE** (diagnostic studies, modeling, programming). This is an "average of all sizes combined", with significant dispersion depending on the size of the agglomeration. Extrapolated, this amount leads to global investments of:

Hypothesis	Agglomerations (number)	Estimated cost
Case 1 - Excluding sensitive areas	501	~€225M excl. tax
Case 2 - Including N and/or P sensitive areas (<i>most likely</i>)	707	~€288M excl. tax

The human resources challenge is significant: case 2 represents ~660 man-years of engineering by 2033 (~83 FTE), then ~2,215 man-years from 2033 to 2039 (~220 FTE); a portion replaces Sanitation Master Plans, which will accumulate with other studies related to UWWTD 2. The engineering sector must strongly mobilize to anticipate needs in terms of jobs and training.

Beyond their own cost, IUMPs are the structuring tool of UWWTD 2: it is through them that investments in reducing discharges due to storm rain (the largest budget item) will be programmed, that collection and treatment components will be articulated, and that the territorial compliance strategy will be defined. Their quality determines the success of the entire directive.

3.2. Lowering the collection threshold to 1,000 PE

UWWTD 2 extends the obligation for collection and treatment to agglomerations of 1,000 to 2,000 PE (currently not subject to collective sanitation). Approximately 260 to 290 municipalities are concerned, for an estimated cost of ~€1.6 billion excl. tax (collection + treatment) - if they had to be fully equipped with collective systems - and an associated engineering need of ~1,022 man-years (~102 FTE by 2035).

In practice, the concerned municipalities have very low densities (< 15 inhab/km²). Non-collective sanitation often remains more technically and economically relevant there. The study recommends maintaining the possibility of carrying out a technical-economic analysis (zoning study) in territories where it would make sense and keeping the indicative density threshold of the directive of 10 to 25 PE/ha for the connection obligation.

3.3. Reduction of discharges due to storm rain (2% objective)

This is the **heaviest and most uncertain item** in the transposition of the directive. Annex V sets a non-binding indicative objective of reducing wastewater discharges due to storm rain to 2% of the annual collected load, calculated relative to the dry weather flow. The **exact translation of this criterion into French law remains to be defined**: method of calculation, reference duration, flow or volume criterion, frequency of control. It is also necessary to have the result of the definition of sensitive and at-risk areas, and the completion of IUMPs, which will allow fixing this percentage (which will then become mandatory), and the associated investment plan. This uncertainty weighs heavily on cost estimation.

The study distinguishes two compliance stages:

Stage	Objective	Estimated cost	Comment
First stage	Achieve 5% reduction	~€12.3 billion excl. tax	First step, relatively consistent with current French regulation
Second stage	Go from 5% to 2%	~€15.2 billion excl. tax	Much more expensive, depending on conclusions on IUMPs and sensitive areas
Total	2% objective	~€27.5 billion excl. tax (±€8 billion) (±8 Mrd€)	For 374 agglomerations, including 29 ≥ 100,000 PE by 2039

The uncertainty (±€8 billion) mainly stems from the lack of knowledge of current discharges and the imprecision of the calculation criterion. The default assumptions used in the study take into account that the rules are not yet known.

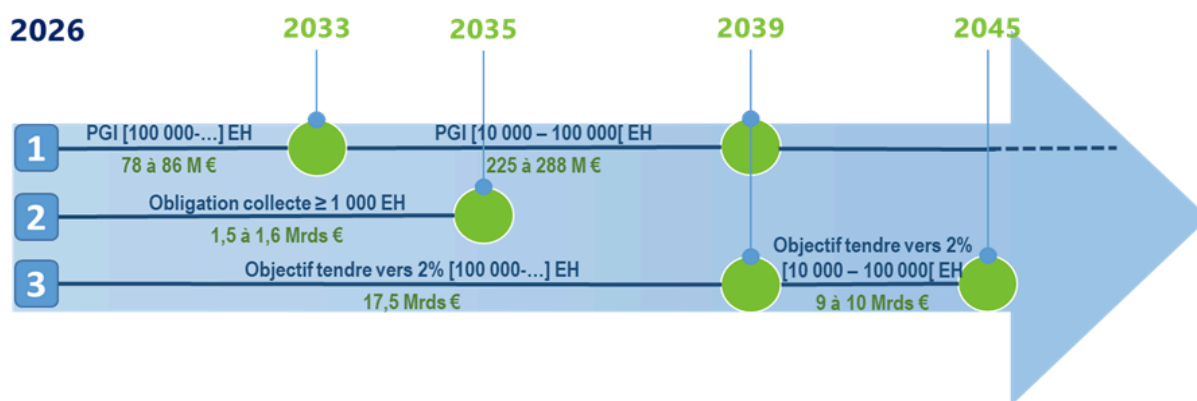
The study recommends a two-stage approach: first aim for 5% on all agglomerations (note that the current 5% of the order of 07.21.2015 in rain weather is not equivalent to the 5% in dry weather of UWWTD 2, which is more demanding), then target 2% as a priority on critical areas (sensitive areas, bathing waters, degraded water bodies or impacting downstream use), taking into account climate change. This progressive approach would allow smoothing the financial effort and capitalizing on feedback, particularly that of the 2024 Olympic Games on the quality of urban bathing water (concerning the "perennial all year" part of the measures taken).

Major uncertainty: national data on rain weather discharged flows are very sparse (Roseau database incomplete on discharge structures and on flow data themselves). The study is based on a sample of 165 systems, extrapolated to the national scale - uncertainty margins are estimated at ±30% by the study group. The high uncertainty on discharged BOD5 flows calls for a significant effort in monitoring, especially since measurement methods in some discharge structures can prove complex.

Synthesis on the "collection" component

Component	Estimated envelope	Expected benefits
IUMP	~€288M excl. tax	Planning, overall discharge reduction, integrated management, consideration of climate change
Collection $\geq$ 1,000 PE	~€1.6 billion excl. tax	Local health, protection of water intakes
discharges due to storm rain (2%)	€12 to 27 billion excl. tax	Bathing water quality, tourism, public health, biodiversity
Total collection	~€14 to 29 billion excl. tax	

Échéances et enveloppes économiques : frise avec échéances temporelles



4. Results - Impact on treatment

Introductory clarification: the average "CBPO" (Gross Organic Pollution Load)¹ of the years 2021 to 2023 was used to define the obligation brackets, in accordance with articles 6, 7 and 8 of UWWTD 2. As a reminder, the CBPO is determined by calculating the daily load of the busiest week of the year excluding unusual situations.

¹ Charge Brute de Pollution Organique

This deserves to be highlighted because it does not correspond to the nominal load of the facility (usually corresponding to a sizing of the station at a 15-25 year horizon, taking into account the developments of the sanitation agglomeration's collection area), nor to the load generated by the agglomeration, but indeed to the load actually received by the WWTP or the sanitation agglomeration.

This means that a station sized for 200,000 PE but receiving only 80,000 PE (measured CBPO) would not be subject to the obligations of the 150,000 PE threshold — at least until its actual load reaches this threshold. Conversely, some stations in tourist areas would thus be subject to high requirements related to their maximum received load, whereas on average, for most of the year, they receive pollutant loads well below.

The choice of CBPO as a classification criterion has implications beyond sizing. As INRAE has shown, the kWh/kg BOD5 ratio is strongly correlated with the station load rate: a station operating under-load consumes proportionally more energy per unit of treated pollution. For stations with high seasonal variability (coastal, tourist, mountain), the CBPO - calculated on the busiest week - can push them into a higher obligation bracket (for example > 10,000 PE), imposing tertiary or quaternary treatment requirements sized on a peak load far from current operation. This can also make it more difficult to achieve the energy neutrality objective, since the equipment is sized for a peak that represents only a fraction of the year. This point of vigilance calls for clarification of application methods by the competent authorities.

4.1. Secondary treatment (> 1,000 PE)

Of the 4,566 WWTPs concerned, **86% are already compliant** with future secondary treatment requirements. The residual effort concerns ~550 stations to be optimized (non-compliant BOD5, COD or TSS), for a cost of **€660M excl. tax** - including a share related to the lack of reliable data in Roseau.

The potential additional cost related to the transition to collective sanitation of agglomerations greater than 1,000 PE is estimated at €355M excl. tax.

4.2. Tertiary treatment - nitrogen and phosphorus

The new N (nitrogen) and Pt (Total Phosphorus) discharge standards apply to all WWTPs > 10,000 PE, including outside sensitive areas:

- **Nitrogen:** 68 WWTPs to bring into compliance → **€700 to €3,000M excl. tax** (very wide range depending on the local constraints of each site).
- **Phosphorus:** 43 WWTPs > 150,000 PE, 35 of which require work → **€460M excl. tax**.

The effort is particularly significant on large WWTPs (> 150,000 PE), some of which have no tertiary treatment and start from rejection levels very far from future standards (30-40 mg/L for a target of 8 mg/L in nitrogen).

The expected environmental benefits are significant: the reduction of nitrogen (N) and phosphorus (P) flows to water bodies is estimated at 21,537 t N/year and 1,952 t P/year, i.e., a notable improvement in the physicochemical state within the meaning of the WFD for watercourses, estuaries and coastal zones. These benefits are, however, concentrated in areas where receiving environments are actually sensitive.

4.3. Quaternary treatment - micropollutants

Quaternary treatment (80% yield on 12 target substances) is one of the most innovative obligations of UWWTD 2. The cost estimation depends heavily on the zoning of micropollutant risk areas, which remains to be defined. For the study, default assumptions were made, as rules are not yet known. The DEB has also validated a list of 70 WWTPs concerned by quaternary treatment, slightly higher than the 64 identified in the study.

Perimeter	Number of WWTPs	Estimated cost
CBPO WWTP > 150,000 PE (systematic obligation)	64	€2,440M excl. tax
CBPO Sanitation agglomeration > 10,000 PE in AEP or river bathing perimeter	119	€860M excl. tax
CBPO Sanitation agglomeration > 10,000 PE in coastal, transitional, lacustrine or groundwater area	210	€1,680M excl. tax
Total		~€5,000M excl. tax

This amount is 2.5 times higher than the European Commission's estimates, due to a finer consideration of French critical areas with the assumptions made. Additional OPEX is estimated at **~€185M/year** (mainly granular activated carbon - GAC), which is the largest operating item of the directive.

The Extended Producer Responsibility mechanism (art. 8 UWWTD 2, to be implemented before 07/31/2027) will finance at least 80% of the CAPEX and OPEX of quaternary treatment, in application of the polluter-pays principle. Micropollutant producers will contribute directly to the financing of their elimination.

4.4. Energy neutrality

The energy neutrality objective of WWTPs > 10,000 PE mobilizes three main levers:

- **Biogas production (WWTPs > 30,000 PE): ~€1,350M investment for stations not yet equipped, allowing an equivalent of 5 to 32% additional energy autonomy and a production of 0.9 to 1.8 TWh/year of energy** (depending on whether or not methanogenic primary sludge treatment is implemented on the stations) compared to a current level of energy autonomy estimated at 22% (global consumption of French stations estimated at 3.3 TWh/year).
- **Photovoltaic:** coverage of 20 to 30% of the needs of medium-sized WWTPs (10,000 to 30,000 PE) via panels installed on roofs. Beyond this capacity range, the coverage of needs will be only a few percent of the station's consumption (lack of significant roof surfaces on which to install panels). Overall, the contribution of rooftop photovoltaics to the energy neutrality objective is estimated at a value of around 9%.

- **Heat and cold recovery in treated wastewater (sewer heating/cooling):** very promising potential, which could theoretically cover up to 150% of the energy neutrality objective on existing heat and cold networks, but in practice conditioned by technical feasibility and the presence of mobilizable urban heat networks nearby.

The objective is achievable at ~65% autonomy via methanization + PV, the balance being coverable by the provided derogation (purchase of non-fossil energies, up to 35%). Net energy benefits are estimated at €214M/year (with the energy price assumptions retained). Energy optimization itself represents a cost (CAPEX and OPEX) that must be integrated into the programming. An effort for simplicity in calculating energy neutrality and in reporting procedures will be necessary to make the objective operational.

4.5. Impact on operation

Achieving the new requirements of UWWTD 2 generates recurring operating costs, estimated at €185M/year in cruise mode (excluding additional energy, offset by sobriety and efficiency gains) (i.e., €2,650M over 2028–2045). Main items:

Item	OPEX cost in M€/year (2026 base)	Challenge
Granular activated carbon (GAC) - quaternary	200	Dominant item - 80% financed by EPR
Tertiary reagents (methanol + FeCl ₃)	45	Sanitation pricing + Water Agency fees
Additional GAC sludge	35	Specialized treatment sectors
Analytical control & reporting	15	28,000 micropollutant analyses/year (COFRAC)

Carbon footprint analysis: the chemical reagents of quaternary and tertiary treatment (GAC: 135,300 to 430,500 tCO₂eq/year depending on the plant or mineral origin of the carbon + methanol 10,000 + FeCl₃ 32,000 + transport 1,645 ≈ 179,500 to 474,000 tCO₂eq/year) are to be compared with the 200,000 tCO₂eq/year saved by energy neutrality. The net GHG balance is positive with plant-based GAC (+20,000 tCO₂eq/year) but negative with mineral-based GAC (-274,000 tCO₂eq/year). Developing a GAC production and regeneration sector in France or Europe constitutes a challenge of industrial sovereignty and reduction of the carbon footprint. The rate of GAC regeneration will depend on the speed of implementation of preventive measures aimed at reducing micropollutant discharges at the source. A decarbonization strategy (bio-based or mineral-based carbon, ozonation, UV) appears essential.

SIAAP Focus

The SIAAP, whose six stations alone represent 14% of the national nominal treatment capacity, has carried out an inventory of the quality of Ile-de-France rivers in order to identify priority investment axes based on expected environmental benefit. This territorialized approach allowed prioritizing actions according to their real impact on the state of water bodies (effective reduction of N, P and micropollutant flows to receiving environments whose sensitivity is proven), rather than on regulatory compliance alone. The first results show

that the most cost-effective investments from an environmental standpoint are not necessarily those that meet the most demanding thresholds of the directive, but those that target water bodies whose state is the most degraded and whose improvement potential is the highest. A complementary territorialized cost-benefit study, expected in summer 2026, will support this approach.

Synthesis on the "treatment" component

Component	Estimated investment	Expected benefits
Secondary treatment	€660M to €1,000M excl. tax	Compliance of 550 non-compliant WWTPs (potential supplement related to the transition to collective sanitation of agglomerations > 1,000 PE)
Tertiary treatment (N + P)	€1,200 to €3,500M excl. tax	-21,500 t N/year, -1,950 t P/year → improvement of ecological state
Quaternary treatment	~€5,000M excl. tax	63% reduction of discharged toxic load by 2045
Energy neutrality	~€1,500M excl. tax	€214M/year in net energy benefits
Total treatment	~€8,400 to €11,000M excl. tax	

5. 5. Cost-Benefit Analysis (CBA)

Cost-benefit analysis constitutes a novel contribution of the study in France. It aims to compare the costs identified in the previous chapters with the expected benefits, in order to clarify the proportionality of the directive and guide transposition choices. The study tried to monetize as many benefits as possible, but some could not be.

5.1. Methodological framework

The study segmented 7 families of benefits. In order to be able to exploit the identified benefits, three complementary hypotheses were realized. These are not alternative hypotheses but measures of the robustness of the economic conclusion.

Key parameters are: a discount rate of 3.0% (France Stratégie / Quinet), a 2026–2045 horizon (19 years, extended to 2055 in prospective), a population of 69 million inhabitants.

5.2. Quantified benefits - 7 families

The benefits of UWWTD 2 are mostly diffuse, cumulative and intersectoral (environment, health, territorial economy, energy), while the costs are concentrated and sectoral. The challenge of the CBA is precisely to rebalance this reading for decision-makers. The study segmented 7 families of benefits:

Axis	Benefit family	M€/year	€/inhab/year	% of total
0	Ecosystem services - natural capital maintained	1 280	18,6	42 %
1	Health & potable water production - avoided additional costs	32	0,46	1 %
2	Energy neutrality - production and sales, net reagents	214	3,1	7 %
3	Bathing, coastline, public health - avoided damages	1 041	15,1	34 %
4	Reduction of N & P eutrophication - secured uses	371	5,4	12 %
5	Small agglomerations - local health, water intakes	20	0,29	1 %
6	Circular economy - water reuse + sludge recovery	84	1,2	3 %
Total		3 079	44,6	100 %

The two dominant items are ecosystem services (Axis 0, 42%) and coastline / bathing management (Axis 3, 34%). Environmental and public health benefits together constitute **more than three-quarters** of the total value, excluding benefits that could not be monetized on a national scale.

Points of vigilance: the INERIS value (Axis 0, range 439–1,770 M€/year) is the most sensitive parameter of the model and can alone significantly vary the Benefit / Cost ratio.

5.3. Results - 3 complementary hypotheses

The three hypotheses are not alternative but complementary: they measure the robustness of the economic conclusion under different levels of requirement regarding the calculation. Hypothesis 1 (CAPEX only) is presented as a methodological reference; Hypothesis 2 (CAPEX + OPEX) is the one we recommend; Hypothesis 3 is the strictest.

Indicator	Hypothesis 1 (without OPEX)	Hypothesis 2 (recommended* and robust) ★	Hypothesis 3 (Strict but incomplete)
Net benefits used (M€/year)	3 079	3 079	2 388
Total costs (M€/year) – high hyp. / median hyp.	2,332 (high) 1,839 (median)	2,517 (high) 2,024 (median)	2,592 (high) 2,099 (median)
Benefit / Cost Ratio (with high cost hyp.)	1,32	1,22	0,96
Benefit / Cost Ratio (with median cost hyp.)	1,67	1,52	1,20
Benefits - €/inhab/year	44,6	44,6	35,16
Costs - €/inhab/year	32.7 (high) 25.7 (median)	37.5 (high) 30.4 (median)	37.5 (high) 30.4 (median)

* Benefits that are difficult to monetize, delicate to allocate, and non-extrapolable are not included in this national evaluation. The study of benefits at the local scale is recommended. In addition, the additional cost of inaction is estimated at €100M/year minimum (additional costs for potable water production, degradation of biodiversity, tourist losses, European fines).

Hypothesis 2 is recommended due to its robustness. It incorporates OPEX and gives a B/C ratio of 1.52 (median costs) and 1.22 (high costs).

Even the strictest hypothesis (B/C = 1.14 with median costs and 0.92 with high costs) remains justifiable: the 8% margin would be largely covered by benefits not yet quantified (non-use biodiversity, chronic health, overseas benefits...).

5.4. Cost of inaction

The CBA compares the directive with its counterfactual: maintaining the regulatory status quo. The cost of inaction is estimated at **€100M/year** (range: 46–280 M€/year), distributed between European fines (€40M), tourist losses (€15M), deferred biodiversity costs (€20M), additional potable water production costs (€10M), and losses of vulnerable sectors (shellfish farming, European funds), the main source of the variation of the 46–280 M€/year range indicated previously.

5.5. Prospective 2026–2055

The prospective shows a positive scissor effect: cumulative benefits exceed cumulative costs starting from 2045 if actions are carried out without delay. In full operation, annual benefits (€44.6/inhab/year) exceed annual costs (€29/inhab/year), i.e., a net surplus of +€15.6/inhab/year.

5.6. Key bibliographic sources

The CBA relies on three main sources for the monetization of benefits:

Source	Contribution
INERIS (2020) - Cost of micropollutants	Value of avoided losses: 439–1,770 M€/year; value of clean vs treated water: €28M/year
IGEDD (2025) - Ex-ante evaluation	Validates methodologies but does not directly monetize benefits
CE SWD(2022) - Impact Assessment	EU B/C ratio = 2.82 for France; unit values N (€20/kg) and P (€68/kg)

6. Financing mechanisms

The financing of UWWTD 2 relies on three complementary sources: the price of water (user fees), public taxes and aids (Water Agencies, general budget for stormwater), and micropollutant EPR. The major contribution will remain the "water pays for water" system, but investments related to UWWTD 2 are added to the costs of maintaining the existing heritage (networks and plants): the scheduling of works and the allocation of complementary financing (especially EPR) are essential to smooth the effort. The following table summarizes the main financing channels identified by the study.

Action	UWWTD 2 costs	Core instruments	Innovative mechanisms
Urban pollution (networks, IUMP)	€12–27 billion	Sanitation tariffs, Water Agency fees	Progressive pricing, stormwater tax, equalization
Micropollutants (quaternary)	~€5 billion + €200M/year	EPR (80% min.)	Creation of an EPR, national mutualization
Tertiary N/P	€1.2–3.5 billion	Tariffs, pollution fees	Performance-based remuneration

Action	UWWTD 2 costs	Core instruments	Innovative mechanisms
Energy & climate	~€1.5 billion	ADEME aids, tariffs	Energy performance contracts
Circular economy	Water reuse + sludge	Subsidies, recovery contracts	Recovery revenues
Strict stormwater	To be defined	No sanitation financing	Complementary methods necessary

Key lever: the EPR, which must be sized in the French application texts before 07/31/2027. It adds an additional component to the financing of micropollutant treatment, in application of the polluter-pays principle.

It is necessary to provide complementary financing methods for works related to strict stormwater, currently not covered by the sanitation service. It would be appropriate to establish a circular updating that of December 12, 1978, concerning the Stormwater Service and contributions from the general budget, and to condition stormwater-related aids on compliance with general budget financing rules.

7. Recommendations for transposition

In order to reap the full expected benefits of the revised directive as soon as possible, it is necessary to plan and define the various obligations as soon as possible, to implement all the planned provisions and to refine certain evaluations.

7.1. Prioritize defining key concepts

- **Compliance with 2% collection:** clarify the calculation method (flow, volume, reference duration) - this choice alone conditions billions of euros of investment. It is a non-binding objective whose precision of several practical aspects is a source of uncertainty that penalizes programming.
- **National zoning of critical areas:** first regulatory act to be taken - it conditions the scope of IUMPs, quaternary treatment and the prioritization of investments.
- **The concept of dry weather** must be defined as a priority, in the 2% calculation method and by integrating local specificities (mountain areas, areas with strong seasonal variation). It is also appropriate to decide on the use of hydraulic models as a means complementary to self-monitoring in establishing collection compliance (PV).
- **Existing tertiary treatment:** define clearly (N/P standard in the order? current performance?).
- **Energy neutrality:** define the calculation scope and energy equivalences, as well as energy consumption indicators for existing processes (kWh/kg Pt removed) and future ones (notably kWh/m³ for quaternary treatment), in order to give project owners visibility on achieving the objective.

- **All rules ideally simultaneously** with the transposition of the directive into French law so as not to delay the launch of studies and work by local authorities.

7.2. Plan and smooth the compliance process

- **Smooth the work** to avoid the 2036 investment wall (UWWTD 1 delay, aging of the fleet, UWWTD 2 impact); plan as a priority the agglomerations not compliant with UWWTD 1 and those whose investments present the most notable environmental benefit.
- Have an **intermediate stage at 5%** on collection, prioritizing critical areas.
- **Launch studies now** on large WWTPs (> 150,000 PE) - risk of peak work 2036–2039.
- **Rely on IUMPs** as a structuring lever (20-year vision, programming by 6-year cycles). IUMPs must be an opportunity to formulate a strategic vision of the territory (de-impermeabilization plan, Nature-based solutions, rural-urban complementarities), broken down into operational and re-adjustment cycles to achieve objectives in continuity with sanitation and stormwater master plans and Water Agency contracts.
- **Require a 50-year climate projection** of rainfall for IUMP hydraulic modeling.

7.3. Consolidate knowledge and national steering

- **Complete national databases** related to collection and treatment, via collaborative work with the various stakeholders, to establish regular, pragmatic and non-time-consuming reporting, and ensure a robust basis over time.
- **Monitor real costs** via Water Agencies.
- **Implement an annual follow-up** of concerned local authorities (studies, work).
- **Make sanitation systems (networks and heritage infrastructure) reliable**; currently sparse data penalizes effective steering of transposition.

7.4. Prospective studies and CBA

- **Launch prospective studies related to benefits**: launch three to four key studies to make the Cost-Benefit Analysis (CBA) more robust: Life Cycle Analysis (LCA) of chemical reagents (including GAC), study of the attribution coefficient to UWWTD 2 on the INERIS value, validation of Nitrogen and Phosphorus N & P flows in watercourses on the NAIADES basis.
- **Carry out territorialized CBAs by watershed for the 6 water agencies, and if possible at the local level. The intervention programs of the Agencies (currently calibrated on 6-year cycles) could be reviewed to cover the duration of UWWTD 2 (2045 horizon) on the subjects it addresses.**
- **Structure CBAs as a portfolio** at 3 levels (macro-national, by obligation family, by watershed) rather than a single national CBA - to prioritize investments where risks and benefits are highest. Territorialization by watershed would notably allow better consideration of differences in uses, vulnerability of environments and local socio-economic benefits.

7.5. Points of vigilance

- **Risk of 2036–2039 work peak**: anticipate the mobilization of human and financial resources.

- **Tension on engineering skills:** cumulative needs (IUMP + collection + treatment) exceed 500 FTEs mobilized simultaneously. By way of perspective, the 2020 report on staff in the Water sector lists 6,000 FTEs in engineering service providers: UWWTD 2 would thus mobilize 8 to 9% of the sector's design office FTEs for about twenty years. Other links in the Water sector value chain should be in similar situations. For example, the increase in demand for GAC is already anticipated as a limiting factor. Attention will have to be paid to any new skills needed (or where to acquire them); poor planning would risk aggravating existing structural tensions. Financing, programming and national steering therefore appear primarily as the limiting factors.
- **Carbon footprint:** negative as it stands with the realistic assumptions taken - requires a decarbonization strategy integrated during solution choices.
- **Collection/treatment interactions:** more collection → more water in WWTP → risk of hydraulic overflow.
- **In order to reap the full benefits,** it is necessary to apply all families of provisions provided for in the directive.
- **Boost a national sanitation plan like the Water Plan or in addition,** to give local authorities and the sector an overall visibility on the largest investment cycle of the sector since the application of UWWTD 1 in the 1990s.
- **Reconnect the general public with natural water - rivers, groundwater and oceans - thanks to efficient sanitation services and easily accessible information** on the quality of environments and the impact of investments made.

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. 2^e 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.

Contact presse : Julie Ailleaume : 06 66 44 78 86 / j.ailleaume@syntec-ingenierie.fr

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.